Optimizing the Water Utility Customer Contact Center

Subject Area: Management and Customer Relations

Optimizing the Water Utility Customer Contact Center

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Optimizing the Water Utility Customer Contact Center

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FOREWORD

The Water Research Foundation (Foundation) is a nonprofit corporation that is dedicated to the implementation of a research effort to help utilities respond to regulatory requirements and traditional high-priority concerns of the industry. The research agenda is developed through a process of consultation with subscribers and drinking water professionals. Under the umbrella of a Strategic Research Plan, the Research Advisory Council prioritizes the suggested projects based upon current and future needs, applicability, and past work; the recommendations are forwarded to the Board of Trustees for final selection. The Foundation also sponsors research projects through the unsolicited proposal process; the Collaborative Research, Research Applications, and Tailored Collaboration programs; and various joint research efforts with organizations such as the U.S. Environmental Protection Agency, the U.S. Bureau of Reclamation, and the Association of California Water Agencies.

This publication is a result of one of these sponsored studies, and it is hoped that its findings will be applied in communities throughout the world. The following report serves not only as a means of communicating the results of the water industry's centralized research program but also as a tool to enlist the further support of the nonmember utilities and individuals.

Projects are managed closely from their inception to the final report by the Foundation's staff and large cadre of volunteers who willingly contribute their time and expertise. The Foundation serves a planning and management function and awards contracts to other institutions such as water utilities, universities, and engineering firms. The funding for this research effort comes primarily from the Subscription Program, through which water utilities subscribe to the research program and make an annual payment proportionate to the volume of water they deliver and consultants and manufacturers subscribe based on their annual billings. The program offers a cost-effective and fair method for funding research in the public interest.

A broad spectrum of water supply issues is addressed by the Foundation's research agenda: resources, treatment and operations, distribution and storage, water quality and analysis, toxicology, economics, and management. The ultimate purpose of the coordinated effort is to assist water suppliers to provide the highest possible quality of water economically and reliably. The true benefits are realized when the results are implemented at the utility level. The Foundation's trustees are pleased to offer this publication as a contribution toward that end.

David Rager
Chair, Board of Trustees
Water Research Foundation

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EXECUTIVE SUMMARY

OBJECTIVES, APPROACH AND RESULTS OVERVIEW

Figure ES.1 below provides a graphic overview of the research approach and lists research objectives and final report contents. The approach identified the following: 1) out-of-industry trends in contact centers (literature review); 2) the current state of water utility contact centers (structured interviews); 3) future trends and needs (utility manager interviews); and 4) current best practices (case studies). An expert workshop helped to expand on these four efforts and provided direction for the final report.

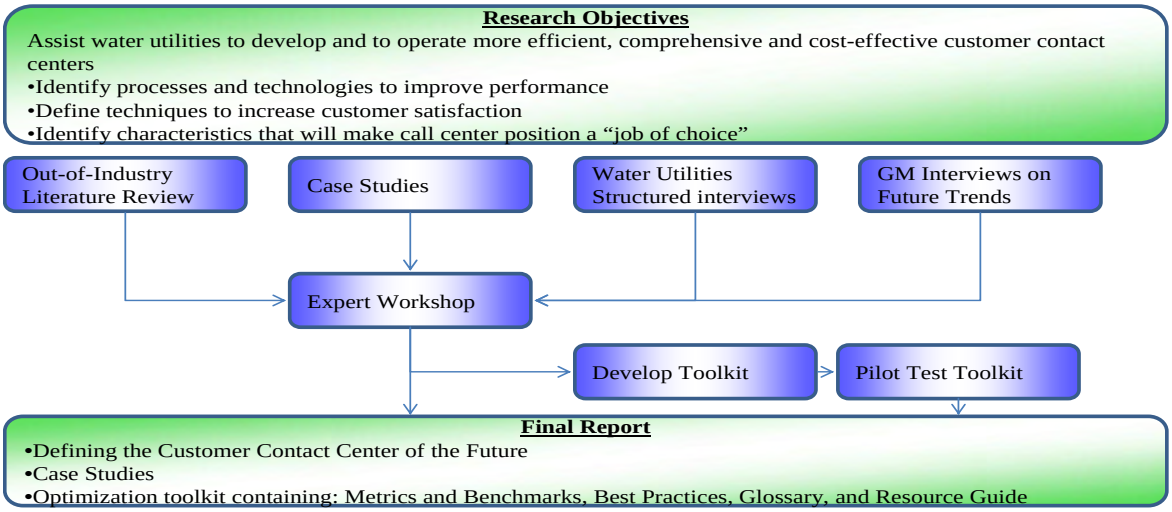

Figure ES.1 Project objectives, approach and results overview

BACKGROUND

The current business model for today's water utility customer call center is typically structured around a reactive, problem resolution mode; i.e., resolving billing and other complaints, answering questions and handling field-related issues. With the enormous advances in customer contact center technologies and heightened awareness of the importance of customer service and satisfaction, water utilities can significantly expand and optimize the call center into a utility-wide resource to raise the levels of service, promote customer satisfaction and, ultimately, reduce costs to the utility. The purpose of this project was to define and develop tools that will help utilities optimize their customer contact center. This project defines an optimized customer contact center as one that is efficient, effective and produces outcomes that support the utility's strategic plan. The results of this research effort provide utilities with a toolkit, along with supporting research, to help make the transition to an optimized customer contact center.

RESULTS/CONCLUSIONS

Table ES.1 compares and contrasts many of features of the customer contact center of today with the customer contact center of the future and presents a guide to the related discussion.

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Table ES.1. Current and Future Customer Contact Centers

Customer Contact Center of Today	Customer Contact Center of the Future	Where Discussed in the Report
Transactions are primarily voice and paper, requiring assistance from CSRs.	Focus is on self-service; less reliance on Customer Service Representatives (CSRs). Transactions are primarily electronic; voice is used only for complex matters.	• Chapter 1 • Chapter 2
Hours are roughly 9-5. Overflow or after-hours calls go to answering machine or guard.	Remote agents, cross-training and workforce management provides wider coverage. Medium to large utilities are 24 X 7.	• Chapter 1 • Chapter 2 • Appendix B: GCWW case study
Substantial number of inaccurate or estimated bills generating calls.	Accurate meter readings. Meters polled once or more daily. Suspected leaks (reading spikes) generate call to customer.	• Appendix B: DCWASA case study
Multiple, separate legacy systems. Little use of CRM software.	Integrated current technology systems or hosted solutions (cloud computing). Every contact center uses Customer Relationship Management (CRM) software to ensure inquiries lead to complaint resolution.	• Chapter 3 • Appendix A: Expert Workshop • Appendix B: Virginia Beach case study
Own and do everything, even in small utilities.	Use cloud computing and hosted solutions. Small utilities contract with nearby larger utilities to take advantage of the technologies that scale provides.	• Chapter 3 • Appendix B: PVWC & GCWW case studies
Unpredictable and wide swings in call volume.	Lower call volume. Volume swings actively managed.	• Appendix B: PVWC • Appendix D
Limited training and limited use of QA/QC techniques such as silent monitoring.	Structured training and American Water Works Association (AWWA) certificate. Substantial numbers of calls are monitored in a positive manner.	• Chapter 2 • Appendix D
Wide range of subject matter calls. The answer the customer receives depends on the CSR.	High level of self service means only complex calls go to CSRs. Uniform response through the use of Knowledge Agent software. CSRs highly supported by technology.	• Chapter 1 • Chapter 2
Fixed hard-wired workstations.	Combination of fixed and remote agents. Use of cloud computing provides resilience – all that is needed is internet connection, handset and screen.	• Chapter 3 • Appendix B: GCWW & DC WASA case studies
Significant time spent in collections.	Predictive auto dialer and adaptive methods improves yield, reduces effort. Richer range of assistance options available.	• Chapter 1 • Chapter 2 • Chapter 3
Limited use of metrics.	Business intelligence (BI) analytics makes use of the information flowing through contact center. Primary metric is First Contact Resolution (resolve problem on first call).	• Appendix A: Expert Workshop
Customer service is reactive – fix a problem after it is called in (eventually).	Combine BI and root cause analysis (why are people calling, what is the problem process?) minimize repeat calls for the same problem.	• Appendix A: Expert Workshop • Appendix D
Limited number of payment options.	Large number of payment options with focus on electronic bill presentment and payment (EBPP).	• Chapter 2 • Appendix D

Note: Terms and abbreviations are defined in the report. The characteristics presented in Table ES.1 are not all-inclusive; additional characteristics are highlighted in the report.

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Our research identified some high performing water utility call centers that currently demonstrate Best Practices in areas such as automation (AMR, self service and electronic bill payment), outsourcing (cloud computing), personnel training and management, and making use of information gained from customer interactions. Some utilities provide call center services to nearby utilities, taking advantage of economies of scale to acquire technology. Examples of these utilities are presented in the case studies.

APPLICATIONS/RECOMMENDATIONS

This final report contains both a written report and a toolkit (enclosed in a compact disc) for water utilities to use in planning for and optimizing their customer contact center. Presented in a concise format, the toolkit includes: an outline of the current state of customer contact centers, trends in customer contact centers, characteristics of the water utility customer contact center of the future, case studies, as well as best practices and processes for achieving high levels of customer satisfaction. It also contains key benchmarks and metrics for monitoring customer contact center performance; and a glossary and a resource guide.

The optimization toolkit consists of four components as illustrated in Table ES.2.

Table ES.2
Optimization Toolkit Guide

Toolkit Component	What It Contains	How the Utility Can Tailor This Toolkit	Toolkit Uses and Outcomes
Self-Assessment Tool	Goals and strategies for managing and operating the utility's customer contact center	Determine importance of goals and strategies for the utility. Estimate the extent to which the utility has implemented tools and practices	Compare how well the utility has aligned tools and practices with the importance of their strategies. Recommendations are provided to upgrade level of practices
Benchmarking Tool	Benchmarks, glossary contains benchmark definitions	Calculate/estimate the utility benchmarks. Estimate where the utility deviates from target values	This tool compares the utility's performance to benchmark values. Compare the utility's performance against the self-assessment tool. Recommendations for improving utility performances are presented
Improvement Plan Tool	What the contact center of the future will look like resource guide	Determine which trends will affect the utility	Develop an improvement plan for the water utility
Resource Guide	Detailed discussion of goal-strategy-tool approach with metrics and references to best practice lists and case studies in the Report	Provides details in self-assessment, metrics and benchmarking	Detailed reference for the tools

The toolkit contains recommendations which are size differentiated, so a utility will see different recommendations depending on whether it is a small, medium or large utility. This toolkit was tested at seven utilities ranging in size (population served) from 49,000 to 1.2 million.

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A GUIDE TO THE FINAL REPORT

This report is structured according to the outline presented in Table ES.3.

Table ES.3
Final Report Guide

Executive Summary – this section provides an overview of the project, briefly identifying project goals and objectives, summarizing key findings and presenting an introduction to the Optimization Toolkit. The attributes of high-performing water utility call centers of today are presented, along with a comparison of today's customer contact center with the customer contact center of the future.
1. Introduction – this section provides the background to the project and the project objectives and scope. The methodologies utilized in meeting research objectives are described – research, structured interviews, futures discussions, case studies, expert workshop and toolkit development and pilot testing. The results of the structured interviews are presented. The research includes out-of-industry trends in customer contact centers, focusing on automation (use of technology), workforce issues and benchmarking and performance management.
2. Methods and Materials – this section presents challenges and opportunities facing today's water utility contact centers. The challenges presented are derived from broad industry level challenges (rising costs, generational turnover, and climate change) and from the results of the structured interviews conducted with representatives of many utilities. The unique challenges presented by the growth in 311 systems (a governmental call center for non-emergency calls) are described. The opportunities for today's water utility customer contact center are drawn from best practice utilities (some of whom are the subject of case studies) and from the out-of-industry research. Opportunities are described in the areas of technology, customer information systems, supervisory control and data acquisition (SCADA), automated meter reading (AMR), workforce management and training, and business strategy development. A more detailed discussion regarding 311 systems is presented describing options for water utilities.
3. Results and Discussion – this section details future trends and how they will impact the Customer Contact Center of the Future. The utility executive's view of the future, derived from the futures interviews is presented. A more detailed discussion of technology trends – self service, social networking, cloud computing, payment options and solutions for small utilities – is presented.
4. Summary and Conclusions – this section presents the Optimization Toolkit. It describes the toolkit contents and how to use the toolkit. Comments from the pilot utilities are presented.
5. Recommendations to Utilities – this section summarizes the differences between the optimized customer contact center of the future and today's customer contact center in four major areas – the technology employed, the relationship with the customer, the workforce and the contact center's relationship with the rest of the utility. Recommendations are presented for utilities in making this transformation. Recommendations for future research are also presented.

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CHAPTER 1
INTRODUCTION

OVERVIEW

This chapter presents:

- A statement of the problem.
- Project objectives.
- The methodologies used in the research.
- A summary of the fourteen structured interviews conducted with utilities. This helps to describe the water utility customer center of today.
- A summary of out-of-industry trends in customer contact centers. Major areas covered include automation, workforce and benchmarking.
- Discussion regarding contact center technologies, workforce management and benchmarking definitions.

BACKGROUND

The typical water utility call center performs a variety of functions including the following:

- Receiving calls from customers regarding technical inquiries or complaints (taste, odor, etc.), billing complaints (billing error, wrong rate class, etc.), service inquiries or complaints (water pressure, loss of service, traffic disruptions), requests for information (e.g., when will I get my bill?) and a long list of other potential topics.
- Placing collections calls – agents are usually involved in collection activities.
- Performing dispatch functions – creating work orders to follow up on customer service transactions, as well as handling customer service emergency calls by directing field workers to field locations.
- Disseminating information – conservation messages, reverse 911 calls.

Many of today's water utilities are dealing with problems resulting from inadequacies in their technology, including difficulty in successfully integrating utility business systems at the call center:

- A combined water and sewer authority is struggling with integrating their Customer Information System ("CIS"), their Financial Information System ("FIS"), their Asset Management System ("AMS"), and their Geographic Information System ("GIS"). The authority is experiencing rapid growth and, without successfully integrating these systems, is finding that customer satisfaction levels are dropping.
- A two-county water and sewer system uses call center agents to receive emergency calls, however, due to weaknesses in both the CIS and GIS it is finding that a

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significant percentage of these calls are coming from customers of other systems outside of their service area.

The potential impact of the growth in 311 systems on water utility customer service operations is significant:

- Many governments are implementing 311 systems. A 2007 survey of municipalities with populations of 25,000 and over and all counties with an elected chief executive or Chief Administrative Officer conducted by the International City/County Managers Association ("ICMA") showed that over 40% of those responding had either implemented a centralized customer service system or are considering one (Fleming 2008). Please see ICMA and its publications for more information. For a medium to large water utility owned by a city or county there is a reasonable chance that their owner government already has considered, will consider or will implement 311.
- Some of the staff for a 311 call center will most likely be drawn from water utility call center agents. This was the case in the utilities interviewed for this study.
- A large water and sewer utility owned by a city that decided to move to a 311 system had some of their call center agents transferred to the city's 311 call center but found, since water and sewer calls required specialized agents and access to records, that the utility call volume stayed almost the same. It is also theorized that the number of calls increase in 311 cities because customers realize that positive actions will result from calling.

Water utilities themselves are beginning to encounter some major issues that will also impact the customer service department in which the call center is housed:

- Costs will be rising dramatically throughout the industry. Operation and Maintenance (O&M) expenses, after declining or remaining relatively stable during the 1990s (a result of SCADA improvements and other efficiencies), are now rising faster than inflation. Many utilities that are part of governments that did not create adequate retirement reserves are now seeing charges to their O&M to fund retirement reserves (other post employment benefits or OPEB). Capital costs which for many utilities are a large and growing portion of their budgets (as reflected in debt service and cash-financed capital) are beginning a climb that may not peak for decades. These cost increases should result in rate increases that are a multiple of inflation, resulting in greater customer attention and cost reduction pressures that will be heard in the customer service department.
- Utilities are going through a generational turnover. In addition to losing an enormous amount of knowledge, utilities are also finding that replacements, particularly those in technical and managerial positions, are difficult to find and to hire.
- Finally, the current levels of customer service continue to show room for improvement in the level of customer complaints (per the AWWA Qualserve™ Benchmarking surveys).

At the same time that water utilities are seeing these issues, the available technology keeps advancing and non-water sectors (including retail, gas and electric) are making substantial improvements in their customer contact operations.

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OBJECTIVES

The broad project goal was to "assist water utilities to develop and operate more efficient, comprehensive and cost-effective customer contact centers." Specific objectives included:

- Identifying contact center work processes and technologies that improve utility performance;
- Defining techniques that can be used to achieve higher levels of customer satisfaction; and
- Identifying call center characteristics that will make the call center position a job of choice.

SCOPE

Broadly stated, the project scope encompassed the following:

- Review current and emerging practices, processes and technologies in customer contact center operations in the water utility industry and in related customer centered service industries; and
- Identify opportunities to optimize the customer contact center as a utility-wide resource resulting in more efficient and effective utility operations and providing more responsive customer and public contact interactions.

Specific areas of focus included the following:

- State of the industry review for water utility customer contact centers to identify best practices, processes and technologies;
- Practices to integrate the contact center with other utility functions;
- Utilization of information gained from customer contacts;
- Technologies that produce improved business processes;
- Technology, human resource and cultural characteristics of the optimal customer contact center;
- Effect of demographic changes on customer contact centers in the future;
- Case studies of organizations with innovative and highly effective customer contact centers;
- Implementation strategies to optimize customer contact centers; and
- Contact center metrics to help utilities measure and optimize performance.

An important part of our research approach was the convening of an expert workshop to discuss implementation of best processes, practices and technologies of water utility customer contact centers.

The final report is intended to be a guide for water utilities to plan for and optimize their customer contact center. Key components of the report include the following:

- Compilation of best processes and practices;

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- Expected trends in customer contact centers;
- A description of the ideal water utility contact center of the future; and
- Metrics for monitoring contact center performance.

METHODOLOGIES

A wide variety of methods were utilized in conducting this research effort:

Research – A literature search was conducted to identify out-of-industry customer contact center practices. Internet searches were utilized to identify 311 case studies and trends, as well as trends in the emerging information technologies that serve customer contact centers.

Structured Interviews – In order to gain in-depth information about the current state of water utility customer contact centers, structured interviews were conducted with representatives of fourteen (14) utilities. The results of these interviews appear in several locations in this report:

- Problems and needs reported by these utilities are incorporated in Chapter 3 under Challenges Faced By Water Utility Customer Contact Centers Today;
- Metrics are reported in the Optimization Toolkit; and
- Portions of The Water Utility Customer Contact Center of Today (which follows in the next section) utilize the results of the structured interviews.

Futures Discussions – In order to gain insight into the capabilities that utility executives wanted in their customer contact centers "futures" interviews were with utility General Managers and Assistant General Managers from six (6) utilities. The results of these interviews are summarized in Chapter 3 - The Water Utility Customer Contact Center of the Future.

Case Studies – A series of case studies were conducted to highlight specific areas involved in Customer Contact Centers. Table 1.1 below identifies the utilities for which case studies were developed and the key elements in each:

Table 1.1
Case Study Utilities

Utility	Characteristics
Town of Leesburg (VA)	Small utility, fixed network AMR
Passaic Valley Water Commission (NJ)	High performing, lean budget, contract call center
Virginia Beach (VA)	Hosted solution
Dallas Water Utilities (TX)	311 Call Center
Columbus Water Works (GA)	Benchmarking and performance pay
Chesterfield County (VA)	High performing, lean budget
Greater Cincinnati Water Works (OH)	Contract call center,
DC Water and Sewer Authority (DC)	Fixed network AMR
Philadelphia Water Department (PA)	Large utility in a 311 City

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Expert Workshop – An expert workshop was convened in November 2008, hosted by the Cleveland (OH) Water Division. The 30 attendees included representatives of ten utilities, a number of customer contact center solution providers, the project team (which includes four customer contact center consultants) and developers of the AWWA CSR Certificate Program. A summary of the workshop, including all presentations, is presented as Appendix A.

Toolkit Development and Pilot Testing – By the time that the Expert Workshop was held it was clear that a key product of this research would be the Optimization Toolkit. An analysis was presented comparing the two toolkit approaches considered – the pairing of problems and solutions and a strategy-based approach referred to as the Goals-Strategy-Tools approach. The following points compare the strengths and weaknesses of each:

- Problem-solution advantages- utilities are familiar with their problems and could quickly look up their problems and find offered solutions;
- Problem-solution disadvantages - a focus only on problems might result in overlooking potentially promising approaches and, thus, result in missed opportunities to optimize customer contact centers;
- Goal-strategy-tools advantage - by using a strategy focus it should produce a more comprehensive picture for users of the report and be more likely to result in an optimized customer contact center; and
- Goal-strategy-tools disadvantages - it would be more difficult for the reader to work through and find solutions to pressing problems, a potentially important first step before proceeding to the optimization step.

The presentation facilitated a discussion of how utilities utilized Water Research Foundation studies in general and what approach would make it easier for them to extract what they needed. Attendees voted unanimously for the Goal-Strategy-Tools-Metrics framework utilized in the Toolkit. An early version of the toolkit was provided to pilot utilities for their use. Comments on the experience were collected and led to the eventual shape of the toolkit appended to this report in Appendix D. The pilot utilities ranged in population served from 49,000 to 1.2 million and included four (4) joint water and sewer agencies, three authorities and one commission. Although designed as an optimization tool, one pilot utility used components of the toolkit in developing a strategic plan for customer contact and a second utility used it as a training tool.

Verification – In addition to the pilot testing of the Toolkit, the contents of this report have been reviewed by contact center consultants that are members of our project team.

THE WATER UTILITY CUSTOMER CONTACT CENTER OF TODAY

A series of structured interviews were conducted to describe the characteristics of the water utility customer contact center of today. The following summarizes the results of those interviews.

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Structured Interview Population

Structured interviews were conducted with representatives of fourteen (14) utilities. A summary of the results is presented herein. The participating utilities have had the following characteristics:

- Eight are water only;
- Five are a combination of water and others; and
- One is an electric only.

These entities are located in different parts of the United States with four in the Western U.S., four in the Eastern U.S., and six in the Midwest. They vary in size ranging from about 49,000 accounts to over 585,000 accounts with the average being about 225,000 accounts.

Ownership and Services Provided

The utilities represent varying ownership structures and a broad range of services provided.

Ownership:

- Five are authority/commission;
- Four are a unit of city/county;
- Two are special districts;
- Two are city or county government; and
- One company is wholly owned by a city.

Services Provided

- Nine offer raw water transmission;
- Thirteen offer potable water treatment/transmission;
- Thirteen offer potable water distribution;
- Four offer wastewater collection (combined sewers);
- Seven offer wastewater collection (separated sewers);
- Seven offer wastewater treatment;
- One offers stormwater treatment;
- Two offer reclaimed water treatment;
- Four offer reclaimed/irrigation water distribution;
- One offers electric distribution;
- One offers solid waste collection; and
- One offers solid waste transfer and disposal.

Only one among the fourteen was a participant in a city/county 311 initiative.

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Table 1.2 presents a statistical summary of the technology being used or planned for by the interviewed utilities. An attempt at stratification based on served population yielded similar results to the whole.

Table 1.2
Summary of Technologies Used/Planned for in Participating Utilities

Technology Inventory	Yes	No	Developing	Pending	N/A	% of Yes
Use of SCADA	8	4	2			57%
AMR	11	2			1	79%
Use of Telephony Technology:						
IVR	9	4		1		64%
Speech recognition	3	11				21%
Virtual hold	3	11				21%
Workflow management	5	9				36%
Outbound automation	4	10				29%
System analysis	5	9				36%
VOIP	4	10				29%
Vehicle location system	4	10				29%
CIS Integration *	14					100%
GIS	9	3	2			64%
Remote agent management technologies and functions:						
VOIP	2	12				14%
Integrated database	2	12				14%
Remote access	3	11				21%
Real time support	1	13				7%
Server support	3	11				21%
Wireless technology	2	12				14%
Web capabilities:						
Online training	6	8				43%
Webcast	2	12				14%
Internal IM/ forum	2	12				14%
Real time access	5	9				36%
Contact Management Systems (part of CIS)	13	1				93%
Benchmarking Tools	8	6				57%
Customer service automation:						
Online/offsite payment	10	4				71%
Automatic direct pay	8	6				57%
Bank draft	9	5				64%
E-mail work request	5	9				36%
Credit card payment	9	5				64%
Self-Service Automation:						
Telephone and on-line Q&A support	6	8				43%
Payment	5	9				36%
Online statements	3	11				21%
Service requests	1	13				7%

* 2 utilities are known to have planned upgrades in 2008 and 2010.

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The results presented in Table 1.2 show a relatively low rate of penetration for remote agent management technologies and functions and somewhat modest use of telephony technology and web capabilities.

Table 1.3 summarizes the key issues in customer service and contact centers as reported by the utilities.

Table 1.3
Key Issues Reported by Participating Utilities

Issues Facing Utility CS Department	Yes	% of Yes	Comments
AMR and CIS integration	5	36%	
Operation management: staffing planning, emergency response, etc.	4	29%	
Outdated systems	6	43%	
Legacy/knowledge sharing	8	57%	
Agent retention/turnover	5	36%	
Training	6	43%	
Collection	2	14%	
Operating issues such as: conservation, theft, tightening of federal and state regulations, pollution, drought			3 indicated conservation and drought, 3 indicated water theft, 2 indicated water quality, and 2 indicated regulations and rate structures
Other			3 utilities commented on other issues as follows: 1. handling after-hour calls, 2. maintaining service level during peak hours, and 3. motivating people during technology changes.

Service Level Targets	Yes	% of Yes	Comments
Is there a customer service strategic plan?	7	50%	
Are the customer service reps evaluated and, if so, how is the evaluation performed?	8	57%	4 indicated by monthly statistics, 1 indicated by weekly statistics, 1 indicated by phone monitoring and annual appraisal, 1 indicated by quarterly statistics, and 1 indicated via 6 categories including complaints, manner, tone, etc.

(continued)

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Table 1.3
Key Issues Reported by Participating Utilities (Continued)

Other Issues	Comments
What are the tradeoffs in investment between customer contact center and the other departments?	No particular emphasis or de-emphasis of CS: 2 indicated that engineering gets the lion's share, 4 indicated that CS has to compete with the other departments for investment fundings, 1 indicated that CS gets adequate funding, and 3 indicated that the CS will obtain a fair share of funding if they present a good business case.

Most pressing customer service problem

- How to implement customer self service and to use kiosk technology;
- Being asked by regulators to grant more payment extensions;
- How to measure First Call Resolution (FCR) and implement changes to improve the targeted rate of success;
- Implement credit card usage for customers;
- How to maintain service levels during peak call volume periods;
- How to handle after hour calls and give an equal grade of service;
- How to cut down on billing question calls, currently half of the total in some cases;
- Benchmarking needs a consensus of definitions to make data more usable; and
- Need a business case for working at home – remote agents.

Market changes in the past year

- Customer growth has slowed due to the slowdown in the economy;
- Decreased usage especially in the commercial/industrial category;
- Increased cost of materials and labor, decreased usage, regulators uneasy about increasing rates; and
- Economy forcing utility managers to look for other revenue streams; billing for other entities (makes up 70% of total revenues - 1 utility).

OUT-OF-INDUSTRY TRENDS IN CUSTOMER CONTACT CENTERS

A literature review was performed which looked primarily at out-of-industry practices which the project team then compared to water utility practices. The research identified three major areas of focus for out-of-industry contact centers which contrast with water industry practices:

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- ***Automation*** **–** Out-of-industry customer contact centers appear to focus on the use of automation to achieve the following:
  - Reducing call time;
  - Providing self-service options (web and IVR);
  - Reducing agent workload (by stressing self service and by minimizing agent workload in look ups and screen navigation);
  - Improving call center scheduling (through predictive modeling); and
  - Improving and expanding service to customers**.**
- ***Workforce*** – The out-of-industry focus is on opportunities for homeshoring (working from home), also known as remote agents, and on agent retention. Companies report that homeshoring reduces costs (lower overhead and labor costs), provides high performance levels and produces higher retention rates. Companies also find this to be an opportunity for disabled workers. Homeshoring appears to be little used in the water utility industry and is reported to pose contractual questions in utilities with collective bargaining agreements.
- ***Benchmarking*** – Other industries rely heavily on benchmarks and metrics to track and improve performance. The most important out-of-industry metric is *First Call Resolution (FCR);* i.e., resolve the problem on the first call. With the exception of one utility that advised that it is tracking First Call Resolution and a second utility that tracks repeat calls for the same problem, this parameter appears to be little used in the water industry.

Each of the three areas of focus is discussed in more detail in the following sections.

Automation

Some of the latest developments in technologies that facilitate further automation of the customer contact centers' functions are listed below. More detailed discussion of the application of these technologies and case studies are provided in the sections that follow.

Interactive voice response (IVR): Common in many companies today, IVR is a software application that accepts a combination of voice telephone input and touch-tone keypad selection. It provides pre-recorded voice responses for appropriate situations and access to relevant data. These applications also can hand off the call to a human being, who can view data related to the caller at a display.

Speech recognition: This technology nestled in IVR systems allows callers to say the word and have the system respond. The attraction is speed; rather than waiting for a pre-recorded set of menu options, speech recognition enables callers to access the information they seek more quickly. Some applications can sense angry tones of voice or automatically connect the caller to a live agent if the caller mentions certain words or a competitor by name. After some early problems, the technology has made great strides. Research indicates that speech-recognition calls are significantly faster and more satisfying (to customers) than touch-tone calls.

Virtual hold: Enables the caller to key in a phone number and hang up. The phone system will call the customer back as soon as she/he comes up in the queue. This reduces (actually redefines) call waiting times and abandoned call rates.

Voice over Internet protocol (VoIP): This function uses the Internet instead of telephone lines and switches to route calls. In addition to disaster recovery and overflow benefits, VoIP

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offers more flexibility, higher speed, and reduced cost. It also serves as a foundation upon which workflow applications are based.

Workflow software: Automates the process of routing the calls to the contact center and individual Customer Service Representative (CSR) who is best suited to resolve the problem.

Scheduling software*:* Automates the scheduling of call center agents to help increase the center's effectiveness and efficiency in addressing calls based on call volumes, individual skills, and other factors.

Knowledge management software*:* Gives CSRs the information they need to answer questions. The preference is to access the information the customer needs to achieve a first-call resolution. If that is not possible, these tools can help representatives locate the information so that they can get back to the customer as quickly as possible with the right answers.

Outbound automation*:* Facilitates pre-recorded messages being sent to customers. New applications are combined with IVR technology so that a reminder to pay a bill, for example, may accompany the option of pressing or saying "1" to connect to a CSR (or another area) to pay the bill. Utilities can apply the technology used in the marketing functions of other industries to send communications and messages regarding billing, credit, and collections.

Vehicle location systems*:* Allows dispatch centers to identify the service vehicle closest to a service request or emergency.

Automation to Reduce Incoming Call Volumes and Times (Krell 2006)

In recent years, the surge of new software applications, processes, and skills have poured into call centers to help improve customer satisfaction and reduce costs. The challenge is finding ways to utilize this influx of innovations to drive process improvements. "The best thing you can do is eliminate the need to call," says Ellen Krohne, director of outsourcing services with Capgemini and a former vice president of customer care with Illinois Power. "That is even more satisfying than a good call." Calls that cannot be eliminated are routed according to the caller's need: questions that can be answered through self-service go to IVR systems or Web portals; thornier issues go (as quickly as possible) to the CSR who is best qualified to resolve the challenge.

Online Billing (Electronic Bill Presentment and Payment –EBPP) (Krell 2006)

The most common billing advancements include the move to online bills. DataSource 2005 reports that while 85-percent of surveyed energy companies offer internet billing, only 3 million customers opted for internet billing (about double of the number of customers reported in 2004). Many local jurisdictions in the U.S. still require paper bills. Some companies such as Kansas City Power and Light (KCPL) and Duke Energy have lobbied for regulators to change the requirement. As a result, the percentage of customer households with Internet access who enrolled in Kansas City Power and Light’s (KCPL's) Web portal service increased significantly: about 21-percent of KCPL households with Internet access have enrolled in the company's Web portal service. KCPL’s website ranked second best out of the 105 gas and electric companies rated in a 2005 E Source/Plaits study. More customers who use the online offering have opted out of paper-based bills entirely, reducing costs to the utility.

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Automation-Aided Collection (Krell 2006)

Energy companies are becoming more adept in applying data mining techniques to customize their collections tactics by focusing on the customer life cycle and making better use of credit scoring and behavioral scoring. Behavioral scoring considers a customer's payment history; the sophistication lies in pinpointing the timing and nature of the payment history. The idea is to maximize revenue from both active and inactive customers by using relevant customer information in the collection process. Companies that do not collect until a customer is delinquent or written off entirely tend to experience higher "net write-off as a percent of revenue" figures than their competitors. NSTAR, the largest electric and gas utility based in Massachusetts, has identified more than 20 collection tactics. Examples of the tactics include providing energy assistance outreach with current accounts, selling active receivables at the optimum point in the credit life cycle for debt selling, define measures to monitor bad-debt write-offs, assigning a dedicated credit team to delinquent accounts, and hiring collections agencies to pursue "finaled" accounts to minimize bad debt. NSTAR deployed these tactics between years 2002 and 2005 and was able to reduce the amount of write-offs by 40-percent. DSO (day sales outstanding) also declined by 10-percent during that same period. NSTAR also uses behavioral scoring – making judgments on actions based on past payment history and credit score – to determine the type of action to take.

Some other collection actions taken by companies include:

- Using Robo-calling devices to contact delinquent customers to remind them to pay the outstanding balance or risk cutoff and penalties;
- Robo-calling combined with IVR (or agent) to make payment or discuss payment immediately after the call;
- Applying liens to property, where appropriate and legal, to recover unpaid bill amounts;
- Placing pay station devices in such locations as grocery stores, service stations, etc. to make it easy for just-in-time payments;
- Using software to determine the best time to call (based on past history) to reach a customer; and
- Using Business Intelligence analytics to improve collections yield.

Automatic Meter Reading (AMR) (Burr 2007)

AMR sometimes referred to as smart-grid in the power industry, began as an effort to reduce metering costs and deploy time-of-use (TOU) rates for customer classes. However, the smart-grid vision is quickly evolving to transform the relationship between utilities and customers as utilities learn and discover more application of the technology. "The call centers of the past were just call takers," according to Joseph Thomas, associate vice president and general manager of client fulfillment at United Illuminating in New Haven, Connecticut. "Now they have more information to do analytics, and they are becoming advisers and consultants to the customer."

Some of the potential applications of AMR are possible with smart meters and distribution-automation technology. Examples include:

- Time-of-use billing;

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- Demand-responsive pricing;
- Remote connect and disconnect functions;
- More efficient asset-management and work processes;
- Real-time diagnostics and customer assistance; and
- Theft-detection.

While smart-grid offers great promise to the call centers of the future, integrating smart-grid data into contact centers' back-office processes is not easy. Utilities will need to modify their CIS, outage-management systems (OMS), network operations and asset management to various degrees depending on the state of their systems and type of middleware they are using to manage the new data. In most cases the application that manages smart-grid data for utility CIS is some form of meter-data management (MDM) system. How it works depends on the specific metering system involved and the functions required. For example, United Illuminating's metering vendor hosts the MDM and provides meter data to the utility's back-office systems sponsored by various vendors.

Workforce

Workload scheduling

A Colorado-based healthcare provider employs a successful work-at-home program. Its at-home agents are allowing the company greater staffing flexibility. A significant percentage of its at-home agents voluntarily work split schedules. The company shifts agent hours from overstaffed times to understaffed times. In addition, the company employs workforce management software which allows users access to schedules and performance statistics via a Web browser. Agents can see where staff is needed based on forecasted call volume and schedules are set accordingly.

Homeshoring (Remote agents)

Companies are always looking for ways to deliver quality customer service more effectively while at the same time minimizing the costs of service. Traditional wisdom suggests outsourcing call center operations to lower-wage agents overseas. However, that trend is changing. Fueled by the surge of new technology such as VoIP, wireless and computer telephony integration (CTI) technologies, companies are able to equip and manage at-home agent workers domestically.

Traditional customer call centers often are challenged to find more productive agents, achieve high retention rates, and cope with call volume fluctuations. A homeshoring strategy helps to address these and other challenges due to the following advantages:

- ***Cost saving**:* Many expenses such as facilities, equipment and utilities can be lowered since at-home agents provide their own workspace, equipment and broadband access. In addition, many at-home agents work as contract workers, thus reducing the need to provide employee benefits. VoIP also helps to significantly lower the cost of routing calls from the call center to a home office so that it is no more expensive than routing calls to a desk in the call center.

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- ***Expanded reach of the potential workforce:*** Call centers' recruitment efforts traditionally have been restricted to a workforce that had to be both available to work full-time outside their homes and living within a commutable distance to the call centers. Allowing the flexibility of working from home helps the company to tap into an underutilized workforce.
- ***Better educated and more motivated agents:*** According to Gartner Inc., 70-percent to 80-percent of home-based agents have a college degree or higher, compared with 30-percent to 40-percent of full-time customer service representatives in traditional call centers. (Frase-Blunt 2007)
- ***Improved retention rate:*** At-home agents tend to stay with the firm longer and are happier. PHH Arval, a national fleet management and leasing company, has observed a turnover rate of about 15-percent to 18-percent for its office-based call agents and negligible turnover rate (one in twelve years) for its home-based call agents. (Frase-Blunt 2007)
- ***Easy recruitment effort:*** Traditional call center vacancies are difficult to fill. Companies offering the ability to work from home are able to lure more-seasoned and qualified candidates into these hard-to-fill positions.
- ***More effective workforce management:*** At-home agents have more flexibility to accommodate both peak call volume times and emergencies. A geographically diverse workforce also makes it easier to maintain the targeted staffing levels round-the-clock.

Benchmarking

Rising prices, growing technological capabilities and the popularity of independent customer satisfaction surveys all helped to propel customer management strategy into the spotlight. Many shareholder-owned utilities are making their customer-care functions more transparent. A more integrated approach to customer service is needed to strive for both service improvements and efficiency gains. It is becoming easier and more critical for companies to benchmark themselves to their competitors, industry, and across industries.

There are no perfect or one-size-fits-all metrics that measure customer contact center performances. The key metrics presented below are commonly regarded as critical to monitor in order to achieve customer satisfaction. It is important to keep in mind the utility's specific objective and its target service level response time when utilizing these metrics. It is also advised that too much emphasis on quantitative data may lead to shortcomings in service quality. Metrics help to effectively manage customer contact service centers as well as to provide a means to benchmark against other in- and out-of-industry companies.

Availability

Agent availability measures the actual amount of time the customer service representative spends on helping customers or is available to do so during his or her shift assigned to such tasks.

In recent years the availability metric has been favored over other productivity metrics such as average handle time and calls-per-hour. The reason is that the metric measures productivity based on what agents can control. The risk of focusing too much on availability may leave employees feeling micro-managed and too constrained to the measurement.

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Forecast Accuracy

This measurement considers forecasting accuracy for the number of inbound customer contacts. Overestimating inbound contacts leads to idle time and increases personnel costs. Underestimating inbound contacts leads to increased toll-free costs, deteriorating employee morale and heightened customer frustration.

Forecasted call load is available from the system used for forecasting (e.g., the center's workforce management system or spreadsheets), while actual call load is tracked by the automated call director, workforce management system, e-mail response management system, Web servers, etc., – wherever data is available. Forecasting accuracy should not be reported as a summary of forecasted versus actual contacts across a day, week or month, but rather as an illustration of accuracy for each reporting interval, typically in half-hours.

Self-Service

Many contact centers use surveys immediately after an interaction has occurred to gauge the quality of their self-service systems. Some centers have invested in tools that record customer interactions with IVR systems and websites in order to spot any system glitches that may hinder the customer experience.

Customer Satisfaction

Measuring customer satisfaction levels in a timely fashion helps to increase customer loyalty, revenues and employee morale and performance. It also helps to provide the company with immediate feedback and to discover potential shortcomings before they escalate.

The trend in assessing customer satisfaction is via IVR-based post-call surveys (often computer-aided telephone system but may also be through e-mail or an online popup) immediately following the interaction. Advanced IVR survey applications can be programmed to recognize abnormalities and alert designated teams with complete information on the interaction and the customer’s identity.

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CHAPTER 2
TODAY'S CUSTOMER CONTACT CENTERS: CHALLENGES AND OPPORTUNITIES

OVERVIEW

This chapter includes:

- A discussion of industry-wide challenges that affect water utility customer contact centers.
- A discussion of specific challenges as reported by the utilities with whom the research team conducted structured interviews.
- A discussion of the challenges experienced when a city or county implements 311.
- A discussion of the opportunities available to utilities by the following topic areas:
  - Learning from best practice utilities (process benchmarking);
  - Technology;
  - Customer information systems;
  - SCADA;
  - AMR;
  - Workforce; and
  - Business strategy.

A detailed discussion of 311 including the guidance provided to cities and counties.

CHALLENGES

Water utilities are under tremendous pressure on several fronts. Water quality regulations and security measures are requiring major capital investments. Meanwhile, population shifts are putting strains on utilities. In rapidly growing areas, demands for new sources of water supply and expanded infrastructure require additional capital investment. For older utilities, aging infrastructure requires capital to repair, rehabilitate and replace infrastructure, while customer demands for water are usually stable or declining with a resulting adverse effect on available revenues. Advances in technology and expectations are revolutionizing customer service and the way service providers across multiple industries interact with their customers. Water utilities are under pressure to reduce cost and streamline services but cannot ignore customer expectations of better and increased service based on their interactions with other service providers.

Customer contact centers will be pivotal in shaping the relationship between water utilities and their customers. The customer contact centers of the future will be the hub of incoming and outgoing communications in the typical water utility. Centers will receive and convey information to customers, process an enormous amount of information and become a key element in utility efforts to achieve high levels of customer satisfaction. Industry trends also indicate that customer contact centers will have the ability to collect massive volumes of information about customers, seamlessly outsource many components of the service function, provide multiple service delivery channels for service, and provide customized service. An illustration of potential and typical call center functions is presented in Figure 2.1 below.

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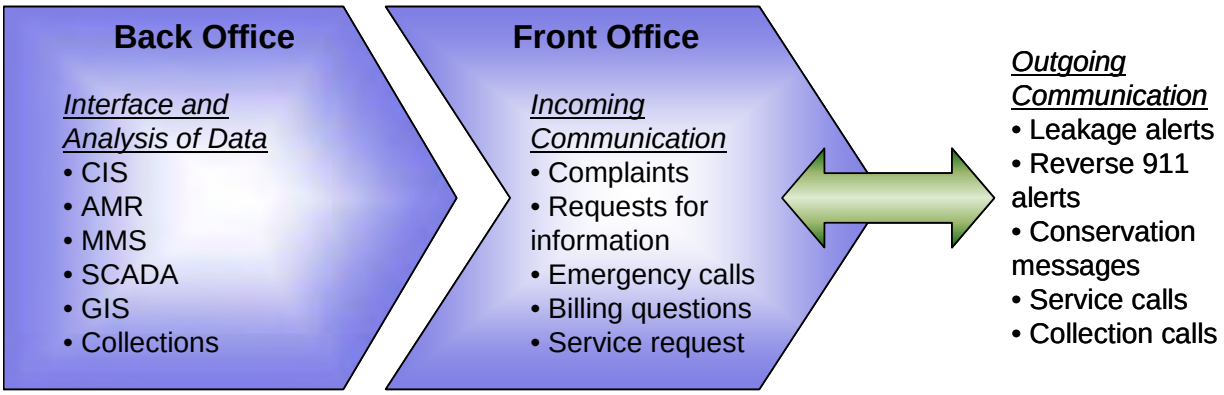

Figure 2.1 – Potential and Typical Water Utility Call Center Functions

The water utility sector is facing an interesting mix of broad challenges as outlined below.

- ***Rising costs*** – Capital costs are increasing due to regulatory requirements, the need to replace aging infrastructure and foreign competition for materials of construction, all of which are driving prices up. Increasing costs for chemicals, pension contribution and health care costs are driving changes in operating expenses.
- ***Rising rates*** – The average increase in water and sewer rates of major U.S. cities has exceeded 8% annually over the last three years, well above the annual rate of inflation.
- ***Generational turnover*** – Between 2005 and 2015, water utilities expect a 50% turnover due to retirements and normal attrition.
- ***Climate change*** – Water Research Foundation-funded studies of climate change predict that higher global temperatures will produce wider climatic swings producing longer droughts and more intense periods of rainfall. For some utilities, these changes will affect their water supply source.

Within the utility, customer service departments have tended to be relatively underfunded, including difficulties in funding technology improvements resulting in their being saddled with legacy, non-integrated (and sometimes incompatible) systems. Unlike the remainder of the utility, which provides a monopoly service and whose activities are difficult for most customers to appreciate or understand, customer service departments can be easily compared with private sector customer service departments. Many private sector firms live or die on the quality of their customer service.

Challenges As Seen By Utilities

As part of our structured interviews we asked utilities to identify their challenges and some of their most pressing customer service problems. We approached the broad area of challenges by asking different questions. When we asked about market changes they had observed, the answers referred to utility-level challenges:

- Growth has slowed due to the economy;

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- We are experiencing decreased usage especially in the commercial and industrial sectors (some of the individual utilities we spoke to reported annual demand declines in excess of 6% within recent years);
- We are experiencing higher cost of materials and labor;
- Elected officials or regulators are uneasy about increasing rates; and
- The economy is forcing utilities to look for other revenue streams.

When asked about issues facing the customer service department, the responses focused on systems and personnel:

- Outdated technology (43% of respondents);
- Difficulty in integrating automated systems (particularly AMR and CIS) – 36% of respondents;
- Legacy/knowledge sharing (indicative of succession and knowledge management problems) – 57% of respondents;
- Training – 43%; and
- Some other responses reflected utility level problems – water supply issues, conservation, tightening of Federal and state regulations, pollution, drought, theft of service – many of these issues become topics for customer comments.

The Challenge Presented by 311

Water utilities owned by governments who elect to implement 311 systems have found or will find that their relationship with their customers changes. As defined in the International City /County Management Association (ICMA) document "Call 311: Connecting Citizens to Local Government Case Study Series" (Fleming 2008):

> "Non-emergency 311 service is a local telephone exchange communications service that allows telephone customers to reach non-emergency local government services by dialing an abbreviated telephone number."

There are many reasons why cities and counties are implementing 311 systems:

- To reduce the volume of 911 (emergency) calls;
- To improve service delivery and change the customer service culture of the local government agencies that provide customer service; and
- To achieve economies of scale (as opposed to having separate call centers in each department) in acquiring upgraded telephony and CRM systems.

It is important to understand that the decision to implement 311 is one made by elected officials or appointed administrators acting for the utility owner (if the utility is a department or other agency of the government). The reason to implement 311 usually reflects a desire to improve other governmental department's responsiveness and, typically, has little to do with water utility call center performance. However, implementation of 311 means that another call center will be receiving calls from water utility customers. The extent to which the utility's

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relationship with their customers changes is a function of the model selected for the 311 call center.

A survey of municipalities with populations of 25,000 and over and all counties with a chief elected executive or Chief Administrative Officer conducted by ICMA in 2007 showed that 42% of those responding (overall survey response rate was 31%) had either implemented a centralized customer service system (15%) or are considering one (27%) (Fleming 2008). Although water utilities were not specifically identified in the survey, 95% of respondents identifying which departments are integrated into their systems named public works. It is safe to assume that the number of 311 systems will be increasing and that they will have an impact on the water utilities in those governments that implement 311.

Our limited research did not identify a situation where poor customer service by the water utility was cited as a primary factor in creating 311. Many 311 call centers are well stocked with technology, such as Citizen Relationship Management software, communications and telephony systems that are a significant improvement over what the water utility contact center had been employing.

However, once a 311 call center is created, a non-utility call center now stands between the customer and the utility for incoming calls. Although most 311 call centers are staffed with water utility CSRs (along with those of other agencies), the 311 call center is not a water utility call center and may operate quite differently in its approach to problem resolution.

There are a variety of 311 models. At one end of the spectrum is the Dallas 311 system (which is a case study presented in Appendix B). Part of the staffing for the Dallas 311 system consists of water utility specialists who receive all of the calls related to the water utility. At the other end of the spectrum, and a much more common model, is that of the 311 center as a generator of work orders which are passed on to the individual agencies (referred by some as the "triage" approach). One outcome from such a model is that the customer's reason for calling will not be resolved during the call itself but will be resolved upon completion of the work order at a later date. If the water utility's previous approach had been to try to resolve problems during the call, one can understand how this new approach of the 311 call center might be viewed by water customers as more distant and time-consuming.

With a few exceptions, the implementation of 311 has been deemed a success by implementing governments. However, many water utilities we spoke with described some concerns including:

- Call volumes have not been reduced commensurate with the number of former water utility agents diverted to the 311 call center; and
- Most 311 systems are not designed to solve problems during the call for customers who have become accustomed to getting some degree of resolution during the call. The result is unhappy customers who end up contacting the water utility anyway.

The use of 311 will be expanding, so the challenge for water utilities will be to learn how to successfully work with these systems. The answers to this challenge include getting involved in the development of 311, working to expand self-service options for customers and working to reduce the volume of incoming calls. Other strategies are presented in the 311 Best Practices in the Optimization Toolkit.

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OPPORTUNITIES

Learning from Best Practice Utilities

Representatives of the AWWA Qualserve™ program have been conducting regional meetings that are designed to let utilities that perform well in some of the Qualserve™ metrics convey their best practices to other regional utilities. At a recent meeting of the Southeast group, high scorer Columbus Water Works (one of our participating utilities and a case study utility) identified the elements of their Customer Service operation:

- Automation:
  - IVR info and payment (pay delay);
  - Web info and payment, bank draft, e-mail work order requests;
  - Automated Call Distribution (visual display of number of calls on hold);
  - Phone system analysis capability (length of call, time on hold, abandoned calls, etc.);
  - Voice mail option to holding;
  - Off-site payment (banks and payment service);
  - Mail extraction and payment processing machine;
  - Check conversion to electronic processing; and
  - Remote/cordless telephone technology.
- Workforce
  - Web-based training;
  - Cross-training with operational departments;
  - Flex time staggered schedules;
  - Empowered employees;
  - Recognition/rewards;
  - Well-defined, written process manual; and
  - Friendly but strict customer requirements.
- Business Strategy – selective outsourcing
  - Outsourced answering service for peak hours (automatic roll-over); and
  - Outsourced collection of delinquent bills and/or bad checks.

There are many other high-performing utilities in the area of customer service, some of which are documented in the case studies in Appendix B.

As part of the Water Research Foundation study "Best Practices for a Continually Improving Customer Responsive Organization," Olstein, Stanford and Day (2001) identified call center and customer service best practices outside of the water utility industry in such areas as catalog operations, airline reservations, and in-house computer help desks. Examples of these out-of-industry best practices include the following:

- At the beginning of the day, agents meet to discuss the most likely complaints and agree on best responses;
- Multiple inbound lines are available so that the number of rings to pick up is less than four. In the workshops performed, calls to out-of-industry call centers were picked up before an audible ring;

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- Full customer information is on the screen before an agent picks up the call;
- Patterns of incoming calls are tracked and predictive modeling is used to achieve maximum agent coverage at minimum staffing levels; and
- Software allows the agent to take care of all post-call work so that after hang-up there is no after-call work time.

Since the time of that study, some of these practices have migrated to water utilities, improving call center operation.

Technology

There are few aspects of water utility operations where the potential for improving the use of technology is greater than in customer service. As technology evolves rapidly, there is increasing pressure to adopt and incorporate new technologies into customer contact center applications and processes. In the previous chapter, we described technologies being used by out-of-industry call centers. Some examples of these technologies are provided below.

Call Center Technology

Voice recognition (VR) software is replacing the process of pressing buttons on the phone. Touch tone systems are notorious for their complex menus and tedious routing. The more one tries to automate customer service processes, the more complex the touch tone menu becomes. Effective voice conversations and transactions can be conducted between the customer and the computer without customer service agent intervention. Speech recognition through technology is much better these days, in terms of high completion rate, accuracy, and large vocabulary. Moreover, VoiceXML protocol and speech analytics in new VR software are capable of recognizing various words and phrases as well as certain human emotions, including irritation, duplicity and delight. If the customer is getting emotional, the VR system can decide to route the call to an agent. The identification of customers can be verified using voice patterns that are filed with each customer's record.

Customers of organizations both within and outside of the water industry want the following features in an automated system: efficiency, speed, accuracy, convenience, a system that is easy to understand, and a friendly interaction. VR can provide all but the last of these. Moreover, a speech recognition port is 15-20 times less expensive than a customer service representative.

Since computer memory is increasingly inexpensive, calls can be digitally recorded and saved in the customer's file along with the computer screens that the agent viewed and what information he or she entered during the call. All of this data can be recalled for quality control and use in customer disputes.

Telephone systems that support customer service operations are rapidly evolving. Current offerings widely incorporate voice over internet protocol (VoIP), which enables the simultaneous transfer of information as well as voice, and treats voice as data. VoIP and session initiation protocol (SIP) enable a customer service representative sitting down the street from the customer service manager to be almost indistinguishable from one sitting down the hall. When the call is routed to the agent, the customer's account information appears on his or her computer screen.

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Call-back queuing, in which the customer is provided the option to key in their telephone number and hang up, will reduce and redefine call waiting times and abandon rates. Features like these will trickle down from the largest, most progressive customer service operations to the "average" or small installation as the technology is perfected and costs are reduced. Vendors are focusing on reducing the complexity of application development and integration.

Web-based Support

The water utility can provide opportunities for customers to accomplish a variety of tasks over the Internet: to see their consumption as well as current and past bills, to make payments on-line, to schedule service, and to obtain tailored information about conservation. Overall, customers will have the opportunity to contact a service provider across a wider variety of channels. The challenge is to provide consistency across all touch points.

Billing and Payments

As the cash and check-writing generation gives way to a primarily and perpetually on-line generation, bills will be delivered to any electronic device at the customer's disposal, such as a mobile phone or personal digital assistant (PDA). Simple responses will enable bill payment from the customer's source of funds.

A more detailed look at CIS, SCADA and AMR systems is provided in the following subsections.

Customer Information Systems (CIS)

Traditional billing systems are now incorporating CRM approaches, enabling utilities to tailor services to individual customers. CRM systems can use all of the information about the customer, including linked information from other municipal systems, to enhance service. Does the customer have children in high school, for example? Then the water utility can tailor conservation messages to the appropriate age groups.

It was not long ago that the CIS had to be shut down to run billings or to produce reports. Customer service representatives used "green screen" technology along with a multitude of codes for navigating throughout the system. Over the past number of years the introduction of the graphical user interface (GUI) front ends replaced the "green screens." The customer service representatives now have more information at their fingertips. However, the new additional information comes with a price. The newer systems often take longer to display the information which results in longer telephone calls. Processes often require several screens to complete transactions compared to the old system where a single screen was all that was needed.

Now, most systems will allow bills to be produced and reports to be run while the system is fully functional. The new CIS will also enable the customer to perform some of the tasks that previously required a call to be placed to the call center. Customers will be allowed to view their actual bills, make payments, schedule service orders, check balances, view next reading dates, etc. as noted above under web-based support.

As the new systems continue to take advantage of the newer Web technology, even more functions and features will become available for the customer. Some of the features will include:

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setting up payment arrangements and budget billings; ordering new fixtures, appliances or services; and viewing usage trends.

Optimizing the performance of call centers requires that the customer service representatives be provided with the information they need in a minimal amount of time and effort. Many utilities report that the availability of accurate and more detailed consumption information from AMR enables customer service representatives to resolve billing issues on the phone without having to dispatch field service representatives. New systems will track more information about the customers and their usage trends. The new systems will also enable the utility to target new customers and opportunities to expand the services they provide. Time-of-day billing for water usage is a technique that will become possible with the new meter reading technology in conjunction with the new CIS. Some additional trends include linking GIS and interactive voice response (IVR) to enable customer service representatives to select customers impacted by water main breaks and feed the IVR with the data to perform outbound calls to the customers to warn them of service interruptions, boil water alerts or other notices. Linking the GIS with the CIS and Work Management will allow the utilities to identify water main leaks based on water pressure or quality complaints within an area. This activity, combined with the meter-reading technology for early leak detections, will provide the call centers with critical information to handle customer calls and to dispatch field workers on a timely basis to address the problems.

As more advances are made in other areas of the utility, the CIS will continue to be integrated with other operational systems and continue to grow as the main customer information repository.

Supervisory Control And Data Acquisition (SCADA)

Through the expanding integration of technology and advances in networks and communications capabilities, it is envisioned that future customer contact centers will utilize the existing and prospective data collecting and reporting abilities provided by water utility's SCADA system.

For example, authorized contact center personnel will be able to access secure information from the SCADA system to quickly dispatch field service personnel to address maintenance issues as they are reported in real-time. Authorized personnel can thereby reassure customers inquiring about service disruption and improve response times. Similarly, as SCADA system operators respond to certain predefined environmental conditions (such as floods or high water demand during dry or hot weather), contact center personnel could issue boil water or water conservation advisories as the situation warrants.

SCADA systems offer trend analysis and historical (archival) abilities which can provide customer contact center personnel with information to better respond to inquiries and issues. Increasingly, SCADA systems are being linked with analytical modeling tools to create suggested alternatives and predictive response scenarios. Authorized personnel could issue appropriate levels of water-quality alerts to the public based on inputs and trends reported by the SCADA system's water quality monitoring equipment, according to guidelines established in communications protocols.

In emergency situations, where alerts are triggered by SCADA information received by the customer contact center, authorized personnel could initiate "reverse 911 calls" and post Web notifications to advise customers of safety advisories and procedures.

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In short, the data mining and analysis enabled by SCADA system-furnished intelligence facilitates decision-making to an extent not achievable before. Customer contact center personnel will use this capability to provide immediate customer directives and responses as needed.

Beyond the jurisdiction of a single water utility, a given customer contact center could be linked to other regional networks, such as the WaterISAC, other public utilities, county emergency response organizations, and law enforcement agencies to more fully coordinate effective responses to alerts and alarms.

Automated Meter Reading (AMR)

AMR, depending on the technology used, can identify excessive use situations, permit seasonal, drought and time-of-day pricing, and have other uses in demand management.

The radio transmitters that currently deliver meter readings from about 25% of all the meters in the US and Canada are gradually being transformed into "mini remote terminal units." Each will be capable of transmitting information on leaks, both on the customers' premises and in the distribution system, and eventually they will allow for the capturing and transmission of basic water quality data. Detailed information on consumption as well as potential leaks will be available directly to the customer.

Workforce

Utilities are having more trouble finding, retaining and incentivizing customer service employees. A limited supply of qualified workers will raise personnel costs and may force some employers to operate with insufficient levels of staffing. A tight employment market and changing social values will motivate more people to change jobs, often responding to attractive incentives. Employers without competitive packages will suffer high attrition rates. Rather than take preventive measures, water utilities tend to react slowly to these situations.

Meanwhile, water utilities need a steady supply of knowledgeable, experienced and reliable workers. Water utilities will likely begin to emphasize retention and hiring of older workers. Some seniors seeking full or supplemental income or social relationships, and desiring to stay productive, will partially fill the recruiting demand. However, they may be less comfortable with the "grind" of traditional customer service work. Employers competing for qualified workers may have to embrace more flexible work options, such as shorter workweeks, flexible hours, homeshoring and job sharing. For a variety of reasons, homeshoring is likely to be adopted very slowly by water utilities. These types of programs are traditionally difficult for water utilities and other government agencies to embrace and manage due to concerns about public perception, requirements of collective bargaining units in union environment, and other related issues.

Workforce management has four components – selection, training, quality assurance (Q/A), workforce scheduling/forecasting. Opportunities in each area are discussed below:

Recruiting and Selection

A good workforce begins with the recruiting and selection process. First, water utilities must move from the mindset that the contact center contains only entry level positions, a place to put light-duty field service representatives recovering from work-related injuries, and a landing

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place for displaced staff following departmental reorganizations – such as following an AMI project.

Customer service contact positions require verbal, technical, logical, computer literacy and critical thinking skills for candidates and employees to be successful – especially when customer satisfaction is touted as a mark of distinction for the utility and included in strategic planning and mission statements.

The recruiting process begins with a clear definition of job requirements, understanding the need for hiring agents with prior experience and recognizing frontliners' customer contact capabilities. Retail experience is certainly related, but conversational telephone voice, computer screen navigation and succinct writing capabilities are uniquely different and mandatory for a successful water utility customer service representative. Utilities can benefit from staff selection lessons learned in other teleservices agency positions: 1) The newspaper or Internet job posting announcement which details job requirements is handcrafted to only attract the right people with the right skill sets, 2) the first contact with hiring officer and trainer is always via telephone, 3) candidates are often asked to read something from a newspaper or a predefined web site in their normal speaking voice, 4) group interviews are arranged with hiring officer, trainer and quality assurance representative, and 5) a personality-based assessment tool. The latter tool is used to screen, select and manage top performers, to determine the candidates emotional capacities in dealing with conflicted situations, level of patience, extroversion, comfort with conformity and need for dominance.

A web-based questionnaire can be used to compare candidates' profiles with that of the most successful employees in the utilities' own working environment. Planning for selection must include time to first assess existing employees. For those utilities with a collective bargaining unit, it is suggested that, where practical, the utility start with union representatives taking the survey and then reviewing results with them. It is not harmful, as one might view an academic test; it only reveals what a person's personality really is and if there is a fit for the customer services position at the hiring utility.

Training

The amount of time it takes to train a customer service representative is increasing with the increasing sophistication in technology, and the trend to differentiated service. Training is often one of the first line items that are reduced when budgets are tight. This will place more pressure on utilities to recruit knowledgeable and experienced customer service agents and sustaining the amount of training even during lean years. The American Water Works Association recently rolled out its Customer Service Training Certificate program, which is briefly summarized below (extracted from the AWWA web site):

The AWWA Customer Service Certificate Program will provide customer service representatives (CSRs) and other utility staff the opportunity to meet the high standards expected by water utility customers. This training program will be based on an AWWA publication entitled: *Focus First on Service: The Voice and Face of Your Utility* (2007). Testing and job experience will not be required to earn a certificate since the Customer Service Certificate Program will not "certify" participants. However, participants must complete the full training program to receive a certificate of completion. The curriculum, consisting of three courses, will total approximately 27 hours of contact time. The three courses include:

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- Course 1: Customer Relationship Building
- Course 2: The Business of Customer Service
- Course 3: Water Industry Operations

Only approved trainers will be allowed to teach the AWWA Customer Service Certificate Program. To become an approved trainer, a person must attend and complete AWWA Train-the-Trainer coursework. Graduates of this coursework will become equipped to teach about different communication styles, active listening skills, telephone etiquette/skills, and negotiation techniques.

Utilities will be able to purchase the AWWA Customer Service Certificate program in its entirety or by course (for one-time or multiple deliveries).

Quality Assurance

An important element in maintaining an effective workforce is through quality assurance activities such as silent monitoring (Silent monitoring is a telephone system capability that allows for managers and supervisors to silently monitor agent telephone calls with customers. It is "silent" when done as real-time monitoring without interfering with the agent/customer conversation as differentiated from recorded calls and screens for later review. Some systems allow for "barge in" capability to allow for supervisors to take control of the call, intended for use with newly hired agents. There have been a number of technology improvements that can make this process more effective. It is important to advise employees and callers of monitoring/recording in advance as with silent monitoring and recording of screens for quality assurance reasons. It is also important to separate quality assurance activities in the utility from work performance evaluations and performance reviews. In fact, the Q/A process is a training process enhanced with the assistance of monitoring tools that allow for review and selection of many agent calls. The one-on-one reviews with agents should first applaud what the employee is doing well and encourage continuation. Secondly, the review session should be a self-assessment process which is non-threatening with the employee doing most of the talking. Agent employees usually have a good idea of what could have improved the interaction with the customer and are usually willing to commit to focusing on 1 to 3 things between monthly reviews.

There are other benefits to using the call/screen recording Q/A tools. Utility back office functions can use the tool's capability for capturing screen shots and movement to better assess navigation efficiency, and determine the most effective approach in analyzing a complicated high bill offline, reconcile exception reports such as plausible/implausible, credit collection reviews, and bankruptcies/liens processing.

The screen recordings are also an untapped resource to assess front office staff after-call-work processing and noting of customer records to assure efficient and consistent application.

The analytics capabilities with newer Q/A tools will allow search of a large volume of recorded calls using specific keywords to select which calls to review in detail. This can be useful in finding calls dealing with specific applications such as move-ins, payment agreement, budget billing, senior citizens/low income discount programs, etc. Trainers can use this to identify the subject matter experts who handle specific applications in the most effective way to avoid callbacks and use an appropriate amount of time to complete. Using this in recurrent training modules can be extremely beneficial and helpful across the contact center.

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Workforce (Workload) Scheduling/Forecasting

An optimized contact center will be able to forecast call arrival patterns and schedule agents to be able to meet demand based on anticipated call volumes and individual skills. The prerequisite requirement for good forecasting is the collection of call handling information over one to several years including: 1) volume, 2) arrival pattern, 3) call attributes in time of day/length, after call work, etc., 4) transaction types, 5) pre- and post turn-off moratoriums, if appropriate, 6) seasonal variances, and 7) unusual conditions such as weather, rate increases, severe disruption of services, etc.

Tools such as Blue Pumpkin®, TotalView®, Agent Power and others are available to assist utilities with the collection of call data, volume and inputting information into a forecast model. Models are important in accounting for staff work time preferences, peaks, seasonal considerations, and absences/vacation time. The model matches a call arrival pattern to available staff and compares to the targeted service level, such as answering 80% of all calls in 30 seconds. It forecasts staff needed to meet service level goals and shows the pluses and minuses by hour or ½ hour of overages and underage in staff availability. The optimal staff complement is calculated by the model to further assure efficiency

By using an effective workforce scheduling model, each employee will have a personal schedule generated based on hours of operations and need for breaks and lunches. Utilities should not underestimate the importance of varied lunch schedules and breaks to better match staff availability to call arrival pattern (please see the Cincinnati case study).

Business Strategy

The emphasis on cost control and enhancing the quality of customer service may encourage more utilities to consider outsourcing certain functions. Customer service is a highly sophisticated and global industry and it is becoming even more so on a yearly basis. Commercial call centers are minutely engineered and controlled and the companies that run them are always looking for growth, economies of scale and more efficiency. Many private sector companies have outsourced all or part of their call center functions, focusing instead on what they see as core businesses. Some have decided that customer service is no longer a core competency.

The contract operation of water utilities by private or public service providers is observed in many areas but, in customer service, it has barely taken off. For example, Ventura, a leading provider of call center services in the United Kingdom, is handling calls for Thames Water during critical peak periods. The contract management services that the American Water Works Company is providing to the Buffalo (NY) Water Board include customer service, billing and collections, and water meter repair and installation. Two of the water utilities that attended the Expert Workshop, Greater Cincinnati Water Works and the Passaic Valley Water Commission, operate call centers under contract for other nearby municipal utilities. Outsourcing during call overflows or after hours (taking advantage of time zone differences) seems to represent an opportunity to consider selective outsourcing.

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311 SYSTEMS

Introduction

As noted earlier in this chapter, water utilities owned by governments who elect to implement 311 systems will find that their relationship with their customers will change because a call center operated by another agency will be receiving calls from water utility customers The extent to which the utility's relationship with their customers changes is a function of the model selected for the 311 call center.

The 311 system models range, on one end of the spectrum, from programs that have the capability to resolve many of the calls that they receive (such as Dallas which is appended as a case study in Appendix B), to operations that view their primary mission as triage – writing and directing work orders to the proper agency. In 311 systems that follow the latter model, the only answers that customers will receive during the call will be ones provided by a self service option such as IVR; calls involving an agent will typically result in a work order being generated. In between the two ends of that spectrum are systems that minimize the separation between the utility and the customer such as the following:

- Systems in which 311 makes a record of the call and then transfers it to the utility; and
- Systems in which customers enter the "call" into a web based system which routes information to the utility or allows the utility to take the call directly.

311 systems are frequently launched with the most recent and comprehensive hardware and software. For example, the City of Minneapolis 311 system is reported to include the following:

- Lagan Technologies Frontlink™ Citizen Relationship Management (CRM) software;
- Siemens HiPath™ multifunctional (voice and data) communication system;
- Siemens HiPath ProCenter™ ACD software;
- Aspect E-Workforce Manager™;
- Higher ground™ voice and screen capture for QA;
- Cognos™ enterprise reporting;
- Creston™ integrated TV monitor system;
- Casewise™ process flow documentation;
- Siemens XPressions™ unified messaging system; and
- Four different citizen feedback mechanisms.

The most common complaint heard from water utilities in 311 cities (provided on a non-attribution basis for obvious reasons) is that 311 is staffed, in part, with former water utility call center agents, but the reduction in calls is not commensurate with the number of agents taken. One utility provided before and after call counts showing a negligible reduction in calls after 311 implementation. Some reasons for this phenomenon cited by 311 proponents is the positive publicity accompanying 311 launches the increase in call volume (overall) as citizens realize that their calls will now get results.

In this section we will discuss the following issues related to 311:

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- Importance of the 311 discussion to this report;
- Guidance provided to cities considering 311 systems; and
- Options for the water utility.

Importance of the 311 Discussion to this Report

The research team's discussions with the managers of city or county-owned water systems and the data showing the trend towards 311 planning and implementation makes this issue of 311 systems extremely important for mid-to large-size water utilities with full or partial ties to local governments. A 311 system has the potential to significantly change the utility's working relationship with its customers, thus affecting the utility's business planning and potentially its technology selections, system capabilities, staffing needs, and other things that this research report addresses. The next two sections will describe the guidance available to cities and counties regarding 311 and the options available to the water utility owned by a government considering 311.

Guidance Available to Cities and Counties Regarding 311

There are a number of studies of 311 underway. Two of these studies are listed below.

- The 311/CRM Project Coordinating Group – consisting of Rutgers University's Public Performance Measurement and Reporting Network, 311 Community of Practice, the International City/County Management Association (ICMA), the Ochs Center for Metropolitan Studies and Public Technology Institute (PTI)
- The ICMA National Study of 311 and Customer Service Technology, funded by the Alfred P. Sloan Foundation (Cory Fleming Project Director)

The 311/CRM Project Coordinating Group provides this list of Best Practices for successful implementation:

1. The Chief Executive or Chief Administrative Officer should be committed to establishing a 311/CRM system;
2. Local residents should be involved in the planning, development and implementation;
3. Operating departments and agency staff should be involved in the development of the 311/CRM system;
4. 311/CRM center staff should understand the day to day functions of different local government departments;
5. 311/CRM and departmental staff should receive adequate training on the system before implementation;
6. 311/CRM data should be integrated into the local government's existing information and other technology systems;
7. The launch of a 311/CRM system should be carefully planned to ensure that the system is not overwhelmed;
8. Citizens should be able to connect to a live contact staff member when interacting with the 311/CRM system;
9. 311/CRM systems should assign tracking numbers to all service requests;

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10. 311/CRM systems should be considered as part of local government emergency management plans and be part of disaster response, especially post-disaster information dissemination;
11. Local government leadership, departmental staff and community residents should work together to determine how to use the 311 system to measure department performance; and
12. Local government should develop ways to distribute information about performance to citizens.

Options for the Water Utility

If a water utility is part of a city or county considering implementation of 311, it is strongly recommended that the utilities should be actively involved in shaping the 311 system. The percentage of 311 investigations that result in 311 implementations is high. Also, 311 implementation frequently involve significant technology investments which the utility may have investigated or have had some operational experience. Possible outcomes for early and constructive involvement include:

- The water utility could be asked to operate the 311 call center (this is a rare result, but it has happened); and
- The resulting 311 model implemented could be much more water utility friendly. The result could be substantially better technology at the expense of increased separation from the customer.

There are potential opportunities for water utilities in working with 311 systems:

- In at least one case (Los Alamos County), the water utility is the operator of the 311 call center; and
- Most 311 systems have excellent technology. As a result, some 311 models may enable individual departments, such as water utilities, to be much closer to the customer than was available with prior legacy systems. A water utility working within such a 311 system may find that it has access to much better technology.

If there already is a 311 system in place, it is suggested that utilities consult the 311 Best Practice list in the Optimization Toolkit. There are organizations that are actively promoting the trend towards 311 systems. To find out what owner governments are hearing about 311, please type "Call 311: Connecting Citizens to Local Government" into your internet search engine.

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CHAPTER 3
FUTURE TRENDS FOR CUSTOMER CONTACT CENTERS

OVERVIEW

This chapter outlines potential characteristics of the future customer contact center by:

- Evaluating the future trends affecting the water utility sector and how these trends will affect the water utility customer contact center.
- Evaluating how trends affecting customer contact centers will affect water utility customer contact centers.
- Summarizing the results of the "futures" discussions held with water utility executives.

This chapter concludes with a discussion of technology trends that should be taken into account as utilities transition to optimized customer contact centers. These trends include:

- Self-service.
- Social networking.
- Cloud computing.
- Cell phone bill payment and other electronic bill presentment and payment options.
- Contracted centralized call centers.

INTRODUCTION

The water utility customer contact center of the future will be shaped by a number of forces including trends that affect the water sector as a whole, trends in customer contact centers of other service sectors, and technology. This section will review future trends that will affect the water sector and identify how these trends will affect the customer contact center. We augment this analysis with input from the "Futures" discussions with water utility managers. Finally, a customer's expectations are affected by the service they receive from the other customer contact centers they deal with, whether they be other utilities (telephone, electric, gas), banks, retailers, various help desks, etc. Trends in technology and other industries are taken into consideration in our assessment.

FUTURE TRENDS AND THEIR IMPACT

Table 3.1 below identifies future trends as identified by the Water Research Foundation project *A Strategic Assessment of the Future of Water Utilitie*" (Means, Ospina and West 2006). Table 3.1 pairs each trend with the research team's assessment of its impact on water utility customer contact center capabilities, given the trends in technology and business processes:

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Table 3.1
Impact of Future Trends on the Customer Contact Center

Future Trend	*Customer Contact Center*
Customer base will become increasingly older, reflecting the aging of the population and longer life spans	• The percentage of the customer base that is immuno-compromised will rise, requiring enhanced capability to identify and broadcast potential problems • AMR can be used to identify excessive water use due to fixtures accidentally left on, leaks, and breaks
The customer base will become more technologically and politically savvy. Coupled with that is a growing level of distrust in the public water supply and a "contaminant of the month" trend	• Utilities will need a robust web site to make information available on water quality and other aspects of utility operations • Information disseminated via the web site and by telephone either via IVR or the call center needs to be consistent • Utilities should monitor social networking sites such as Twitter™
As a result of workforce demographics, utilities will have a more difficult time recruiting engineers and filling high-technical-content positions	• By enabling customer contact center personnel with technology (both hardware and software), the burden on engineering can be reduced improving the efficiency of both utility operations and customer service
Climate change has occurred and will continue to occur. In addition to warming, precipitation events will become more intense and infrequent, i.e., there will be more droughts and storms and they will be more severe	• Coupled with increasing overall water demand, climate change requires that utilities minimize wasted water. The customer contact center can facilitate these effects by monitoring water use and quickly identifying leaks and water otherwise lost • When breaks occur, the contact center will be vital in minimizing the amount of water lost by quickly identifying the problem and alerting appropriate resources to the problem area quickly • Through its web site and social networking sites the customer contact center can disseminate information on water conservation and provide needed public information in drought events
GIS and Asset Management systems will become more widely used	• Software can identify the most likely problem when there are multiple calls with complaints or problems such as leaks
SCADA systems will become better and used more extensively	• Facilitates earlier identification of problems. Reverse 911 can be used to quickly notify customers of problems requiring boil water alerts • Agents can be notified in advance of likely complaint calls (e.g., taste, odor)

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Table 3.1
Impact of Future Trends on the Customer Contact Center (Continued)

AMR will become more pervasive	• Leaks and other on-site (customer) issues can be identified and dealt with proactively
Internet capability and usage will become more extensive	• Web sites can be used for billing and payments • Conservation messages can be distributed • Water quality reports can be posted

Source: Means, Ospina and West 2006

Although not directly identified in the Foundation Study, some other future trends that will affect utilities and the Customer Contact Center of the Future are summarized in Table 3.2 below.

Table 3.2
Other Future Trends Impacting the Customer Contact Center

Future Trend	***Customer Contact Center***
Increase of "cloud computing"	• Increase in "cloud computing" (offsite hardware and software owned by others and leased as a service) will reduce impact of old legacy systems making up-to-date technology more readily available to utilities • Decoupling the tie between the contact center and resident hardware and software will increase resiliency
Rise in 311 systems by cities and counties	• Relationship between the utility and its customers will change • Should accelerate trend to self-service • Emergency communications (including utility related) will become responsibility of 311 • Potential business expansion opportunity
Social Networking	• The rise in social networking sites such as Twitter™, YouTube™, MySpace™, Facebook® and LinkedIn® will encourage utilities to adapt a strategy to utilize these networks to take advantage of their information dissemination capabilities. • Information gleaned from various social network sites via RSS (real simple syndication) feeds can provide early identification of problems allowing for quick mitigation actions. • Information gathered from social networks can augment customer satisfaction surveys and identify customer needs
Increased use of Business Intelligence (BI) Analytics	• As BI applications for water utilities become available, collection efforts will become more targeted and effective • BI analytics will enable dynamic measurement of customer satisfaction and allow more targeted determination of customers wants and needs

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Table 3.2
Other Future Trends Impacting the Customer Contact Center (Continued)

Expanding Cellphone Capabilities	• Public information feeds (emergencies, important news, etc.) will be sent to cell phones • Customers will be able to view their water use history and bills on their cell phone • Cell phones will became a popular tool for payment
Paperless Billing and Payment	• Electronic bill presentment and payment (EBPP) will reduce costs and reduce delinquencies • EBPP will virtually eliminate added costs related to more frequent billing • EBPP will facilitate preferred date billing
Utility-Utility Outsourcing	• As the customer contact center becomes more technology intensive the cost benefits of scale make it attractive for small utilities to contract with larger utilities for contact center services.
AMI Extends to Contact Center and Customers	• Activation of customer service can be accomplished with a one-stop call to contact center • Turn-offs and turn-ons can be immediately accomplished by Field Services and Customer Service without rolling a truck and to address repeat delinquent customers' behavior patterns • Final reads can be obtained by customer services and via web portal by settlement companies on a 24 X 7 basis • Customers can access consumption information at any time during the month similar to cellular telephone companies' application for accessing minutes used

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Table 3.2
Other Future Trends Impacting the Customer Contact Center (Continued)

Call & Screen Recording with Analytics Used for Multiple Purposes	• Quality assurance one-on-one session can be used to focus on specific calls dealing with designation transaction (move in, payment agreement, etc.) as a training tool in addition to coaching vehicle • Analytics will enable analyses of keywords in thousands of conversations over specific time frame to determine who is calling about what and how often • Trainers can use recording from agents who are Subject Matter Experts to identify most efficient navigation of screens, verbal interaction with customers and call control for training and training documents development • Customer complaints over the telephone can be identified by time and date and specific language used by customer and/or agent (similar to American Automobile Association 100% recording of calls on emergencies response/commitment time to customers) • Analyses including call length by transaction type can be mostly easily performed with call analytics using keyword searches and calling talk/handling time • Can be used for back office screen recording for training when no telephone call is involved
Voice Over Internet Protocol (VOIP) Integration of Telephone and Information Systems	• Consolidation of telephone Private Automatic Branch Exchange/Automated Call Distribution (PBX/ACD) functionality onto IT server equipment will further reduce technical staff needed to support as well as equipment footprint, facilities space and power systems requirements • Ability to incorporate virtual contact answering positions in common queues without telephone set, using PC soft keys and headsets, for call handling will reduce cost and allow for greater flexibility in using part-time staff to service customers
Pay Stations Co-location at Service Station and Grocery Chain to Customer Access	• Just-in-Time payments are troublesome to utilities and increased access for payments in all communities served without capital investment by utility can lower cost of delinquency disconnects and restorations • Convenience stores and service outlets are equipped by third-party company, in reasonably-sized customer base areas; equipment can also accommodate other types of utility-oriented payment applications in the community • Customer will pay minimal service charge of around $2.70 per payment transaction to reimburse third party provider for maintaining on-site equipment and networking

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Table 3.2
Other Future Trends Impacting the Customer Contact Center (Continued)

Overflow & Diversion of Calls to Other Utilities	• Some utilities are capable of handling other utility's customer service transactions with remote access to the CRM and inbound call network • This service can be applied to extend daily operation hours for customer access as well as overflow during peak calling periods
Virtual Queuing and Automated Callback	• Third-party offering to interface with a utilities inbound telephone network to offer automated callback to avoid giving busy signal or customer waiting on hold for extended period • Callbacks can be directed to any number given by customer and without customer losing his/her place in queue
Outbound Calling as Courtesy Payment Notice or Service Interruption Notification	• Third-party offerings are available for utilities to provide list of customers who are nearing delinquency with possible disconnection of service to be notified by telephone • A general message to anyone answering telephone can be left or more options can be used to verify call recipient and allow authorized customer to hear balance and/or request immediate transfer to an automated payment self-service IVR or to live agent for, say, payment agreement or questions
Web Portal Expansion for Commercial Accounts, Pledge Payments, Property Managers and Settlement Companies	• A secure Internet portal for business partners to access authorize customer accounts and their own accounts, can relieve contact center of 10-25% of monthly volume • This capability can, with training and promotion, be a welcome benefit to business partners who can use the capability on 24 X 7 basis for final reads, payment verification, posting pledges for needed account holders and managing move-in/outs

How Utility Executives View the Customer Contact Centers of the Future

The research team conducted interviews with senior utility executives. The results of these "Futures" interviews are summarized by topic area below in Table 3.3. Since many of these individual items are presented elsewhere in the report the following is a summary of areas of interest.

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Table 3.3
Summary of the "Futures" Interviews

Meter-Related • AMI - communicate with the meter, have remote shut-off capability, etc.; • Two way communication – meter sends readings; office sends out leak notice; • Have customers set parameters to be warned of possible leaks; and • More sophisticated rate setting – time and usage based rates, allow utility to set points within the rate structure and have customers monitor their usage.
Agent-Related • Remote agents – work access for physically handicapped; and • Develop procedures and training for remote agents.
Call Center Resilience • Develop resiliency – move call centers on the fly – only need computer, Internet access and handsets to set up call center anywhere.
Field Services • GIS/CIS integration – automate dispatch based on meter location; • Integrate large meters into SCADA to identify system problems to do predictive, proactive dispatch; • Automate dispatch from emergency calls – use CIS, GPS and VLS to send nearest crew; automate calls to utility location agencies; and • Mobile solutions for field crews – PDA lets the user locate hydrant or other assets using GPS, obtain full data on hydrant (last exercise, details, etc.), and gather other data.
Strategy • Paperless communications – e-mail, text, etc. (some portion of customer base will still need to be served by paper); • Multiple communication channels with customers (some portion of the customer base will not be comfortable with computers); • 24/7 service delivery; • Efficiently handle overflow/after work hour (e.g., arrangements with other utilities in different time zones); • Multiple payment arrangements (methods, timing, etc.); • Change the physical environment in the call center – make it more visually centered; and • Single telephone number for all reasons.

(continued)

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Table 3.3
Summary of the "Futures" Interviews (Continued)

Training • Training – utilize RoboHelp®; • Training for new agents; • More highly educated personnel – associate degree in call center operations • Paperless manuals; • CS training for field and call center agents; • Customized training based on written responses; and • Training – "sandbox" environment using simulations and providing visual guidance for agents.
Systems • Fully integrated GIS, enterprise resource planning (ERP), telephone, document management; • AMI-SCADA link for demand forecasting (diagnostic to calculate where problems are likely to occur); • Automated dispatch and logistics for emergency and field work; • Emergency dispatch – know status and location of work; • GPS in field service vehicles; • Be able to identify customer on emergency call - if not a customer, either transfer or give them telephone number of serving utility; • Virtual queue; • Optimize workload forecasting; • Voice recognition instead of punching numbers; and • Expanded use of auto dialers.
Communications With Customers • VOIP for 2 way communication with customers; • Upgrading Internet site design – sending out messages for emergency conditions; • Phone system with text capability allowing chats (utilizing e-mail now); • Outbound collection calling via auto dialer – i.e., automated outbound; and • Coordinating with other emergency agencies for outbound calling.
Internal Communications • Combine a blog-wiki-IM as a continuous improvement mechanism.

(continued)

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Table 3.3
Summary of the "Futures" Interviews (Continued)

External Relationships/Communications • Developing "trusted business partner" relationships with such parties as escrow agents etc.; • Expand "trusted partner" relationships (low income assistance groups, etc.); and • Expand on-line services.
Customer Relations/Satisfaction • A changing relationship with the customer in which the utility extracts customer metrics regarding desires and satisfaction; • Dynamically understand -why are customers calling? What business process is causing the call; • Quality monitoring of calls – silent monitoring and coaching; • Survey after the call; and • Expert agent system.

TECHNOLOGY TRENDS

As noted earlier, what it takes to become a high performing customer contact center will frequently be affected by the methods and technologies employed by the other contact centers that the utility's customers deal with. It is not unusual for innovations to arrive first in for-profit, non-monopoly sectors such as hotels, airlines, catalog operations and similar industries where customer satisfaction quickly affects profit. These sectors, in turn, attract technology improvements, which eventually become the benchmark for customer service. This section will discuss some of these technology trends and identify how some of these trends can be spotted early in their cycle.

Self-Service

As technology improves, more customer contact centers are focusing on diverting callers from relying on human agents to the use of various self-service options. This has already been extensively discussed in this report.

Social Networking

The pressure to optimize water utility call center performance, while minimizing resource utilization, will only grow. To compound matters, rapid changes in web-based and electronic communication technologies will further the pressure on utilities to deal with multigenerational issues. For example, recent studies indicate that social networking communications (e.g., Twitter™, MySpace™, Facebook®, etc.) now surpass e-mail in magnitude of use. According to a recent global survey of business managers, about 25% reported that their companies have adopted social media tools and that another 20-25% plan to implement it in year 2010

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(Thompson 2009). These changes will have significant implications for how call centers interact with customers. As the Baby Boomer population shrinks and the next generation of utility customers grows, even greater expectations for immediate response and anywhere, anytime solutions will create opportunities, if not requirements, for the water utility call center to reach these consumers via mobile technologies.

Twitter™

Twitter™ is a social networking and microblogging service that allows its users to send and read text-based posts of up to 140 characters known as tweets. It enables utilities to get the information to the public quickly. The ability to monitor tweets by content through searching for keywords allows the utility to provide correct information to citizens almost immediately. Utilities may find this a useful way to reach people who might not seek out information from more traditional sources, such as phone numbers or web pages and is impressed with Twitter™'s potential to spread information at a viral pace.

Texting Emergency Information

In Europe and Asia, where cell phones are more advanced and more widely used, texts are a preferred mode for broadcasting information in emergencies. The United States is now moving in this direction. Many colleges and universities in the United States now rely on texting to cell phones as the best way to broadcast emergency information. There have been some notable emergency communications failures using e-mails or web site notification. Cell phones are faster and more direct.

One Utility's Approach

The Prince William County (VA) Service Authority (PWCSA) is one of the leading water reclamation utility users of social networking. Their approach to networking is replication and repurposing (utilize every channel to communicate with the customer). The Service Authority is now offering its customers and the public a quick and easy way to receive updates from the organization as well as industry employment and news opportunities by following the PWCSA on Twitter™, Facebook®, YouTube™ and by RSS (Really Simple Syndication) feed. Depending on customers' cell phone capabilities and service plans, many of these networking sites' posts and feeds can be easily accessed on mobile devices.

To access RSS feeds, the potential user (user) needs a feed reader (sometimes called a news reader or aggregator). This can be software that the user installs on his/her computer or it can be a service that user accesses through the web. Feed reader software is generally a free download. There are a number of companies that offer it, and since readers are constantly evolving, the user may want to do a web or Wikipedia® search to find the latest ones for his/her needs and operating system.

Web-based services require the user to register with the web site providing the service. Some examples of web-based services are My Yahoo!®, Bloglines™ and Google Reader™ feed reader. Whichever method the user chooses, the user can subscribe by clicking the RSS icon for the feed that interests you. Additionally, some browsers, such as Mozilla Firefox®, integrate

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RSS feeds directly. Firefox® users can access feeds through the browser's "Live Bookmarks" feature.

PWCSA uses Twitter for Request for Proposals (RFPs), Invitation For Bids (IFBs) and to disseminate information to customers, contractors, students and other stakeholders (*Note*: Since many Service Authority "tweets" contain links to specific areas of the utility's web site, PWCSA uses www.tinyURL.com to shrink links to fit within Twitter™'s 140-character-per-post limit). The Service Authority uses RSS feeds and Google Alerts™ email update service to monitor online news and trade media for key words and phrases. These features also scan Twitter™, Facebook®, Homeowners' Association (HOA) web sites and local blogs to identify any references to PWCSA, the utility's management senior staff, Board members and Prince William County.

"Proactive communication is fundamental to delivering first-rate customer service, so the Service Authority is always seeking out and evaluating innovative methods for reaching out to its customers, the community and industry colleagues," according to Keenan Howell, PWCSA Director of Communications. "Social media and networking platforms have opened new channels of communication, allowing us to increase our presence on the web and in the community. What's more, many of these new tools work together, allowing one channel of communication to update another. For example, a member of the communications staff can post a snippet of information on Twitter™ from a cell phone, which simultaneously places the same information on both the Service Authority's web site and Facebook®."

Future Use of Social Networks by Water Utilities

Water utilities are very early in the cycle of learning to use social networks. A discussion of possible future directions in the use of social networking by water utilities can be found in the proceedings of the Utility Management Conference (San Francisco, February 2010) – "Cloud Computing, Twitter and Texting: What's A Water Utility To Do?" (Jankovic and Olstein 2010).

Cloud Computing

Cloud computing – in which data is stored in remote data centers – or "clouds" – rather than in on-site servers is either the next big thing or, to some, just an old technique with a new name. A number of utilities (Virginia Beach, VA and the District of Columbia Water and Sewer Authority (DCWASA) are two examples) utilize what is known as a hosted solution to their Customer Information System in which the software and computing capability is provided over the internet by a service company.

Cloud computing consists of information maintained on remote servers operated by service companies that is accessible through a web browser. Among the benefits cited for cloud computing are that utilities would be charged only for the services and computer capability they use. This approach saves the cost of servers, reducing energy consumption and, if they can minimize customization, reducing or eliminating development cost. Cloud computing also provides resilience – DCWASA had a situation where it needed to vacate its call center due to an electrical outage. The agents relocated to a nearby unaffected building that had computers, telephones and internet connections and the CSRs were up and running in about 30 minutes. As with any remote installation operated by others and accessed through the internet, security is always a concern. The utility will have to make sure that it has sufficient bandwidth at both the

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primary and backup location (if resilience is important). Also, uniform standards have yet to be developed to ensure that different cloud technologies are compatible and can work together securely.

Some forms of cloud computing are made possible by open source software (which means utilities pay a fee to the host company for use of the system; the company maintains the software and fixes glitches) and virtualization. Virtualization lets multiple operating systems run on one hardware system, reducing the number of servers required and reducing energy usage.

Payment Options

Electronic bill presentment and payment is increasingly used throughout the world. Many European countries allow the payment of many types of bills, including water bills, by cellphone. A number of U.S. cities have moved to the payment of parking meters by cellphone, including Coral Gables, FL and Decatur, GA.

Solutions for Small Utilities

The emergence of powerful contact center technologies increases the service benefits that can be procured by larger contact centers. During our case studies we identified two utilities that were acting as contact center contract operators. Of course, large investor-owned utilities have already been practicing their own version of this technique within their companies with centralized call centers taking calls from many individual utilities within the company. However, the emergence of public-to-public contract operations is a relatively new phenomenon and appears to be working to the satisfaction of all utilities concerned.

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CHAPTER 4
OPTIMIZING THE CUSTOMER CONTACT CENTER

OVERVIEW

Preceding chapters of this research report have identified current and potential future characteristics of customer contact centers. This chapter and Appendix D provide information and tools for water utilities to use in optimizing the performance of their customer contact centers. This chapter presents:

- A definition of an optimized customer contact center.
- A brief introduction to benchmarking and call center benchmarking resources (this is one component of the Optimization Toolkit).
- Overview of the Optimization Toolkit.
- How to use the Optimization Toolkit.
- How the toolkit was tested.
- Comments from pilot utilities.

The following discussion uses the formal benchmarking definitions for metrics. Benchmarking utilizes three types of metrics – efficiency, effectiveness and outcomes. Efficiency and effectiveness metrics are ratios of inputs to outputs. An efficiency measure looks at the cost of the input (usually dollars, hours or employee time) to produce a unit of output. An effectiveness measure, which is concerned more with how well something is done will have inputs which are related to an activity's mission, such as customer calls. Calls handled per hour is an effectiveness measure, while cost per call is an efficiency measure. Outcomes are typically a single number reflecting a strategic goal of the organization, such as a level of customer satisfaction.

WHAT IS AN OPTIMIZED CUSTOMER CONTACT CENTER?

An optimized customer contact center has the following broad characteristics. It is:

- Efficient;
- Effective; and
- Produces good outcomes in furtherance of the utility strategic plan.

An optimum customer contact center balances each of the above concerns. For example:

- It is good to be efficient (i.e., be a low cost center, have a relatively low number of agents per 10,000 accounts, etc.), but efficiency without effectiveness is a bad choice. The utility strategic plan should provide some guidance on the tradeoff between efficiency and effectiveness and where the utility's targets are on the continuum of each. An outcome is a measure which represents the strategic goal, such as customer satisfaction. A business outcome has been described as "where the business wants to be."

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- It is good to be effective (e.g., in calls handled per hour, or average handle time) but few, if any, utilities could afford a highly effective customer contact center that achieves effectiveness at high cost.
- Beyond the effectiveness-efficiency tradeoff, a customer contact center must produce good outcomes, i.e., efficiently and effectively further utility strategic objectives in areas such as revenue collection and elements of customer satisfaction.

Identifying where a water utility should be on these scales is not easy. The Water Research Foundation publication, "Developing Customer Service Targets by Assessing Customer Perspectives" can provide some help in this matter. To find out more about performance measures please see the Water Research Foundation Report "Selection and Definition of Performance Indicators for Water and Wastewater Utilities". There are other useful Water Research Foundation studies for developing a strategic plan and benchmarking for water utilities.

BENCHMARKING

Efficiency Performance Measures

An efficiency measure is one that will have a resource, usually either in dollars or the number or time of people, in the numerator and a scale unit in the denominator. Two examples are provided below (Anderson, Porter-DeNileon, and Armstrong 2008):

- Call center agents per 10,000 accounts (a low number would be good); and
- Total staff per 10,000 accounts (a low number would be good).

Qualserve™ Benchmarking has one efficiency measure that applies to customer contact centers:

- Customer service cost per account.

Effectiveness Performance Measures

An effectiveness performance measure is one that reflects how good a job the utility is doing. The optimization toolkit includes examples of potential effectiveness performance measures including the following:

- Calls per 10,000 accounts (low is better);
- Calls/agent (high is better);
- Web site hits/10,000 accounts (high is better);
- Transactions at kiosks/10,000 accounts (high is better);
- Calls/hour during emergency conditions (low is better);
- Ratio of max hour to average calls per hour (low is better);
- Abandonment rate – a ratio of abandoned calls to total calls (low is better);
- First Call Resolution – percentage of incoming calls resolved in first call (high is better);

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- IVR diversion rate – percentage of incoming calls diverted to IVR (higher is better up to a limit);
- IVR success rate – % of calls going to IVR completed satisfactorily within IVR (high is better);
- IVR opt out rate – % of calls within IVR leaving IVR before completion (low is better);
- Handle time – average time per call (target range);
- Average time in queue (low is better); and
- Utilization rate of low income assistance programs (percentage of target candidate households using assistance programs) (high is better).

Qualserve™ Benchmarking also has the following effectiveness measures that apply to customer contact centers:

- Billing accuracy rate – 1,000 times number of error driven billing adjustments in period/number of bills generated in the period (low is better); and
- Customer service complaint rate – 1,000 times the number of customer service associated complaints/number of active accounts (low is better).

Outcome Performance Measures

An outcome measure is typically a single number that reflects the goals and objectives set forth in the utility's strategic plan. Some of the outcome measures in the optimization toolkit are:

- Customer satisfaction; and
- Strategic plan achievement (% of goals and objectives in the strategic plan that have been achieved).

Some additional outcome measures referred in the toolkit are:

- Delinquency rate;
- Unaccounted-for (or unbilled) water; and
- Accounts receivable.

Other Factors to Consider

When using performance measures in an optimization effort, utility management should take into account two other important considerations:

- Explanatory factors – explanatory factors are those factors that affect performance and resulting measurements that are outside of the intermediate term control of management. When evaluating an entire utility, explanatory factors include such things as age of the customer base, topography of the service area, source of supply, etc. At the customer service level, factors could include number of customers, old legacy systems that cannot be significantly improved in the near-term, laws or regulations affecting ability to shut-off water or place liens, factors (topography or

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other) that limit effectiveness of AMR. Explanatory factors should be identified and taken into account. For example, Qualserve™ Benchmarking allows a utility to make comparisons based on geography, size and services provided.

- Practices – Practices are the methods and procedures used by utilities in the conduct of their business. *Best practices* are those used by high performers. When undertaking an optimization initiative, the utility should use practices to confirm what the other performance measures are telling the organization. For example high efficiency and/or effectiveness levels should be reflected in a high level of best practices.

Finally, most utilities will have a good idea of where their strengths and opportunities for improvement are. Performance measure comparisons will, in most cases, confirm management's expectations and provide an estimate of improvement that is available. It can also help in developing a business case for a proposed improvement.

A useful exercise prior to performing a performance measurement comparison is to have a group of individuals working in the contact center or customer service department being studied estimate what the results will show. Typically, staff will be roughly correct for many of the measures developed. This exercise is also useful in selling (internally) the results of the optimization effort.

Performance Measure Sources

This research effort was not intended to be a benchmarking study. There are a number of firms that regularly conduct benchmarking surveys and can provide relevant performance measures segmented by industry. These firms include but are not limited to the following:

- The Ascent Group
- Benchmarking Portal
- Call Center e Journal
- Convergys

An Internet search using the term "call center benchmarking" at the time this report was prepared produced 448,000 results. Some of these firms may provide a benchmarking survey results for a very modest fee (Benchmarking Portal appears to have a free Reality Check on its web site). Some firms will provide selected benchmark numbers on their web site. Qualserve™ also has a number of customer service benchmarks that are water-utility specific.

The benchmarks included in the optimization toolkit reflect a composite of performance measures that we have identified in our case studies, project team consensus values and targets reflecting a range of values presented on the web sites of firms that advertise call center benchmarking services. The metrics provided herein are for illustrative purposes. Utilities should create their own measures, either by contracting with a benchmarking firm, conducting their own survey, utilizing information available on the web, using the latest Qualserve™ Benchmarking report or through a combination of methods. It is also important to note that target values change over time and should be updated regularly. For example, the average IVR success rate for utilities has changed from 15% in 2006 to close to 20% currently (Patrick and Kozlosky 2006).

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Beginning the Optimization Effort

The process should begin with a review of the utility's strategic plan and the customer service portion of the plan. Using tools such as the Water Research Foundation publication, Developing Customer Service Targets by Assessing Customer Perspectives (Rambo, Baumgartner and Koenig, 2004), utilities can identify efficiency-effectiveness tradeoffs, desired outcomes and target areas (i.e., is typically a goal to be better than median, or to be a fourth quartile utility). It would then be appropriate to further develop the performance measures identified in the toolkit.

OVERVIEW OF THE OPTIMIZATION TOOLKIT

Table 4.1 below describes the four elements of the Optimization Toolkit: what each contains, how it can be tailored for the utility, how it should be used, and the resulting outcome.

Table 4.1
Optimization Toolkit Guide

Toolkit Component	What It Contains	How the Utility Can Tailor This Toolkit	Toolkit Uses and Outcomes
Self-Assessment Tool	Goals and strategies for managing and operating the utility's customer contact center	Determine importance of goals and strategies for the utility. Estimate the extent to which the utility has implemented tools and practices	Compare how well the utility has aligned tools and practices with the importance of their strategies. Recommendations are provided to upgrade level of practices
Benchmarking Tool	Benchmarks, glossary contains benchmark definitions	Calculate/estimate the utility benchmarks. Estimate where the utility deviates from target values	This tool compares the utility's performance to benchmark values. Compare the utility's performance against the self-assessment tool. Recommendations for improving utility performances are presented
Improvement Plan Tool	What the contact center of the future will look like resource guide	Determine which trends will affect the utility	Develop an improvement plan for the water utility
Resource Guide	Detailed discussion of goal-strategy-tool approach with metrics and references to best practice lists and case studies in the Report	Provides details in self-assessment, metrics and benchmarking	Detailed reference for the tools

Getting Started

Ideally, the use of the toolkit would begin with a review of the resource guide which provides details on the underlying toolkit approach and much more information than exists in the three individual tools – the Self-Assessment Tool, the Benchmarking Tool and the Improvement Plan Tool. We found in our pilot tests that most people started right with the tools, referring to the resource guide when they needed more details. Since most of the people working with the toolkit were experienced customer service and/or call center managers they were high enough on the learning curve to do so, although not all readers may be as experienced. Following a review of the resource guide, the suggested sequence of use is outlined below.

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1. Minimum System Requirement and Installation Guide. This will provide an overview of the technical aspects of the CD-ROM. It also contains contacts for technical assistance.
2. Self-Assessment tool. This will identify mismatches between strategic importance of the various goals and the practices employed by the utility. Suggestions for each strategy are presented on a size differentiated basis, as appropriate. Each utility should determine where they are on the size scale. Our pilot utilities had no problem with this. This tool will result in an assessment plan.
3. Benchmarking tool. This tool allows the utility to benchmark itself. This tool includes a glossary to help the utility calculate their benchmarks using the correct definition, benchmarking resources and a selection of Best Practices. The benchmarks incorporated are the average values for the utilities with which the research team conducted structured interviews. A larger set of benchmarks includes a consensus of the research team values based on the team members' professional experience and various benchmarks provided by the various benchmarking resource providers (as presented on their web site or in documents they provided). We urge utilities to develop their own resources for these values. In addition, the toolkit provides guidance on how to improve a utility's benchmark scores and includes a set of Best Practices that can also help improve benchmark scores.
4. Improvement Plan Tool. This tool enables a water utility to tie everything together. It begins with a look at future trends and how they might affect the customer contact center and the improvement plan being developed. To add to that view of the future this tool also includes summaries of the "futures" interviews with utility managers. To round it out we present the attributes of the optimized customer contact center of the future. An FAQ (frequently asked questions) section is included as is a list of resources. A worksheet is provided for the utility to develop their unique improvement plan.

Experience with the Pilot Utilities

As noted earlier, the pilot utilities working with a single (pre-beta version) spreadsheet preferred to proceed directly into the spreadsheet and use the resource guide as a reference document. It should be noted that the pilot utilities were working with beta versions with significantly less content and functionality than the one presented here. The beta version did not include the improvement plan tool. What was most interesting were the different ways in which the pilot utilities used the toolkit after performing the self assessment and benchmarking.

- One used it as a tool to help in the development of their customer service strategic plan;
- One used it as a training tool for their customer service department;
- One used it as a training tool for Field Department personnel;
- A few used it to demonstrate to their management what their goals were and how they benchmarked;
- One used it to refine their utility's strategic plan (the customer satisfaction component); and
- One utility is considering using as part of a 311 evaluation.

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We anticipate that, as the research report is disseminated by the Foundation, utilities will find more creative uses for this tool and add to its content.

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CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

OVERVIEW

This chapter presents a summary of the project conclusions and recommendations:

- Conclusions of the research team.
- Recommendations for utilities.
- Recommendations for future research.

Conclusions are summarized in four areas: Technology, Relationship with the Customer, Customer Contact Personnel and Contact Center Relationship to the Rest of the Utility.

CONCLUSIONS

The optimized customer contact center of the future will be different in many respects from today's customer contact center. The differences will be apparent in the level of technology employed (and the many ramifications of high technology levels), the relationship with the customer, the personnel within the customer contact center and how the contact center relates to the utility.

Technology

The optimized customer contact center of the future will incorporate a high level of technology, in no small measure because the other contact centers that the utility customers deal with will have increased their use of technology and, thus, changed customer expectations. This high level of technology has a number of implications:

- The costs of acquiring and integrating higher levels of technology will result in more utility-to-utility contracting out, with smaller utilities outsourcing their call center functions to nearby larger utilities that have the economies of scale to afford the technology and associated training required for the contact center of the future.
- High technology costs and rapid changes in technology will result in an increase in the use of cloud computing in its many forms (hosted solutions, software as a service, etc.). Higher use of cloud computing will, in time, lower prices, accelerating the move to cloud computing. As contact centers ease their reliance on resident hardware and software, resilience will be increased, but training needs and the capabilities of contact center personnel will also increase.
- Much of the additional technology will be put in place to increase levels of self service to meet customer's expectations. Customer expectations will be raised because they are seeing high levels of self service in their dealings with their other service providers.

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- Technology changes and additional capabilities will increase the need for the customer contact center to inform their customers of the improved capabilities that are being added.

Relationship with the Customer

While the customer contact center will have a higher level of communication with the customer, less of it will be voice-based communications:

- Self service in its many forms (Web, IVR, etc.) will become the predominant transaction mode;
- Voice-based communications will become more complex since simpler transactions will be handled through self service channels;
- The contact center will be gathering significantly more information about the customer than before and using it to improve other utility operations; and
- Social networking will increasingly be used both to communicate with customers and to find out what their concerns are.

Those utilities owned by governments that elect to implement 311 systems may find another call center (the 311 call center) between them and their customer requiring them to adapt to this new service configuration.

Customer Contact Center Personnel

The personnel in the customer contact center of the future will need to be more technologically competent and highly trained than ever before:

- Agents working in utilities that offer chat capabilities will need to demonstrate high levels of dexterity, working with multiple customers at a time and, possibly through multiple channels (e.g., conducting web based chats while simultaneously in telephone communication with customers);
- As utilities move increasingly to cloud computing, upgrades will become more frequent requiring more training (to update knowledge) than under the old ownership of everything model;
- Agents will have access to more information about the individual customer than ever before, simultaneously making their job easier but also requiring more discretion and sophistication in how that information is used; and
- Agents involved in outbound calling, such as collections, will have more tools at their disposal to increase both the efficiency and yield from their activities.

Contact Center Relationship to the Rest of the Utility

As the contact center gathers, stores and indexes increasing amounts of information about the utility customers, their importance and relationship to the rest of the utility will change:

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- Through their use of social networking they will be able to produce highly current customer satisfaction and concern information and quickly alert the utility of problems;
- Technical quality complaints will be mapped and analyzed to identify emerging field problems. This information will be fed into asset management systems to refine asset condition data and replacement models;
- Mining of customer contact data and satisfaction surveys will allow utilities to identify which utility processes are satisfying customers and which need to be improved in near real time;
- Engineering and construction will take advantage of customer information to plan field work. The contact center will be instrumental in contacting neighborhoods regarding work in the streets that will affect them;
- Information gathered through the AMR system will assist in leak control activities to reduce unaccounted-for water levels and to plan drought-related actions;
- Those utilities with AMI will be able to more actively manage drought events; and
- The contact center will be the major information vehicle for the utility using a variety of methods (text, social networks, reverse 911, etc.) to alert customers about problems and actions they need to take.

RECOMMENDATIONS FOR UTILITIES

Today's water utility must determine how to transition from today's water utility contact center to the optimized contact center of the future – a contact center that combines efficiency and effectiveness within an overall utility strategic framework. The optimization toolkit appended to this report provides a vehicle for planning out that transition. The toolkit:

- Presents a contact center strategic framework;
- Facilitates both a strategy self-assessment and benchmarking;
- Provides size-based recommendations, best practice lists, instructive case studies and resources to develop a transition plan; and
- Provides a plan framework.

Given the rapid rate of change in this area, utilities must also be prepared to constantly monitor practices and technologies used by other service providers to identify changes in trends, as well as changes in areas such as the use of social networks.

RECOMMENDATIONS FOR FUTURE RESEARCH

This study was broadly-based. Some narrower areas that we suggest are worthy of further research are listed below for consideration by the Foundation:

- Effective use of social networks by water utilities;
- Effective use of cloud computing. This would include guidance on negotiating and managing hosted solutions;
- Working with a 311 call center; and
- A guide to contracting call center functions.

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APPENDIX A
EXPERT WORKSHOP

OVERVIEW

In November, 2008 an Expert Workshop was held as part of the research effort. This Appendix summarizes some of the discussions and presentations of that workshop. The material presented herein includes:

- A summary of the workshop.
- Case studies that were presented at the workshop which are not included in this report.
- Presentations regarding leading edge technologies and capabilities.
- Exercises that were conducted regarding different aspects of call centers.
- Concluding thoughts.

EXPERT WORKSHOP SUMMARY

On November 13-14, 2008, an Expert Workshop was convened at the Cleveland Water Department headquarters in Cleveland, Ohio. The purpose of the workshop as directed by the Water Research Foundation was to "…examine implementation of best processes, practices, and technologies for water utility customer contact centers. The discussion will encompass drivers and barriers to implementation, integration and optimization of business practices between the customer contact center and other utility functions and many other issues. It will produce a vision, with characteristics, of the water utility customer contact center of the future. Participants will discuss trends affecting customer contact centers and will project characteristics of the efficient, effective and competitive customer contact center of the future."

Attendees

List of attendees to the Expert Workshop are summarized in Table A.1 below.

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Table A.1 Expert Workshop Attendees

Representing	Name	Title
Water Research Foundation	Linda Reekie	Project Manager
Host Utility	Chris Nielson	Commissioner Cleveland Division of Water
Host Utility	Sharonda Denson	Assistant Commissioner, Cleveland Division of Water
Invited Utility	Connie Roesch	Superintendent Greater Cincinnati Water Works
Invited Utility	William Schatz	Customer Service Manager (Ret) Tacoma
PAC	Bob Day	Director Customer Service San Jose Water
PAC	Irwin Jankovic	Strategic Program Manager Metropolitan Water District
PAC	Orlivea Williams	Manager of Information Center at Kansas City Water Services Dept
Project Team Amawalk	Ed Markus	QA/QC
Project Team Amawalk	Myron Olstein	Principal Investigator
Project Team Amawalk	Shan Lin	Lead Consultant
Project Team CEDay Associates	Charles Day	Co-PI
Project Team Cognyst	Donald Schlenger Ph.D.	Co-PI
Project Team Westin	Bill Lloyd	Co-PI
Utility Advisory Group	Charles Kiely	VP DC Water and Sewer Authority
Utility Advisory Group	James Patterson	VP- Columbus (GA) Water Works
Utility Advisory Group	P.Michael Thomas	General Manager, Clayton County Water Authority
Utility Advisory Group	Tim Cupo	Supervisor Passaic Valley Water Commission
Invited Speaker	Alison Posinski	AWWA Certificate Program
Invited Speaker	Douglas Spier	VP Westin
Invited Speaker	Kathleen Gillespie	Director AWWA Certificate Program
Invited Speaker	Steve Tae	Booz Allen Hamilton
Invited Speaker	Tom Aiello	VP Envision

Agenda

The agenda for the first day consisted of the following:

- The Project description – an overview of Project objectives and scope, work performed to date and the workshop objectives;
- A description of the water utility customer contact center of today, conveyed through a scripted role play;
- A panel of four water utility senior executives describing their utility's improvement program;
- A description of the water utility customer contact center of the future, conveyed through a scripted role play;

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- A panel of four water utility senior executives describing desired future capabilities for customer contact centers;
- A presentation by a representative of Envision (telephony technology company) describing potential advanced telephony solutions (included at the end of this Appendix);
- A presentation by a representative of Booz Allen Hamilton regarding customer contact center improvement strategies (included at the end of this Appendix); and
- A presentation by a representative of Westin Engineering describing Business Intelligence analytics and a customer contact center performance dashboard (included at the end of this Appendix).

During the first day, attendees were encouraged to sign up for one of four groups that would be convened the following day to work on four separate, but related, topics affecting the customer contact center of the future. Day one closed with a summary of the day and brief homework assignments from the four group leaders.

The second day opened with a recap of the first day's proceedings and a brief discussion. This was followed by a presentation of the AWWA CSR Certificate Program (included at the end of this Appendix). The attendees then split into four teams to work on the following topics:

- Customer Interactions;
- Agent Empowerment;
- Workforce Management; and
- Meter Technologies.

After discussion among the members of each group, the individual teams reported back with a concise summary of their findings, followed by questions and answers. Proceedings were summarized and points of consensus identified.

Summary of Day One Discussion Points

Welcoming Remarks

The workshop participants were welcomed to the City of Cleveland and the Cleveland Water Department (CWD) by Commissioner J. Christopher Nielson. CWD is pursuing a number of customer service initiatives with the goal of achieving a "Customer First" culture.

Remarks by Water Research Foundation Project Manager

Project Manager Linda Reekie welcomed the group and noted the many customer service-related projects being conducted by the Water Research Foundation, directing attendees to www.waterresearchfoundation.org and Project Center.

Description of Project, Overview of Work to Date and Workshop Objectives

Some of the key points of the presentation included:

- The project objective and scope was described. The primary objective is to provide assistance to water utilities in developing and operating more efficient, comprehensive and cost-effective customer contact centers.

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- The Project Team's approach to the research was described. Key points included a well-defined view of the future, looking at best practices of high performers both inside and outside the industry, focusing on current and emerging technologies, developing strategies and looking at a variety of models.
- The literature review of high performers outside of the industry identified the following trends: automation to reduce incoming call volumes, wider use of Web applications, a focus on workload scheduling including the use of remote agents, an agent focus on quality beginning with hiring and continuing through training, call monitoring, rewards and retention, and a rich use of benchmarking and metrics.
- The results of the structured interviews conducted with 14 water utilities were summarized. Some of the major findings included:
    - A large amount of money is expected to be spent on upgrades and new technology installations in the next 5 years;
    - Most of the utilities interviewed were more concerned with today's problems and much less with long-term concerns;
    - Benchmarking and metrics were a problem for many utilities, e.g., how to measure First Call Resolution, whether the Qualserve™ benchmarking metrics are truly an apples to apples comparison;
    - Other problems included:
        - Managing overflows and after work calls;
        - Integrating separate legacy systems;
        - Training; and
        - Succession is a looming future issue, but not a current concern.
- The results of the "Futures" interviews conducted with 5 General Managers (GMs) and Assistant General Managers (AGMs) were described and summarized. Since the structured interviews conducted with water utilities revealed a focus on current problems, these interviews were conducted with the specific intent of producing a view of the needed capabilities of the Customer Contact Center of the Future. The interviews results were grouped around the following themes:
    - Meter related;
    - Agent related;
    - Call center;
    - Field services;
    - Strategy;
    - Training;
    - Systems;
    - Communication with customers;
    - Internal communications;
    - External relationships/communications; and
    - Customer relations and satisfaction.
- The case studies conducted by the Project Team were briefly discussed. The materials provided to attendees included brief summaries of the case studies. Highlights of the findings of the case studies included:
    - Accurate billing, as a result of implementing AMR or touch-read significantly reduces call volume;

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  - Attractive and available self service (Web, IVR, kiosks) also reduces call volumes
  - Call center technologies can improve first call resolution and customer satisfaction; and
  - Small utilities can be efficient through the use of technology or they can contract with larger nearby utilities (i.e., public agency to public agency contracting out) that can afford more advanced technologies.
- The attendees were asked to consider and provide their views on the best way to present research results. The options consisted of either a problem-solution pairing or a more strategy-based presentation described as goals-strategy-tools.
- A problem-solution based approach offered the following advantages and disadvantages:
  - *Advantage* – utilities were familiar with their problems and could quickly look up their problems and find offered solutions; and
  - *Disadvantages* – a focus on problems-only might result in overlooking potentially promising approaches and, thus, not result in optimized customer contact centers.
- A Goal-Strategy-Tools approach offered the following advantages and disadvantages:
  - *Advantage* – by using a strategy focus it should produce a more comprehensive picture for users of the Report and be more likely to result in an optimized customer contact center; and
  - *Disadvantage* – it would be more difficult for the reader to work through in finding solutions to pressing problems, a potentially important first step before proceeding to the optimization step.
- The Final Report outline was also presented and attendees were asked to consider whether or not that presentation of materials would meet their needs.

Problems That Today's Customer Contact Centers Are Facing

The problems facing today's customer contact centers were conveyed in a role play that consisted of an interview of the AGM in charge of customer service for a water utility by a reporter from the American Water Works Association Journal, set against a background of intermittent interactions between a call center agent and an irate customer. The major points conveyed in the role play were:

- Difficulty in workforce management, particularly matching call center staffing to call demand;
- Difficulty in managing overflow during working hours and difficulty in arriving at satisfactory solutions to afterhours calls;
- Multiple numbers for customers to call;
- The situations that lead to angry customers;
- Multiple unlinked systems;
- Calls from people who are not customers of the utility (and not being able to identify them as such);
- Multiple estimated reads resulting in high bills when there is finally an actual read;

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- Ineffective Interactive Voice Response systems;
- Stressed-out agents;
- Long handle times (due to multiple unlinked systems);
- Difficulties with 311 (311 system took some agents but call volume stayed the same);
- Inadequate training;
- Inadequate or non-existent quality assurance (QA), i.e., techniques such as silent monitoring are not in use;
- Tracking the wrong metrics; and
- Customer satisfaction information that does not support sound investment decisions, i.e., not being able to know if investments will actually satisfy customer's desires.

A spirited discussion followed the role play exercise. The consensus was that the role play did a good job of conveying many of the problems facing today's utilities. Some of the key points during the following discussion included:

- Water utilities are a monopoly and sometimes treat their customers as people who have no choice. Gas and electric companies are also monopolies but have a better reputation in this regard.
- Water utilities should empower agents with knowledge and tools so that they can answer any customer questions.
- The role play included the problem that some utilities encounter when called by a customer of a neighboring utility. Failure to identify such situations creates inefficiencies. Also, the inability of an agent to interact with field services was viewed as a problem.
- Other utilities'' (gas and electric) agents can schedule work, but many water utilities can't provide scheduling because of the lack of a CRM system. Also, water utility call center agents can't update work order status due to separate (unintegrated) work order and CIS systems.

The role play included a segment where the (stressed out) agent made an exasperating comment ("simmer down now!") that all thought to be inappropriate. Many of the attendees felt that it hit home and a number recounted similar incidents. Some of the discussion centered on that portion of the role play:

- It was pointed out that at no time did the agent give the customer incorrect information; the agent was basically hamstrung by inadequate systems and procedures.
- Silent monitoring, which is one way to correct agent's responses in high stress situations, was seen by attendees as seeming to be restrictive and heavy handed but good to have as a way of getting agents to pay attention to detail.
- It was suggested that agent training should include customer relationship building.
- A focus on handle time could be a factor in elevating agent's stress level. Handle time (as a controlling metric) sometimes conflicts with First Call Resolution and customer satisfaction. Handle time is not the most important metric but it's important to customers in a queue.

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- Agent should have been empowered with better technology.

Panel – How We Conducted Our Improvement Program

The panelists for this session included senior customer service managers from the Greater Cincinnati Water Works (OH), Columbus (GA) Water Works, Passaic Valley Water Commissioners (NJ), San Jose Water (CA) and a retired customer service manager from Tacoma Public Utilities (WA).

Passaic Valley Water Commissioners (PVWC)

PVWC made a number of improvements using the AwwaRF (now Water Research Foundation) Customer Satisfaction toolkit (a study completed in 2002):

- Prior to making improvements in software, telephony and meter reading, PVWC experienced a 30-40% abandonment rate; now it is down to less than 2 %.
- By going to a virtual contact center (there are three different phone numbers customers can call); the response time to emergency calls is down to under 15 minutes.
- PVWC has touch- read meters which are read by a contractor at $1.35 per read. The accuracy rivals that of Automated Meter Reading (AMR) with a comparable reduction in the incoming call rate.
- PVWC is a contact center contractor for two smaller utilities who are wholesale customers. During the initial transition period for one of the utilities they identified themselves as PVWC responding for (other) utility. It quickly became accepted so they no longer do that.
- Continuing problems include theft of service and inconsistency of bill resolution among agents. The Commission has still not been able to integrate the work management system and billing system and continues to have problems with customer calls asking for work order status.

Columbus Water Works (CWW)

CWW was a case study utility in the AwwaRF Customer Satisfaction study and has made steady improvements in customer service as outlined below:

- Strategic planning is very important to how CWW gets things done. The customer service portion of CWW's strategic plan is built around customer satisfaction. CWW has associated data collection and performance measurement tools. Reports go to top management every 6 weeks.
- The Water Works has an extensive customer satisfaction database and can measure the impact of process changes on customer satisfaction.
- Incentive pay for customer service employees is centered on customer satisfaction benchmarks and keeps employees engaged.
- CWW can measure results of their various initiatives through their regular customer satisfaction surveys. They are continuously improving but have not peaked yet.

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- Implementing a new telephone system that will provide real time display of work load.
- Payments made through IVR and on the internet (Web site) are real-time. CWW can see payments within 2-3 minutes of being made. This helps to improve customer service when customers are making last minute payments.
- Customers actually get an extra week beyond the notified shut-off date before a shut-off actually occurs, but customers don't know that. This becomes an empowerment tool for CSRs and they can avoid listening to customer's negotiations.
- CWW uses television TV announcements to convey information to customers, but the message is always consistent with what is on the bill inserts.

San Jose (CA) Water

San Jose is an investor-owned utility regulated by the California Public Utility Commission (PUC). Project Advisory Committee (PAC) member Mr. Robert (Bob) Day is responsible for call center, customer service and a variety of other related areas. San Jose Water (SJW) has been very active in leveraging technology to benefit customers especially in the areas of information management:

- SJW has an ACD/IVR system, utilizes both e-bill and e-pay, and has some AMR.
- About 6,000 large customers are billed using mobile AMR which allows the utility to provide more detailed billing data to large customers. Looking at automated meter infrastructure (AMI) for remaining customers.
- California PUC has embraced conservation but is reluctant to support AMR investments even though they agree it will aid conservation.
- Will be implementing new CIS to improve mobile capabilities.
- Will also be implementing enhanced Web-based systems.
- Will be working to integrate separate systems.
- Perform regular post service surveys of customers.

Greater Cincinnati Water Works (GCWW)

GCWW has a national reputation for being an aggressive agency when it comes to analyzing operations and processes to improve customer service. GCWW has learned that one of the ways to convince authorities to "play in the sandbox" is to have good business cases:

- GCWW's call center agents are amongst the highest paid agents in the industry.
- GCWW utilizes many part-time agents (27). Part-time agents are part of the Teamster's Union; full-time agents are part of American Federation of State, County and Municipal Employees (AFSCME).
- This all requires flexible workforce planning. GCWW is trying to implement Blue Pumpkin® (a workforce scheduling software package). Mostly, they need to be able to adjust "on the fly".
- Some agents come from customer service departments of other companies.

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- Serves as call center contract operator (call center and billing services) for 11 outside agencies. Revenues generated as a contract operator cover 70% of customer service costs.
- Customer base in Cincinnati is declining. Agents have to use different scripts in the suburbs. Fewer payment extensions in suburbs. Need to train agents in the differences.
- Invest heavily in CSR training. Have 12 online training modules.
- Have 15 information technology (IT) professionals (full time and part time) that work on IT for customer service.
- Rely on investments in technology to make up for customer relations skills that could still improve.
- "If you give talented people the tools and dollars they will figure it out".
- Customer service still does not have the same status within the utility as Engineering.
- The future will include consolidation and mergers.

Tacoma Public Utilities (TPU)

TPU provides water, power and rail services. Some of the recent improvements in their customer service operation have included:

- An emphasis on coaching as a style of management with at least quarterly feedback.
- Changing out dumb terminals to desktop PC′s.
- Implemented a separate cashiering system from the Billing system.
- Placed wireless laptops in the field for collections/disconnects.
- Implemented enhanced IVR functions, i.e., payment arrangements.
- Started credit card payments via the phone, IVR and in person.
- Established eleven, 24 X 7 kiosk pay stations in selected grocery stores that take payments in cash, checks, money orders and credit cards.
- Created in-house training group including on-line training.
- With new billing system, implemented electronic bill presentment and payment (EBPP).
- Hired a consultant and used the recommended new analytical tools to identify causes of calling center call volumes.
- Implemented Envisions System to change from random monitoring to scheduled monitoring of both voice and keystrokes.
- Implemented a more accurate Work Management System that changed work hours to better match the incoming call workload.
- Re-established work management performance goals and objectives.
- Used Envision data for self-evaluation in a Quality Assurance.
- Implemented access to Billing System data for escrow agents to view selected billing data to close real estate sales.

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- Implemented access to Billing System data for apartment managers to make changes for moves within their complex.

Panel Discussion

Some of the panel discussions focused on business case and research reports:

- The rule at PVWC is if you can show a 3 year payback it will get funded, at 5 years you have to sell it, more than 5 years will not be funded.
- GCWW – must have a good business case to get approval for new projects. Recently received funding for a $40M project that showed a nine year payback.
- On how to structure the Foundation reports – "give us a variety of information and let us pick and choose what we think we need".

The Customer Contact Center of the Future

The problems facing the Customer Contact Center of the Future were conveyed in a role play involving the same four individuals as in the earlier role play - the AGM in charge of customer service for a water utility, a reporter from the American Water Works Association Journal and intermittent interactions between a call center agent and an irate customer. This took place 7 years after the earlier role play. The major points conveyed in the role play are described below.

New problems that the utility has had to deal with since the previous visit of the AWWA Journal reporter seven years ago:

- Year after year rate increases approaching double digits due to expanding capital programs have gotten the attention of customers.
- The utility's customer base is older, more politically savvy (and with time to act on it).
- Customers are easily annoyed at high level of street work – due to high level of infrastructure work in general, high utility capital improvement program (CIP) and breaks in the older part of the system where repair and replacement was deferred.
- Utilities have difficulty hiring for technical positions.
- Call center is at a much higher level of technology, requiring a much higher level of training.

How the Contact Center of the Future deals with those problems:

- Automated meter infrastructure (AMI) - meters are accurate and read frequently with no estimated reads.
- As a result of AMI, incoming calls are reduced by more than half.
- The AMI investment was sold to management by reducing call volume (down by 60%), delinquencies, and operating reserves; improving bond ratings; and increasing revenues due to more accurate meters and elimination of meter readers.

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- "Trusted partner" relationships in which certain customers have access to carefully delimited data to perform certain functions (e.g., final reads for departing customers, new customers, and low income assistance).
- AMI permits multiple unique rates.
- Improved systems allow customer to pick the dates when the bills will be rendered.
- Multiple channels allow for choices in bill presentment and payment.
- AMI allows for proactive leak detection and notification.
- Active programs to gain customer loyalty – such as sponsored advocacy-based organizations.
- Knowledge gained by contact center widely shared and used throughout the utility.
- More use of "hosted" solutions to get around funding problems, bring newer technology to the contact center and provide resiliency.
- Use of kiosks to distribute pay centers at convenient locations.
- Use of business intelligence (BI) analytics performance dashboard to dynamically monitor customer satisfaction.
- Improved use of performance measures.
- Greater use of remote agents.
- Large utilities provide contract contact centers for smaller utilities.
- Improved QA procedures and improved call monitoring (emotion measurement).
- Improved cost-effectiveness decision-making through focus groups that identify which new features will be more highly valued by customers.

Panel – What We Want/Need To Be Able To Do In The Future

The panelists for this session included senior customer service managers from the Clayton County (GA) Water Authority, the Cleveland Water Department (OH), the District of Columbia Water and Sewer Authority (DCWASA), the Metropolitan Water District of Southern California (MWD) and Tacoma Public Utilities (WA).

Clayton County Water Authority

Clayton County is a water and sewer agency in the County immediately south of Atlanta. The Authority is in early stages of making improvements to customer service:

- "Utilities have got to stop thinking of themselves as government and start thinking of themselves as being in a service business";
- Text messaging to customers may be a big way to get through to our customers, particularly as an alternate to outbound 911;
- Improved cell phone usage – to view and pay bills; and
- Smaller utilities need assistance in handling new technologies.

Metropolitan Water District

MWD is a wholesaler without a call center:

- We need to provide tools to make us as easy to use as ordering from Amazon.com?

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- We need to move from having our CSRs being transaction facilitators to being producers of value.
- We need to enhance the productivity out of our people.
- We need to follow up after conversion to new technology. Make sure that employees use the new technology.

DCWASA

DCWASA became an independent authority in 1996 and has implemented some major improvements recently, including a fixed network AMR system that polls meters twice a day, some hosted solutions within customer service, 24 X 7 service., a ½ hour promise on emergency calls and an aggressive receivables reduction program. Some other progressive aspects of DCWASA's customer service include:

- We use the frontline people in revising business processes since they are the "experts" in the process.
- Water utilities can be the only game in town now, but that can go away quickly. It's important to align the customer service business processes with the utility's processes.
- Before AMR, 70% of the calls were bill related. Now the bills are right and DCWASA has a much lower call volume.
- DCWASA performs customer service screening tests of potential candidates. When a utility gets good people, empower them and give them support.

CWD

CWD has been working to enhance its customer service:

- Unless the utility knows what the customer wants, it can't be very successful. Technology can help in figuring out what customers want and value.
- Utilities must make sure that they give the customer quick feedback.
- Utilities have to value CSRs and make sure that they have full knowledge of what the utility does.
- For small- to mid-size utilities, the challenge is to implement technology that allows CSRs to act like service providers.
- CSRs are now at the bottom of the organization chart. In the future they will have to be high technology-capable of doing analytics on the fly.
- Need to be able to fashion a technology solution and integrate it into many business processes to become a proactive agency.

Panel Discussion

In addition to AMR, on-line chatting and text messaging is an effective way to reduce the volume of incoming calls. Concerns here would be the need to have a permanent record and different types of associated training.

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Telephony Solutions

Mr. Thomas Aiello, a representative of Envision, gave a presentation on advanced telephony solutions. His presentation began by discussing how the customer service bar had been raised from:

- Picking up the phone;
- Accurately answering questions.
- Routing calls;
- Resolving issues; and
- Doing it courteously and quickly.

To all of the above plus:

- Understanding why customers are calling;
- Identifying and adapting quickly to activity trends; and
- Taking proactive, predictive and preventive measures.

Significant customer service trends:

- Multi-channel analysis and trending;
- Unified performance dashboards;
- Full-time recording for analytics;
- VOIP for voice/data/video applications;
- At home/outsourced/virtual agents;
- Technology staff integration;
- Bundled work force optimization technologies that are scalable, provide analytical capabilities (including trending analysis);
- Customer analytics and data mining;
- Identity protection and security - Red Flag Rules Compliance;
- Logging and indexing all calls; and
- Key word searches of archived calls.

Customer Contact Center Improvement Strategies

Mr. Steven Tae of Booz Allen Hamilton gave a presentation on potential contact center improvement strategies:

The challenge for senior management is to decide how best to spend their resources, time and budget to improve customer satisfaction.

- Agencies today are using a variety of channels to interact with customers (web, e-mail, chat, telephone, walk-in centers etc.) often increasing the difficulty of providing consistent service excellence across all channels;

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- Customers are demanding the same level of service from the public sector as they receive from the commercial sector – customized information and services that are convenient, timely and accurate; and
- Driven predominantly by legislation, many public agencies are refocusing their investments on citizen-centric initiatives.

As a result:

- Organizations spend millions of dollars in an attempt to satisfy their customer's needs and wants without much support to show how each dollar invested results in higher customer satisfaction; and
- Senior management is often challenged with showing a positive cost-benefit analysis on their investments.

Booz Allen research has shown that increased spending can result in diminishing returns in customer value over time. Reasons include:

- Customer contact centers cannot always define their ultimate objective;
- The move to multiple channels has a direct impact on metrics such as cost to serve; and
- These and other challenges must be accompanied by a comprehensive technology strategy.

Managing costs is still imperative but understanding the impact of operational and technical issues on costs is still a challenge:

- Lower cost per call is at odds with higher customer satisfaction;
- Cost per call is difficult to measure;
- Call centers often set performance goals or make operational changes without understanding the cost impact;
- Cost avoidance measures are not fully understood or utilized; and
- Managers have difficulty in measuring the true ROI for technology and other investments.

Workforce costs are often the largest expense in the contact center, but:

- Turnover rate for agents is among the highest in most job categories;
- High turnover leads to low employee morale and productivity and increased cost in training; and
- High turnover leads to lack of consistency in the contact center.

Contact center technologies are highly integrated, expensive to implement and can present challenges if not properly aligned with customer service strategy:

- These complexities lead to schedule delays, overruns and unrealized ROI;

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- IT organizations are under budget constraints at the same time that contact centers are seeking to reduce costs through the implementation of technology;
- Contact centers are challenged to integrate front and back office operations while providing seamless interactions with the customer;
- Distributed operating environments are frequently difficult to manage, costly to maintain with compounding levels of issues to control; and
- Managing IT staff and IT vendors working on vastly dissimilar technologies requires highly skilled program management personnel.

While many solutions are available not all solutions align with a contact center's strategy and current technologies. It is important to incorporate a solid performance measurement strategy to meet performance goals:

- Performance metrics need to understand key business drivers, strategies and goals;
- Performance metrics need to drive a holistic view of performance;
- Customer satisfaction measurement should be ongoing as a best practice;
- Performance metrics and workforce management needs to be standardized at all locations; and
- Continuous improvement needs to be driven through better reporting and analysis.

Contact centers are employing innovative solutions to overcome personnel resource challenges through quality monitoring, standard performance metrics, incentive programs and CSR career paths. To best manage workforce costs, contact centers must maximize an agent's performance. Aligned with a business strategy, technology can improve processes, efficiencies and customer satisfaction through such measures as:

- Utilizing a flexible IT strategy that is aligned with the utility's overall strategy;
- Systems should incorporate open standards as much as possible to create vendor independence, increase interoperability and reduce overall costs;
- Consider the use of bundled suites and virtual deployments to reduce Total Cost of Ownership (TCO);
- Focus on scalability and accessibility; and
- Develop business continuity and disaster recovery plans to ensure transparency to customers in the event of technical outages.

Mr. Tae then described an approach to contact center investment decisions and presented a case study of a contact center improvement.

Use of BI Analytics and Dashboards

Mr. Douglas Spiers of Westin Engineering gave a presentation on business intelligence analytics.

- Business intelligence (BI) analytics are tools that can provide management and staff with real-time measurement of performance indicators;

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- Performance measures can address contact centers' cost, quality, productivity, agents, productivity, and call handling;
- BI applications use combined data from a utility's operational systems (e.g., customer information, maintenance management) to deliver:
    - graphical displays
    - exception alerts
    - management dashboards
    - performance scorecards
    - analytics and trending
    - production reporting
    - simulation/modeling
- BI builds on successful business planning (goals, mission), technology planning, identification of appropriate performance measures, and integration of data from operational systems;
- Benefits include:
    - Support for performance improvement initiatives
    - Reduction of staff time associated with report generation and production
    - "One version of the truth"
    - More timely and accurate decision-making
    - Increased customer satisfaction
- Metrics alignment with customer satisfaction;
- Multiple channel evaluation;
- Quantifying benefits of customer satisfaction;
- Human capital initiatives;
- Assessing impact on ROI/customer satisfaction; and
- Calculating customer-related investments taking into account the Maturity Curve.

AWWA CSR Certificate Program

Ms. Kathleen Gillespie and Ms. Alison Posinski described the AWWA Customer Service Representative Certificate Program:

- AWWA Customer Service Committees sponsor;
- Based on well-documented, effectively-designed, foundation-building entry level position;
- CSR fundamentals and core competency for entry level;
- CSR skills rose to level consistent with customer expectations and global demographics;
- Program consist of three 1.5 day courses = 27 hours total;
- Description: Customer Relationship Management, CSR basics, Industry operations; and
- Tools: workbook, trainers' guide, AWWA materials, job analysis, key skills, evaluation forms, certificate of completion.

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Summary of Day Two Discussion Points

The following are the summary reports from the four work groups that convened on the second day to discuss these important aspects of the future customer contact center.

Agent Empowerment Group Report

- The Customer Contact Center of the Future will incorporate an extensive array of technology;
- This will require a considerable amount of systems integration and a high level of agent training;
- Agents will need to be enabled with new analytical tools; and
- The high level of technology within the contact center will require dedicated information technology professionals.

Customer Interaction Group Report

- Major issues related to customer interactions include improved metrics, improved and higher levels of Quality Assurance, customer satisfaction measurement, First Call Resolution;
- Many improvements are needed in current measurement tools including real time customer feedback, voice analytics to measure customer satisfaction and multiple channels; also need improved hiring tools; and
- Major issues facing contact centers include incompatibility of existing PBX/ACD for easy upgrade to IVR and CTI, self service systems, difficulty in measuring First Call Resolution.

Meter Technology Group Report

- AMI will provide a wide array of new and useful features including remote turn on/turn offs, flow monitoring, leak detection, ability to support a larger array of rate structures, resolution of customer disputes, provision of specialized services to elderly residents;
- This new data and capabilities will reduce call volume, provide revenue opportunities, and support differentiation of service levels; and
- However, there are presently limited application technologies. What will be needed will be the development of new application technologies, larger data bases will require programmers and development applications analysts, as bills go way, way up utilities will have to demonstrate that they understand consumption and are vigorously attacking losses.

Workforce Management Group Report

- The contact center workforce of the future will be capable of doing more with fewer people. It will be important that they develop a strategic plan that is in alignment with business strategies and meets customer expectations;

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- Job descriptions will need to be changed; recruitment, selection and hiring methods will need to be refined;
- Q/A, monitoring, effective coaching and supervision will become even more important; and
- Implement continuous improvement – assess success, monitor performance, develop corrective actions.

Expert Workshop Group Consensus

Following team reports, a consensus-seeking session arrived at the following:

- The Contact Center of the Future will be extremely important to the utility;
- The Contact Center of the Future will be more complex;
- The role of the agent will involve much more responsibility and be more complex than today's agent;
- There will be more competition for the skilled people needed by the Contact Center of the Future;
- AMI will have increased penetration;
- There will be increases in the use of hosted solutions;
- There will be increases in contracting services (public agency to public agency);
- There will be increased use of BI analytics and dashboards;
- Customer satisfaction measurement will be dynamic and dashboard-based;
- The Contact Center of the Future will be fully integrated with the utility;
- This will all require a strategic review of policies and procedures; and
- There will be a move toward a virtual contact center (view usage history on cell phone, pay bills by cell phone).

Concluding Guidance

- Start! Even with a small step;
- Strategic plan is important –get organization involved, strategy needs to be in harmony with customer satisfaction;
- Need to decide how much do we value customer service;
- Try pilot programs for customer contact center initiatives;
- Certification of agents; and
- Need Business Intelligence analytics.

Project/Final Report Guidance

During the workshop a number of questions were posed to the attendees regarding the most useful methods for presenting information for implementation by utilities. Some suggestions:

- The goal-strategy-tools approach was preferred to problem-solution presentations; and

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- Present a diverse array of information including case studies so that utilities could pick and choose what they think would find useful to them.

CASE STUDY OVERVIEW

An overview of the case studies for Columbus Water Works, Passaic Valley Water Commission, Chesterfield County Virginia Department of Utilities, and City of Virginia Beach Department of Public Utilities was presented. These case studies appear in Appendix B of the final report. An additional case study is summarized below.

Kiosk Paystations

A large public service utility, headquartered in a metropolitan city in the Northwest, had identified the need to reduce customer traffic in their local public offices; to direct cash-paying clientele to alternative payment locations. In November 2005, the utility and a vendor entered into a strategic partnership to launch a pilot project with the deployment of bill paying services in 150 local convenience stores in the metro area. The vendor's state-of-the-art solution has exceeded the utility's expectations, as their customers now enjoy instant and convenient access to bill pay services in over 250 local convenience stores. To date, an average of 12,000 customers per month make cash payments through the paystations at the convenience stores. This exceeds the original goal of 7,500 customers per month from utility's local offices to convenience stores. Meanwhile, utility customers express their satisfaction with the program's expansion and convenient bill payment opportunities.

The utility has received tangible benefits in:

a) Eliminating the need for kiosks in their local offices;
b) Reduction in the number of cash payments at local offices;
c) Removal of the utility's owned kiosks and associated network;
d) Drastic savings in administrative costs; and
e) Ease of handling of after-hours cash payments.

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MATERIAL FROM PRESENTERS

Advanced Telephony Solutions – Mr. Thomas Aiello (Aiello 2008)

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Key Market Influencers

- Contact Center evolution
- Challenging economic times
- Technology as an enabler

Raising the Customer Service Bar

The legacy bar…

- Pick up the phone
- Answer questions, accurately route calls, resolve issues (trained and informed agents)
- Do it all courteously and quickly

The new bar…all of the above, plus:

- Understand why customers are calling
- Identify and adapt quickly to activity trends
- Proactive, predictive and preventive measures

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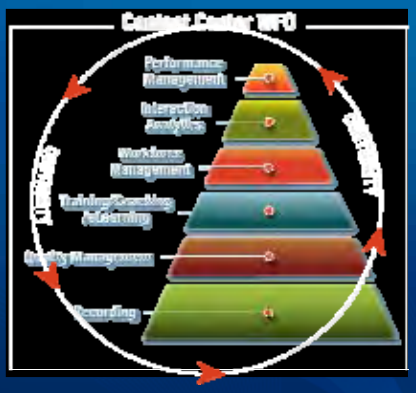
Significant Customer Trends/Initiatives

- Multi-channel analysis & trending
- Unified performance dashboarding
- Center/Enterprise KPI alignment
- Full time recording for analytics
- Multi-site management
- VoIP
- At-home/outsourced/virtual agents
- Identity protection and security
- First Call Resolution

Bundled WFO Technologies

Unified Web-based platforms that deliver…

- Lower TCO
- Improved flexibility/scalability
- Powerful analytics capabilities
- Easier upgrades/maintenance
- Agent, center and business trending/analysis
- Ease of use
- Open standards – more functionality
- Breaks down barriers to speech



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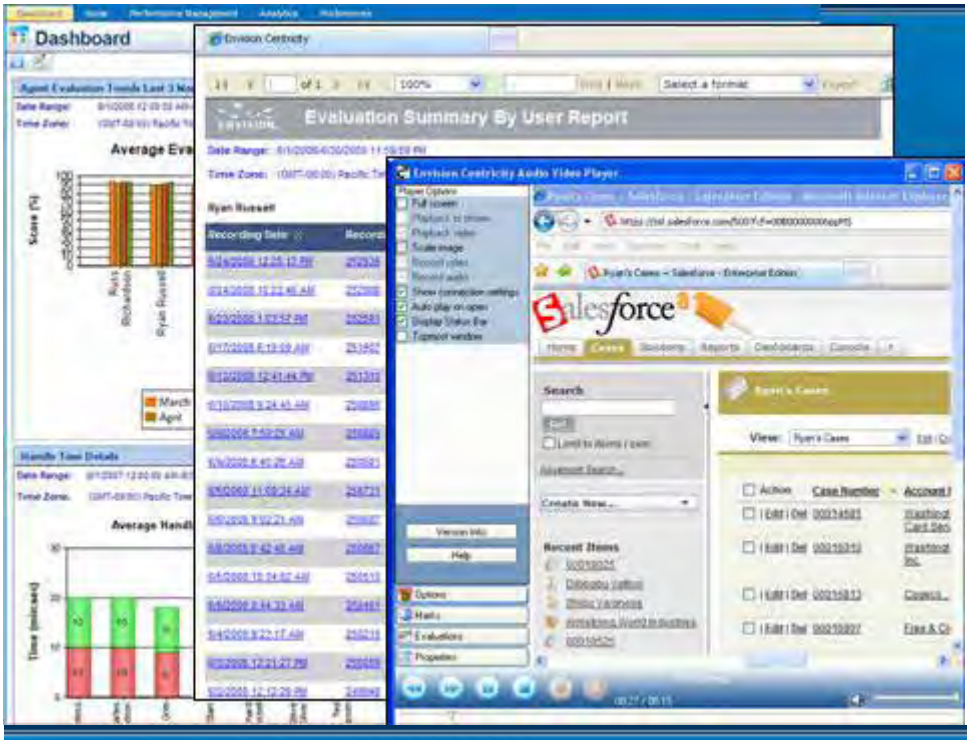

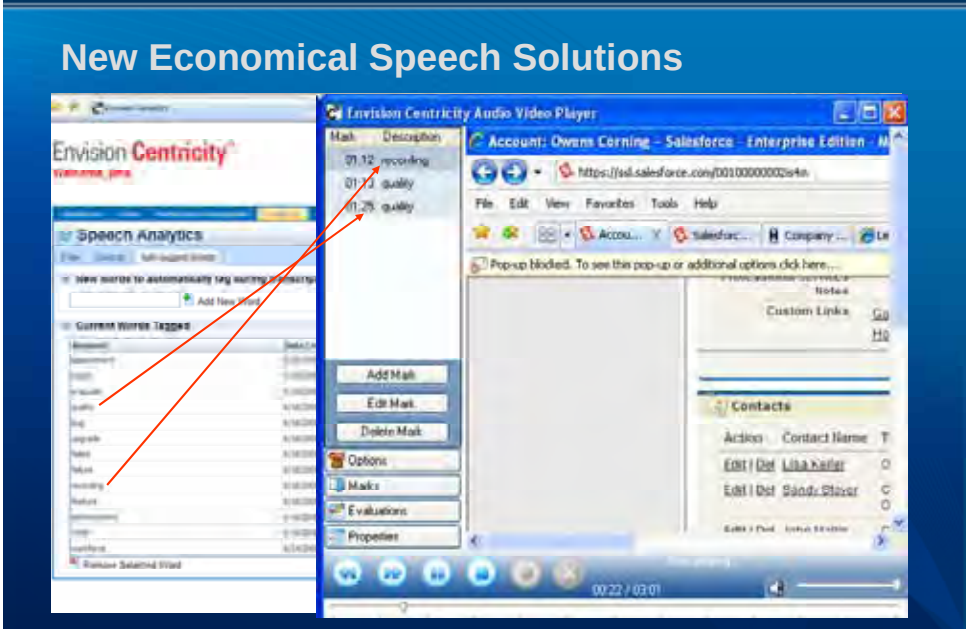

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Thank You

- Questions & Recap
- www.envisioninc.com

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Contact Center of the Future – Steve Tae (Tae 2008)

Contact Center of the Future – Putting *Customer* Back in *Customer Service*

Cleveland, OH
November 13, 2008

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Table of Contents

- Introduction
- Contact Center Challenges
- Trends

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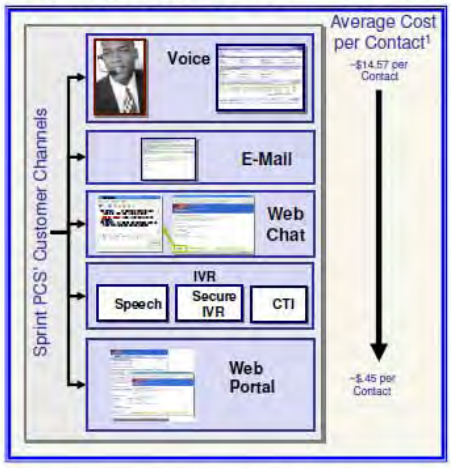
Introduction | Challenges | Trends

There are several objectives of this presentation

- To describe the type of challenges senior management faces when making critical investment choices around customer strategies and call center technologies
- To illustrate the benefits of a customer focused-solution that addresses these challenges and helps call centers prioritize their portfolio of customer-related investments

Introduction | Challenges | Trends

In 2002, Sprint PCS implemented a new customer strategy– an attempt to increase self-service options while decreasing costs



***Central Challenge*: Significantly increase customer use of self-service channels without impacting customer satisfaction levels**

- Sprint PCS was facing escalating operating costs in attracting, retaining and maintaining customers in a very competitive and cut-throat cell phone market (e.g., every customer who spoke to a live CSR only once a month would decrease its margin by 65%, based on its Avg. Revenue per User (ARPU)[1]
- Sprint was trying to figure out which area to focus and how to rationalize their investments in customer strategy
- Sprint PCS decided on implementing a speech IVR self-service option named *Claire*, which intended to move basic routine questions for CSRs to this new customer channel
- Customers found the IVR menu difficult to navigate and the technology ineffective in recognizing varying degrees of customer language
- Sprint PCs had to nix this program when they realized that this initiative resulted in increased customer defections from 2.6%/month in 2001 to 3.3.%/month in 2002[2] and decreased customer satisfaction levels.

(1) Source: Corporate Executive Board Call Center Council Best Practices Research Study; 2006 (partial list of participants included: Whirlpool, USAA, Visa, P&G, Merrill, Nike, Sprint); Booz Allen Research

(2) Source: Sprint PCS Annual Report 2002

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Introduction | Challenges | Trends

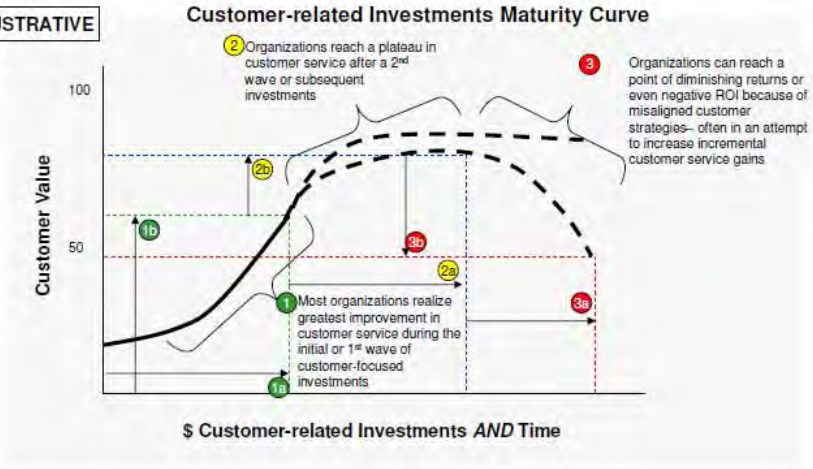
The Challenge: Senior management is often faced with how best to spend their resources, time and budget to satisfy their customers

- Today agencies use a variety of channels to interact with organizations (web, e-mail, chat, telephone, walk-in centers, etc.), often increasing the difficulty of delivering consistent service excellence across all channels
- Superior customer service is the expectation of citizens and customers
  - Customers demand the same level of service from the public sector as they do from the commercial sector – *customized information and/or services that is convenient, timely and accurate* – that is changing as consumer demand shifts over time
  - Driven predominantly by legislation, government agencies are refocusing their investments on citizen-centric initiatives
- Senior management is often under intense scrutiny and pressure to deliver business results – which are often tied to customer-focused investments
  - Organizations spend millions of dollars each year in an attempt to satisfy their customer needs and wants, without much support to show how each dollar invested results in higher customer satisfaction
  - Senior management is often challenged with showing a positive cost-benefit analysis on their investments– the direct correlation between resources spent on improving customer service, and aligning those resources to an increase in customer value and/or utility

Introduction | Challenges | Trends

In fact, our experience shows that increased spending on customer –related investments can actually result in diminishing returns in customer value over time[1]

ILLUSTRATIVE



(1) Booz Allen research

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Introduction | Challenges | Trends

Contact centers face a wide variety of strategic challenges ranging from customer segmentation to determining geographic footprint

- Contact centers can not always define their ultimate objectives
- Customer segmentation drives further decisions such as channel strategies and has a direct impact on metrics such as cost to serve
- Organizations struggle with decisions on how to segregate workload, weighing the cost efficiencies of a "one-for-all" approach against a business line or geographic model
- Decisions regarding the number and location of contact centers must takes into account human resource, technology, and contingency issues
- Wholesale outsourcing has become increasingly popular over the last five years but poses significant operational and emotional challenges
- Most of the above challenges must be accompanied by a comprehensive technology strategy

Introduction | Challenges | Trends

Managing costs is still a core competency in the contact center – understanding the impact of operational & technical issues on cost is a pervasive challenge

- Lower cost per call is philosophically at odds with higher customer satisfaction
- Cost per call methodologies are numerous, most are sloppily prepared and are not inclusive of all line items
- Organizations often set performance goals or make operational changes (e.g., expanding hours of operation) without understanding the cost impact
- Cost avoidance measures are not fully understood or utilized
- Planners have difficulty in gauging true ROI for technology and other investments

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Introduction | Challenges | Trends

Maximizing your personnel resources is a critical challenge since workforce costs are the largest expense at a contact center

- The challenge of recruiting, hiring and retaining quality staff is heightened by the fact that contact centers turnover rates for agents are among the highest in most job categories – approximately 20-40% turnover range according to Mercer Human Capital
  - Higher turnover results in lower employee morale, lower productivity and increased cost in training
  - Performance challenges
- Lack of consistency in the composition of a contact center workforce across sites and business lines (e.g., in-house, work at home, unionized, outsourced, temporary) create complexities, including but not limited to:
  - Disparate processes and service levels
  - Inconsistent roles and responsibilities
  - Varying levels of training and quality monitoring

Did you know…?

- *It takes an average of 5 to 8 candidates to fill a single job opening*
- *A typical one-hour in-person interview can take up to 5 hours to schedule, prepare, and perform*
- *Replacing an employee can cost up to 100% of their annual salary*
- *It can cost an average of $400,000 per 100 "mismatched" agents hired*
- *Finding out you've hired the wrong person can often take up to one year to discover*
- *Hiring the right agents can improve revenue by an average of $500,000 per 100 agents*

Call Center Times – The First-Time Resolution: Attracting The Right Talent In Your Call Center

Introduction | Challenges | Trends

Contact center technologies are highly integrated, often expensive to implement, and can present challenges if not properly aligned with a customer service strategy

- The complexity of contact center technology implementations often leads to schedule delays, cost overruns, and unrealized ROI
- IT organizations are under budget constraints at the same time contact center operational organizations are seeking to reduce costs through the implementation of technology
- Organizations are continuously challenged to integrate front-office and back office systems while providing seamless interaction to the customer
- Distributed operating environments are frequently difficult to manage, costly to maintain, with compounding levels of issues to control
- Managing IT staff and IT vendors working on vastly dissimilar technologies requires highly skilled program management personal
- Communication between the internal systems and operations management teams of an organization often lacks understanding of one another's roles and responsibilities

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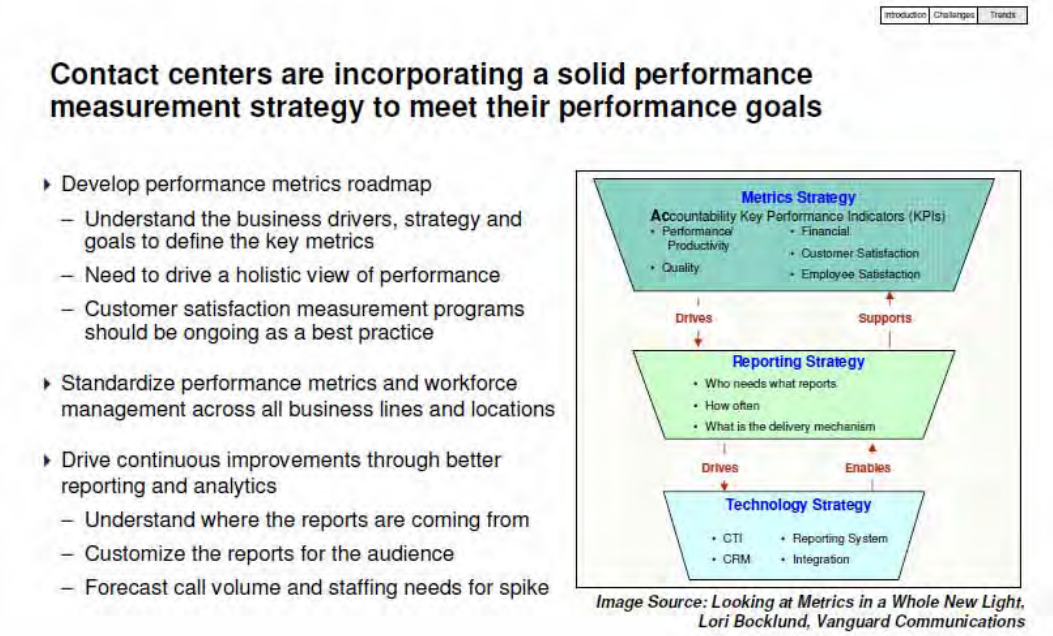

Image Source: Looking at Metrics in a Whole New Light, Lori Bocklund, Vanguard Communications

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Introduction | Challenges | Trends

Contact centers are employing innovative solutions to overcome personnel resource challenges

- Create a culture surrounding the positive impacts of quality monitoring and performance metrics in improving job performance at the contact center environment
  - Encourage the use of quality monitoring as a means of developing a well-prepared workforce
  - Standardize performance metrics to the business line so the workforce is appropriately measured according to their job responsibility
  - Incorporate an awards and incentives program to recognize individuals and groups on different achievements, not only limited to performance
  - Develop a CSR career model to profile a career growth path at the contact center
- Baseline the existing environment and develop a roadmap to establishing standard operating procedures for training, quality and performance metrics to ensure an accurate and consistent holistic picture exists for the contact center

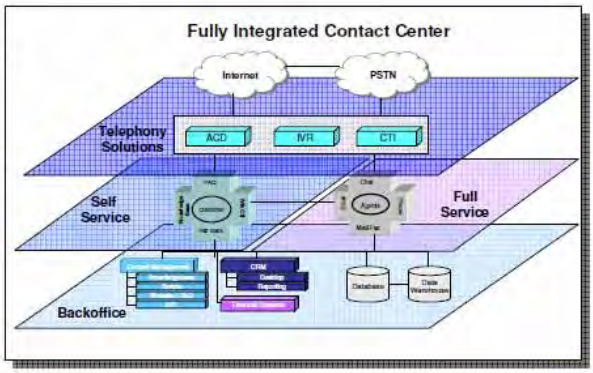
To best manage workforce costs, contact centers must maximize an agent's performance

Introduction | Challenges | Trends

Aligned with a business strategy, technology can improve processes, efficiencies, and customer satisfaction

- Develop a flexible IT strategy that is aligned with the organizations overall business strategy
- Systems should incorporate open standards as much as possible to help create vendor independence, increase interoperability, and reduce overall development cost

- Consider the use of bundled suites, virtual deployments and the use of an IP infrastructure to reduce Total Cost of Ownership (TOC) and simplify contact center platform management
- Vendor selection should emphasize scalability, accessibility, manageability and the use of development and management frameworks
- Develop Business Continuity and Disaster Recovery Plans to ensure transparency to customers in the event of technical outages



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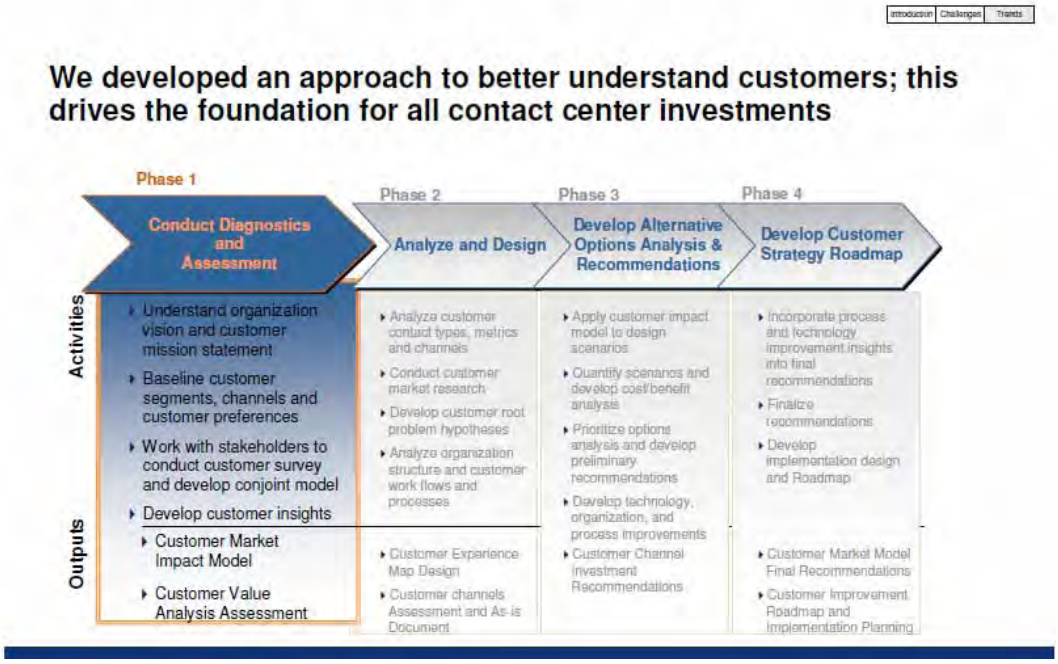

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Introduction | Challenges | Trends

In a recent case, we used customer strategy to help a water utility facing poor customer service and millions of dollars in delinquent accounts

Since the introduction of metered service, delinquent Accounts Receivable (A/R) balances have exceeded industry standard levels, in amount and age, for a number of reasons:

- Chronic Estimated Meter Reads
- Limited Collections Strategies
- Inability to resolve customer disputes
- Lack of Effective Enforcement
- Limited Information Systems Tools

The Collections Strategy was a major focus of the Accounts Receivable analysis and was framed around two driving questions:

- *How should this client address the current $600 MM outstanding debt and what actions should it take to reduce it?*
- *What should it do long-term to adjust policies and procedures to prevent future delinquencies?*

Collections Strategy recommendations covered:

A. Customer segmentation
B. Analysis of the age distribution of A/R
C. Treatment Options
D. Implementation road maps and timelines

Introduction | Challenges | Trends

Complicated account and customer classification made targeted collection difficult; new customer segmentations allowed for a more effective approach

Current BCS Customer Segmentations

	Residential
1	1 Family (A*) (A0-A9)
2	2 Family (B*) (B1, B2, B3, B9)
3	3 Family (C0)
4	Multi Family (C1-C9)
5	Elevator Apts (D*) (D0-D9)
6	Residential Multi Use (S*) (S0-S5, S9)
7	Loft Building (L*) *Except L8 (L1-L3, L9)*
8	Condos (R*) (R1-R9)
9	Store, Apartments Above (K4)
10	Office Buildings with Residential Apts (O8)
	Commercial
11	Warehouses (E*) (E1, E3, E4, E6, E9)
12	Factory & Industrial (F*) (F1, F2, F4, F5, F8, F9)
13	Garages & Gas Stations (G*) (G0-G9)
	Hotels (H*) (H1-H9)
15	Theaters (J*) (J1-J9)
16	Store Building (K*) *Except K4 (K1-K3, K5-K9)*
17	Office Building (O*) *Except O8 (O1-O7, O9)*
18	Loft with Retail Stores (L8)
	High Profile: Health
19	Hospitals & Health (I*) (I1-7, I9)
20	Asylums & Homes (N*) (N1-N4, N9)
	High Profile: Religious
21	Churches & Synagogues (M*) (M1-M4, M9)
	High Profile: Government
22	Government Installations (Y*) (Y1-Y9)
	High Profile: Other
23	Outdoor Recreation (Q*) (Q1-Q9)
24	Transportation (T*) (T1, T2, T9)
25	Utilities (U*) (U1-U9)
26	Vacant Land (V*) (V0-V9)
27	Educational Structures (W*) (W1-W9)
28	Exempt Properties (X*) (X0-X9)
29	Miscellaneous (Z*) (Z0-Z9)
30	Public Assembly (P*) (P1-P9)

Methodology Used

- Realigned the original list of 207 building class codes into 15 new customer segments

Factors Considered

- Tax Class
- Customer Attributes
- Past Payment Patterns

Recommended BCS Customer Segmentations

1	Residential: 1 Family
2	Residential: 2-3 Family
3	Residential: Multi-Family Walk-Up
4	Residential: Multi-Family Elevator
5	Residential: Mixed Use (Tax Class 1)
6	Residential: Mixed Use (Tax Class 2)
7	Residential: Mixed Use (Tax Class 4)
8	Residential: Condos
9	Commercial: High Consumer
10	Commercial: Mixed Consumer
11	Commercial: Low Consumer
12	Special: Hospitals/Health
13	Special: Government/Religious/Education/Others
14	Special: Utilities
15	Housing Development Fund Corporation (HDFC)

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A variety of potential treatment options were examined, and based on the client's unique environment, several were recommended for the near term

Collections Methods Recommended for the Near Term

Collections Enforcement Methods	Status	Description
Stand Alone Lien Sale	Expand and Enhance	Introduce a legislative change to grant authority to pursue stand alone lien sales across all Tax Classes (i.e., lien authority independent of Department of Finance requirement of delinquent property taxes)
Service Terminations	Enhance	Strategic re-deployment of service terminations as a collection strategy, where feasible
Structured Compromise	New	Immediate implementation of a Structured Compromise program would allow to collect delinquent receivables from a large number of residential property owners that are willing to pay past charges but cannot due to economic hardship
Dunning Notice	Enhance	Customize notices to address different customer segments and attributes, and to describe the specific penalties and timelines for non-payment that apply to that segment
Outbound Calling	Enhance	Implement a "tiered customer service model" in which outbound calling is reserved exclusively for high risk delinquent accounts and managed systematically by collections reps that are specialists in those customer segments

Collections Methods Recommended for Future Consideration

Collections Enforcement Methods	Status	Description
AutoDialer	Future Consideration	Deploy an AutoDialer technology solution to boost productivity of agents by automatically managing their work time and eliminating time spent dialing telephone numbers
Third Party Collection Agencies	Future Consideration	Employ collection agencies to recover a portion of receivables balance after collection efforts have been exhausted or become too costly
Rent Receivership	Future Consideration	Implement a rent receivership policy change and program to increase collections specifically from delinquent, multi-unit walk-up and elevator apartment buildings, allowing apartment building tenants to legally pay rent directly toward water and sewer charges if the property owner becomes delinquent on water charges

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Business Intelligence Analytics – Mr. Douglas Spiers (Spiers 2008)

Business Intelligence Analytics

Doug Spiers, P.E., Esq.

Customer Contact Center of the Future
November 13, 2008

Business Intelligence Analytics

Is Your Call Center Successful?

Goal: Highest Possible Quality at the Lowest Possible Cost

2

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Business Intelligence Analytics

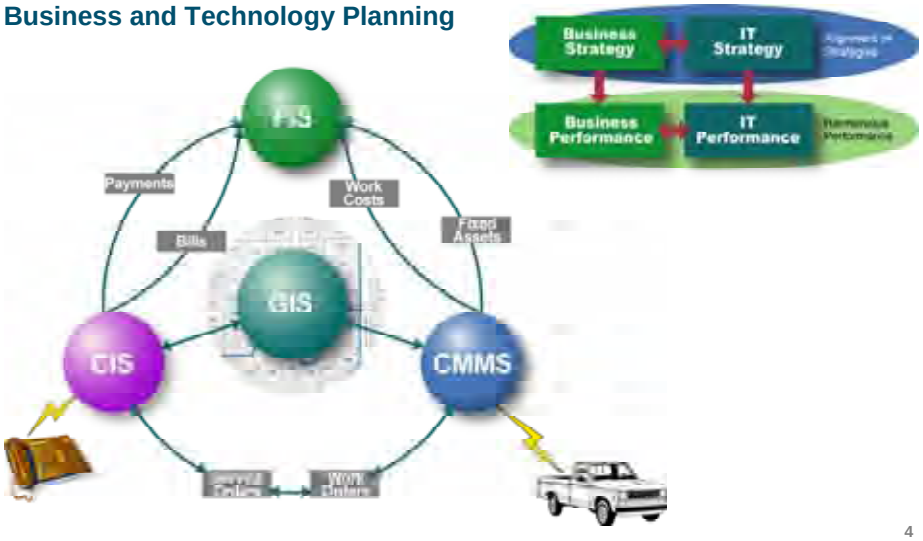
The Five Basic Steps

- Business Planning
  - Technology Planning
    - Performance Management
      - System Integration
        - Business Intelligence

3

Business Intelligence Analytics

Business and Technology Planning



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Business Intelligence Analytics

Performance Management

Cost

- Cost/contact
- Cost/minute of handle time

Quality

- Call quality
- Customer satisfaction
- % Calls requiring rework

Productivity

- Contacts/agent months
- Agent utilization

Agent

- Agent Occupancy
- Agent Turnover
- Absenteeism
- Training Hours
- Agents as % of Total FTEs
- Schedule Adherence
- Agent Tenure
- Agent Satisfaction

Service Level

- Average speed of answer (ASA)
- Call abandonment rate
- % Answered within 30 sec.
- Average queue time
- Average hold time
- Average time to abandon
- Percent of calls blocked

Call Handling

- Call handle time
- Talk time
- After call work time
- Firs contact resolution rate
- IVE completion rate
- Percent of calls transferred

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Business Intelligence Analytics

Typical Call Center Balanced Scorecard

Perspecti	Goal	Weight (x of 10)	Description	Performance (%)
Calls revenue, costs, conversion (Financial perspective)		3		51.00%
	Revenue per successful call	1	"The total revenue (US$) per one successful call. 20%: 400$, 100%: 700$"	30%
	Cost per call	3	"The total cost of average call. 30%: 6$/call; 100%: 3$/hour;"	40%
	Conversion rate	6	Target value 95%	60%
Total Performance in group			**Calls revenue, costs, conversion (Financ**	**51.00%**
Calls handling and processing (Internal process perspective)		2		66.00%
	Average call-handling time	3	"A measure of the agents' productivity 20%: 900 seconds; 100%: 300 seconds"	80%
	Sales attempts	4	"The number of calls during which sales attempts were made 20%: 5 of 100; 100% 30 of 100"	40%
	Segmentation	1	Target value 95%	80%
	Availability	2	Target value 90%	90%
Total Performance in group			**Calls handling and processing (Internal p**	**66.00%**
Coaching in call-center (Learning and growth perspective)		3		74.00%
	Coaching time	4	"Team leader's time spent on coaching 20%: 2 hours; 100%: 5 hours;"	80%
	Supervisor responsibilities	2	"Supervisor is responsible for the number of agents 10%: 30; 100%: 5;"	40%
	Coaching methods	4	Target Value 95%	85%
Total Performance in group			**Coaching in call-center (Learning and gro**	**74.00%**
Calls quality (Customers		1		64.03%
	Response time quality	1	Percentage of calls answered within 60 seconds. Target value is 90%.	70%
	Customer loose rate	1	Abandon rates for customers in the queue. Target value: 5%	10%
	First-call resolution	1	Target Value 60 %	15%
	Save rate	1	Target Value 80%	60%
Total Performance in group			**Calls quality (Customers perspective)**	**64.03%**
Total Performance in			**Call Center Balanced Scorecard**	63.45%

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Business Intelligence Analytics

Common Pitfalls

- Too many metrics (Avg. call center tracks 25 metrics)
- Track metrics that don't matter
- Just data outputs
- Not timely (Reported monthly or quarterly)
- Poor performance reporting
- Not effectively used in decision making
- Not effectively measuring First Call Resolution

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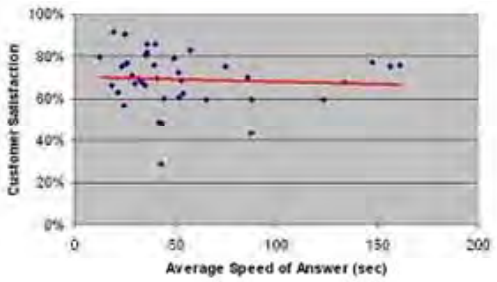
Business Intelligence Analytics

Effective Performance Measure?

ASA vs Customer Satisfaction



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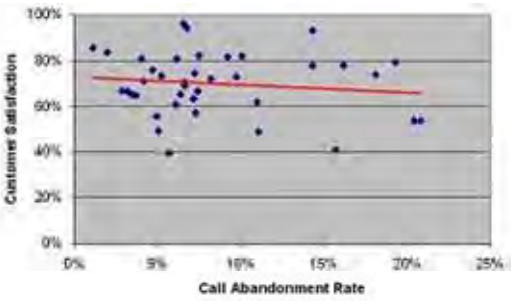
Business Intelligence Analytics

Effective Performance Measure?

Abandonment Rate vs. Customer Satisfaction



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Business Intelligence Analytics

Measure the Right Things:

- Customer Satisfaction
- Cost per Call
- Agent Utilization
- First Contact Resolution Rate
- Aggregate Call Center Performance

Highest Possible Quality at the Lowest Possible Cost

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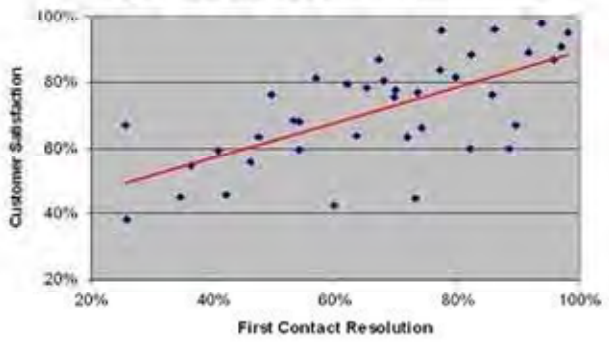
Business Intelligence Analytics

First Call Resolution

FCR vs. Customer Satisfaction



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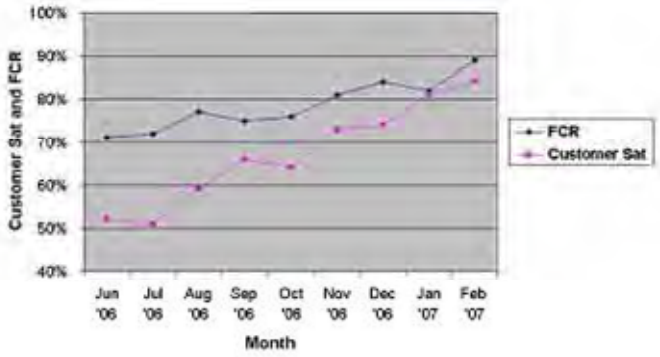
Business Intelligence Analytics

First Call Resolution

FCR and Customer Satisfaction



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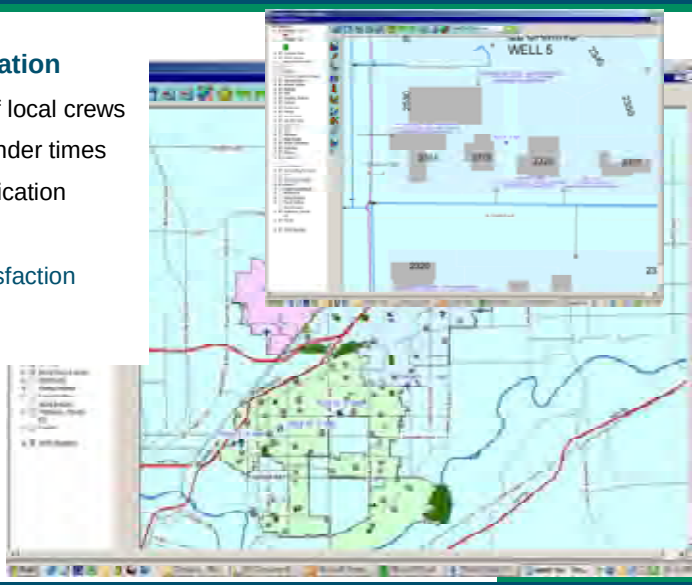
Business Intelligence Analytics

CIS and GIS Integration

- Real-time location of local crews
- Improved first responder times
- Early incident identification
- Improves FCR

Result: Customer satisfaction increases

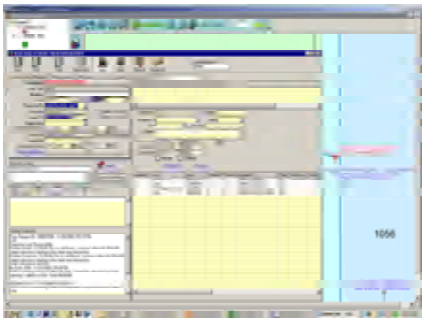


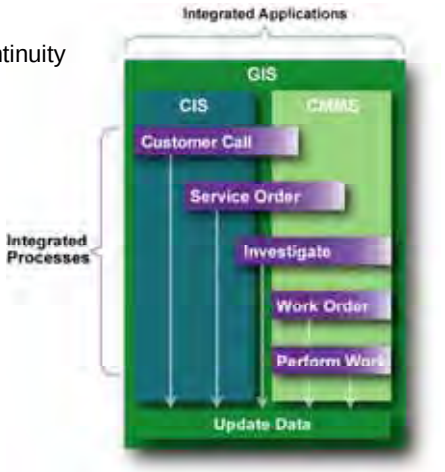
Business Intelligence Analytics

CIS and CMMS Integration

- Service Order to Work Order process continuity
- Single data instance
- Automated status updates
- Improves FCR

Result: Customer satisfaction increases





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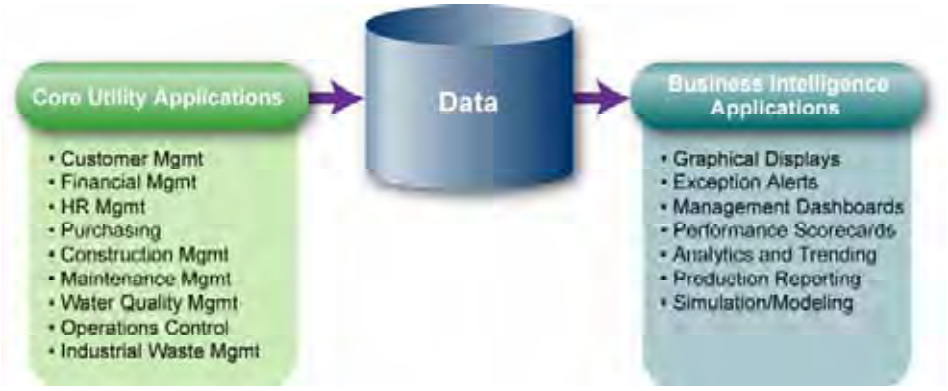
Business Intelligence Analytics

Increasing the Value of Integrated Applications



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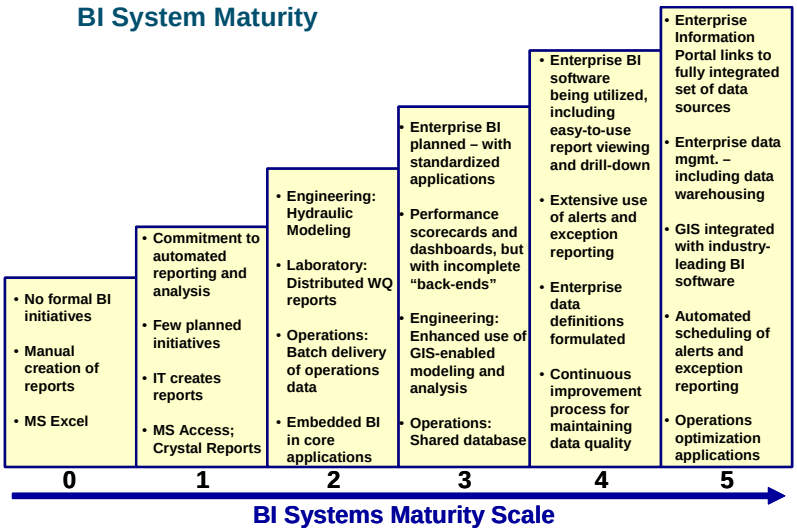
Business Intelligence Analytics

BI System Maturity



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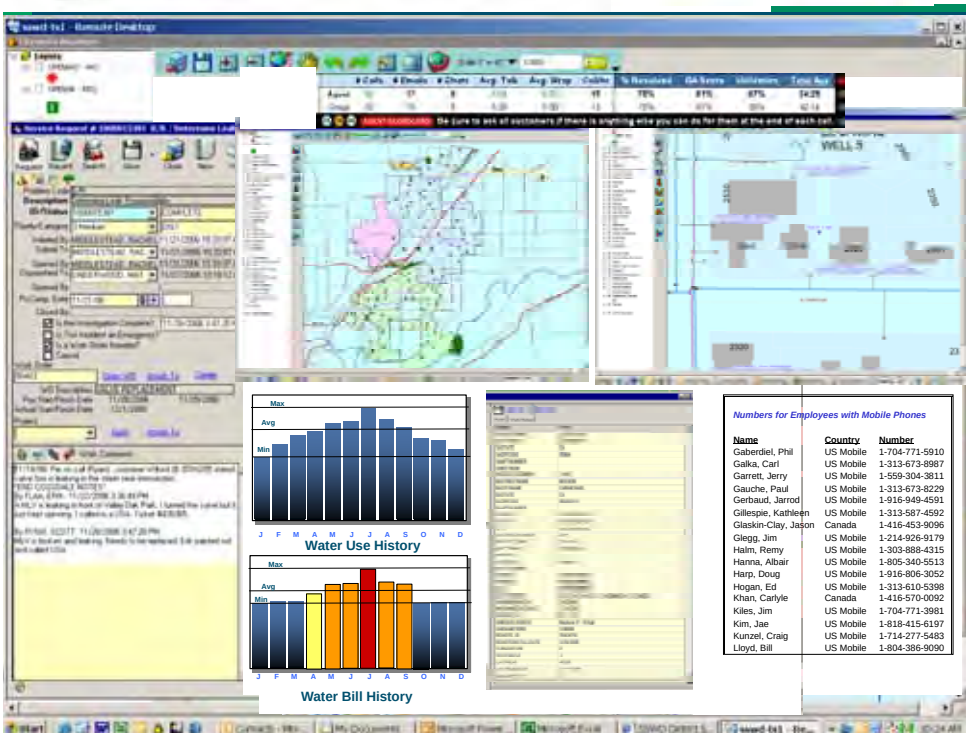
Business Intelligence Analytics

Dashboards

17



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Business Intelligence Analytics

Benefits

- Provides management and CSRs with real-time performance
- Supports performance improvement initiatives
- Reduces staff time associated with report generation and production
- Drives “one version of the truth”
- Enables more timely and accurate decision making
- Helps increase FCR
- Increases Customer Satisfaction

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Thank You

QUESTIONS???

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Customer Service Training Certificate Program – Ms. Kathleen Gillespie/Ms. Alison Posinski (Gillespie and Posinski 2008)

Westin
Passion for Improving Performance

American Water Works Association
The Authoritative Resource on Safe Water

Customer Service Training Certificate Program

The Hard Work of Soft Skills Training

Thomas J. DeLaura, P.E., President
Presenters:
Alison Posinski, Subject Matter Expert – Customer Service
Kathleen M. Gillespie, M.Ed., Workforce Development Strategist
Westin Engineering of Michigan
Detroit, Michigan

Foundation Expert Workshop
"Optimizing the Water Utility Customer Contact Center"

Cleveland - November 13th and 14th, 2008

Purpose

The certificate program is being developed at the request of the AWWA Customer Service Committees with members from Water Industry Organizations across the country. The program is based on the well-documented and researched requirements for an effectively-designed, foundation-building, entry-level Customer Service Training Program that establishes a fundamental level of core competency for entry-level Customer Service Representatives (CSRs).

2

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Goal

AWWA's Customer Service Certificate Program will address the challenges facing water utility customer service organizations in the 21st century. To be responsive to the customer's needs, the skill level for Customer Service Representatives (CSRs) is brought up to a level consistent with increased customer expectations and global demographics.

3

Intent

1. **Capture, Organize, and Deliver -** comprehensive content material that is sufficiently in-common and shared across most (if not all) Water Utility Organizations;
2. **Develop CSRs -** who are able to respond to customer service inquiries with courtesy and professionalism with the goal of making every call and contact a positive experience for the customer, increasing customer's confidence in water quality and the Water Utility Organization; and, assist in resolving customer's perceived issues in a single contact;
3. **Provide a Contemporary Context** - for understanding globalization, multiculturalism, and demographic change in American society; and,
4. **Complement and Support** - the customized training program at each Public Water Utility Organization for developing entry-level CSRs. People are a very valuable asset.

4

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Organization

The program consists of three (3) one (1) and a half-day courses, each being nine (9) hours in length providing a total of twenty-seven (27) hours of training. The courses are built sequentially. Attendance at all three (3) is required to earn the certificate.

5

Description

- **Course 1 Customer Relationship Building.** The focus is on communication skills for working with people in a positive, respectful, and cooperative manner characterized by a high level of professionalism and team work.
- **Course 2 Customer Service Basics.** The problem solving and decision making skills required for evaluating and effectively resolving customer service complaints both real and perceived. Also included are explanations about the systems and or processes common to all Customer Service Organizations, including General Ordering and Billing Systems as well as the basic rules and procedures for Emergency Preparedness.
- **Course 3 Water Industry Operations.** The role of the CSR as a member of the larger community of water industry professionals who are serving the public trust by working for water utilities responsible for a safe and adequate water supply. As a result, the basic tenets of teamwork are taught within the context of appreciating water fundamentals and water conservation as part of the background required for understanding water utility rules, regulations, policies, basic terminology, and water utility operations.

6

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Tools

- **Participant Workbooks**
- **Train The Trainer Guide**
- **Evaluation Forms**
- **AWWA Materials**
- **Supplemental Materials**
- **CECs**
- **Certificate of Completion**
- **Built Around a Job Analysis**
- **Designed for Key Skill Areas**
- **Room for Customization**

7

Strategy

Arm yourself for the battle ahead:

- A yearlong study involving 77 companies and almost 6,000 managers and executives.
- The most important organizational resource over the next 20 years will be talent.
- Talent is defined as, “smart, sophisticated businesspeople who are technologically literate, globally astute, and operationally agile.”
- As the demand for talent goes up, the supply of it will be going down.

8

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Westin
Passion for Improving Performance

American Water Works Association
The Authoritative Resource on Safe Water

Thank You

Foundation Expert Workshop
"Optimizing the Water Utility Customer Contact Center"

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APPENDIX B
CASE STUDIES

Case Study – Columbus Water Works (CWW)

Why CWW Was Selected As A Case Study

CWW is a medium-sized water and wastewater utility with a long history of commitment to strategic planning and benchmarking.

What CWW Does That May Be Of Interest To Utilities:

- Focus on best practices;
- Commitment to strategic planning and customer satisfaction;
- Benchmarking of customer service operations; and
- Uses performance pay based on benchmarking results.

Background

Columbus Water Works (CWW) is a city-owned, water and wastewater enterprise fund overseen by a Board of Water Commissioners. In addition to providing water and wastewater services to 227,600 residents of the consolidated city-county (Columbus and Muscogee County, Georgia), it recently obtained a 50 year contract to operate the water and wastewater systems of Fort Benning (expanding existing service by an additional 20% based on volumes treated). It also serves about 5,000 people in two nearby counties. Located on the western edge of Georgia on the banks of the Chattahoochee River, its non-residential customer base has shifted from one based on the textile industry to one that is service industry based. Approximately 15-20% of the residential population is retired. There are approximately 68,000 accounts.

Customer Service Operations

CWW has a single call center with 5 FTEs and a backup answering service. There are 2 additional FTEs that work with walk-in customers. The main office has the only walk-in payment center. The 2 FTEs in the walk-in center do not answer phones but will help write orders taken by the other 5 FTEs. The following summarizes the technology utilized in customer service:

- SCADA (Wonderware®) was last installed in 2007;
- AMR is a combination of drive-by (Neptune AMR® in 2006) and touch read;
- The IVR in the call center is circa 2000 and only recognizes touch tones;
- The current CIS is 1988 vintage Orcom (now Harris Computer Systems) and has limited integration with Maximo® (for maintenance only, not payments) and Lawson (for on-line payment); it is due to be replaced in 2009;
- GIS was completed in 2007 but is little used by Customer Service;

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- Web capabilities include on-line training ('97), Webcast ('97), real-time access to integrated database (2004), online payment;
- Customer service automation includes online/offsite payment, bank draft, credit card payment; and
- Self-service automation includes telephone and on-line support for FAQs, online payment, online statements (plus history).

The following is a list of practices of the Customer Service Department:

- Automation:
  - IVR info and payment (pay delay);
  - Web info and payment, bank draft, email work order requests;
  - Automated Call Distribution (visual display of number of calls on hold);
  - Phone system analysis capability (length of call, time on hold, abandoned calls, etc.);
  - Voice mail option to holding;
  - Off-site payment (banks and payment service);
  - Mail extraction and payment processing machine;
  - Check conversion to electronic processing;
- Remote/cordless telephone technology;
- Out-sourced answering service for peak hours (automatic roll over);
- Out-source collection of bad checks;
- Flex-time staggered schedules;
- Empowered employees;
- Cross-training with operational departments;
- Well-defined written process manual;
- Training/web based;
- Friendly but strict customer requirements; and
- Recognition/rewards.

Key Operational metrics are summarized below:

1. *Rings to pick-up:* two or less. The ACD routs a call to an available CSR and normally the call will be picked up by the second ring. If there are no available CSRs, the caller gets a message immediately (no rings) and the caller can elect to be put on hold (in queue) with fresh messages at 20 second intervals. If the queue is full (8 callers), the call will immediately go to the outsourced answering service that will answer on the first or second ring.
2. *Time to Pick-up:* 12 seconds maximum.
3. *Average time in Queue:* this varies with a range between 40 and 80 seconds. The first message when a call goes into queue advises the caller that all CSRs are working with other customers and their call will be taken by the next available CSR. If the queue is full the caller can elect to leave a voice mail message. If the caller remains on the line the call will roll over to the answering service.

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4. *Time per call:* the average number of calls handled in a day is 441 and the average total time spent on calls in a day is 688 minutes, therefore, the average call length is 1.56 min.
5. *Agent availability:* 68%.
6. *Abandoned call rate:* a typical day will have about 400 calls of which about 30 will be abandoned, or about 8%.
7. *Percent of customers using on-line pay:* 8%.
8. *Percent of customers using Web transactions:* 7%.
9. *Percent of customers paying electronically:* 33%. Company benchmark target is 27%.
10. *Number of CSRs:* there are five in the call center, two for walk-in customers, plus a supervisor and the department head.

Additional company benchmarks:

- *Water Quality Complaints:* Target is 13 per month average. Actual is 5 per month average.
- Customer Satisfaction Index: Scale 0 – 1000; 750 = mostly satisfied; target = 785; actual = 839.*Billing accuracy*. One of the 22 Qualserve™ metrics, Qualserve™ value = 13.0.

Focus of This Case Study

CWW exemplifies the use of a strategic planning commitment to benchmarking and metrics. CWW has been extremely active in the Qualserve™ program which provides some of the benchmarks against which CWW compares itself. Comparison to benchmarks is also the basis for CWW's performance pay program.

Strategic Plan

CWW's initial strategic plan was completed in 1999. At that time, customer satisfaction was one of five goal areas. The strategic plan was revamped in 2004 and subsequently updated in 2007. Currently, customer satisfaction is one of 6 major goals of the strategic plan, each of which is overseen by a strategy team typically composed of eight people from across the organization with a team leader (department head level) and a team mentor (vice president level)

Measurement Framework And Performance Management

See Exhibit B.1

Strategy and Results: Enhance Customer Satisfaction

The combination of strategic plan objectives and performance (in one case) resulted in the team's recommendation for telephony upgrades to improve performance. The resultant proposal projected improvements in metrics resulting in quick approval of the proposal.

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How the Measurement Focus Results In Improved Performance

The following is a sample 2007 calculation for performance pay:

1. *Determine financial net:* $1,000,000 (Financial net is increase in net assets from year-end audit. Allowable range is $500,000 to $1,000,000. Actual value was substantially greater than the top end of the range so $1,000,000 was used.

2. *Determine Percentage of Incentive Pool Funding:* 15% (range is 7.5% to 15% based on financial net. Since actual net was substantially in excess of $1,000,000 the upper end of range was utilized

3. *Preliminary pool amount:* $150,000 (1, above, multiplied by 2. This is a preliminary amount to be shared by all employees)

4. *Final pool percentage amount:* 0.01596 (this is the preliminary pool amount divided by total budgeted payroll)

5. *Potential individual payout target:* As an example, for an annual base salary of $36,000, the amount is $559

6. *Payout target based on strategic objectives completed:* $424 ($559 x.793 strategic objectives completed in 2007 – 23 of 29 objectives completed)

7. *Final employee incentive award:* Employees who meet expectations receive payout target amount ($424); employees who exceed expectations receive an additional 10% or $467 total for an employee whose annual salary is $36,000. The actual amount will vary according to salary rate.

Additional criteria for award:

- Must be an active employee with a hire date as of one year earlier;
- Employees hired after the hire date are eligible for a one time incentive of $150;
- Temporary employees receive an incentive of $100;
- Employee evaluations as of year-end used to calculate individual performance amount;
- For employees promoted during the year not receiving an evaluation in new position, award is based on most recent evaluation. In absence of evaluation rating is defaulted to a “3”; and
- Employees on probationary status not eligible for an award.

Lessons Learned: What Went Well And What We Would Have Done Differently

Things that have gone well:

- Through the work of the teams, the employees have gained the confidence of management. Team proposals are more likely to be approved.
- Since team members come from throughout the organization, there is an improved knowledge of customer service across the organization.

Things that could be better:

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- The strategic plan calls for looking at best-in-class and out of industry best practices. CWW has participated in some Qualserve™ Best Performer sessions but needs to do more. Out of industry visits and reviews have not happened yet.
- Some teams struggle with participation from all team members. It is attributed to the lean organization.
- Since targets determine bonus in the performance pay system there may be a tendency to select easy to achieve targets. Need to maintain checks and balances.

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STRATEGY #1: ENHANCE CUSTOMER SATISFACTION version 1 8 08	Priority	Start Time	Status Summary		Estimated Effort to Accomplish Tactics or Complete Tactics Underway			Comments
Use effective customer service relationships and approaches to achieve Best in Class	- Low - Medium - High	Date	What	Who	Tasks and Activities (define as needed for each tactic)	Resource (days/dollars)	Who	
Goal 1: Respond to customer requests at the point of contact	Complete	Fully Underway	Partly Underway	Future Date (Font Will Be Red)	→ status change from previous report			
1 **Objective 1: Respond to and resolve routine customer requests within established service standards**								
2 **Measure 1:**	**Target 1:**			**Comments**				
3 Customer work order requests completed within established service standards	90% of customer requests completed within established standard time			Tracking routine service request for top 10 most frequent request has been tracked for two months. A spreadsheet of each service order type and percentage has been documented. Team has been unable to receive 4 of the 10 types of service request from Maximo due to vacancy of Maximo expert. Revamping remaining service orders to continue to monitor response time . Also, We will be monitoring Meter Leak request in addition to the existing service request. Responses from Door Hangers referred to response time on meter leaks. We will be tracking in order to determine what is acceptable and the expectations and commitment for this type of service request.				
4 **Measure 2:**	**Target 2:**			**Comments**				
5 Voice Link and Voice Mail Calls returned within established service standards	100% of messages returned within next business day			Team members will also review number of calls returned for both Voice Link and Voice Mail in addition to percentages to determine if any adjusting on target is needed.				
6 **Measure 3:**	**Target 3:**			**Comments**				
7 Customer Experience with CWW Telephone System	Customer Wait time in Queue < 2minutes. Abandoned calls <10%			This measuring of the abandoned calls and wait time in Queue is being measured.				
8								
9 Tactic 1: Define each type of routine customer work order request received within CWW	High	Target Date: 1/31/05 (Reached Target Date)		Sam,Linda,Sonja				Definition of Routine Work Order Request defined. are: Connect, Disconnect, Final Read, Rereads, Water Taps, Water Stub outs,SewerStoppage,Sewer Tap,Meter Leaks, Plan Reviews, These work orders are prioritized by frequency and are in descending order. *(This tactic completed)*
10 Tactic 2: Capture data on volume of routine work order customer requests (by type)	High	Target Date: 1/31/05						Created spreadsheet for 10 most frequent customer request based on 12 months of data received from dept. *(This tactic completed)*
11 Tactic 3: Identify and document service standards and performance results for routine customer service request.	High	Target Date: 1/31/05		Linda/Sam				Review of tracking meter service orders within meter service dept has been addressed and a more concise process for response time and tracking was implemented April 2006. *(This tactic completed)*
12 Tactic 4: Develop customer service standards for CWW based on benchmarking other utilities recognized as industry service leaders.	High	Target Date: 1/31/05		Linda/Sam				Gathering data from other utilities and researching for industry standard for response time for the 10 work request above. 7 of 10 companies have responded with response time. *(This tactic completed)*
13 Tactic 5: Evaluate ways to improve tracking of abandoned alls and wait time.	High	Target Date: 1/31/06		Linda/Sonja				Abandoned calls and wait time has been reviewed by monitoring phone reports created on ACCESS. Peak calls were reviewed to suggest changing # of CSR's on phone, lunch hours. Voice Link(answering service) used to answer overflow calls. Team reviewed phone system with CISCO. Present system can track abandoned calls

Source: **CWW 2008**

Figure B.1 Measurement Framework and Performance Measurement, CWW

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Case Study – Chesterfield County (VA) Department of Utilities

Why Chesterfield County Was Selected As A Case Study:

Chesterfield County is a medium-sized water and wastewater utility with a reputation for having an outstanding training program. It is also committed to benchmarking and has recently hosted a Qualserve™ regional benchmarking forum.

What Chesterfield County Does That May Be Of Interest To Utilities:

- CSR training programs;
- Performance measurement;
- Employee development programs; and
- Performance recognition.

Background

The Chesterfield County Department of Utilities ("the Department") is a unit of the Chesterfield County government in the Richmond metropolitan area of south central Virginia. The Department's responsibilities include the full supply chain of water production and distribution, as well as sanitary sewer collection and treatment. The utility serves 100,000 retail water customers and 85,000 retail wastewater customers, of which approximately 94% are residential accounts. The service area includes suburban neighborhoods close to the City of Richmond, as well as agricultural, commercial, and industrial areas. Customer Operations is divided into three sections: Field Services, Billing/Customer Service, and New Construction. The Department's focus is on providing excellent customer service by rendering bills in a timely and accurate manner, responding to telephone or walk-in customer requests for service, and processing customer payments accurately.

The Department's Billing/Customer Service group has a staff of 15 employees, who perform the following functions:

- Respond to 100,000 telephone calls annually;
- Issue service orders (primarily turn-ons and turn-offs) and work orders;
- Generate regular (bimonthly), delinquent, and closing bills;
- Perform adjustments;
- Assist walk-in customers; and
- Perform collections activities.

Approximately 8 (of the 15) employees spend most of their time on the telephone. The remaining staff members perform "back office" functions associated with generating bills, payment processing, collections, adjustments, and reporting, etc. These "back office" employees are cross-trained to answer telephones during overflow conditions. A Field Services Section (which is separate from Billing/Customer Service) is responsible for reading meters, executing service orders, and field collections activities. The utility has recently selected a new CIS, which will replace a legacy system that has been in use more than 15 years. After the new CIS is deployed, future technology plans include implementation of IVR and AMR.

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The Customer Operations function at the Chesterfield County Department of Utilities has achieved a high level of customer satisfaction, which has been positively influenced by well thought-out programs in the areas of agent training, performance measurement, employee development, and performance recognition. These programs are consistent with quality management initiatives adopted by the Chesterfield County government.

Customer Operations Training

Successful customer service requires that customer service agents provide consistent, accurate information that correctly responds to customers' needs. Customer Operations has created a formal training program that is tailored to the needs and background of individual employees. This program addresses the core knowledge and skills that are required by employees in their present positions, as well as providing opportunities to learn new skills to meet personal and organizational objectives.

Achieving measurable results is a key objective of Chesterfield's training program, so it includes "before" and "after" assessments of employee knowledge, skills, and performance. Guided by assessments of employees' current levels, Customer Operations Supervisors perform "1 on 1" training at the following three levels:

- New employee training;
- Cross-training of existing employees; and
- Skill based training.

Supervisors can assess the results of the training with quantitative measures, as well as monitoring agents' calls. In addition to providing ongoing feedback and mentoring to agents, formal reviews are conducted at monthly (for new employees), semi-annual, and annual intervals. As part of the Department's commitment to continuous improvement, there is an ongoing cycle of training, measurement, and re-training. Informal scripts have been developed to fit various customer service scenarios; these will be formalized for use with the new CIS when it is implemented.

While the training schedule is flexible depending on the skills and knowledge possessed by an individual, the following topics are typically covered in the new employee training:

- Week 1 – Employee orientation (2-1/2 days) and introduction to the Utility Department, the telephone system, the CIS, and other tools;
- Week 2 – Listen to calls and learn billing system screens;
- Week 3 – Converse with customer, look up information, and record conversations;
- Week 4 – Handle customer calls with mentor observing action;
- Week 5 – Handle customer calls with supervisory monitoring; and
- Week 6 – Handle customer calls without direct supervision.

Customer Operations' internal training is augmented with classes provided by the Chesterfield County government, and by seminars and conferences. The County's quality management initiatives include classes that enable employees to broaden their knowledge to achieve personal objectives, and learn leadership development skills required by their

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organization. Seminar and conference topics that Chesterfield Customer Operations staff have found useful have included the following:

- Telephone skills;
- Exceptional customer service;
- Conflict resolution;
- Dealing with the upset public;
- Leading teams;
- Business writing;
- Call center management;
- Strategic planning;
- Managing multiple projects; and
- Time management.

Performance Measurement

Over the past eight years, the Chesterfield Customer Operations function has implemented a comprehensive set of performance measurements. This has enabled management to develop support for new initiatives, make more informed decisions, confirm Customer Operations' contribution to the utility's bottom line, and support the training and performance recognition initiatives. The performance measurements address a wide range of customer satisfaction, financial, and operational factors.

To determine which customer service performance metrics should be measured, Customer Operations management documented the business processes that are used to deliver service to customers. Following the County's Total Quality Improvement (TQI) guidelines, the current (or "as is") business processes were documented in flow charts. The procedures were documented and assessed as well. Various channels of communication with customers were identified, and service level measures and objectives were determined. Both telephone and written surveys of customers are conducted monthly.

Customer satisfaction is measured two ways. First, customers grade the Customer Service Representatives through a "Quality Service Survey Card" that customers can pick up and complete while making payments at the counter location or when discussing a bill or applying for service at the walk-in desk. On a 5.0 scale, the standard quality rate of experience is expected to be 4.90 or higher. Secondly, telephone surveys ensure that agents are creating a positive telephone experience by establishing rapport and creating interest during their greeting, describing features and benefits of the utility's services, asking probing questions and recognizing and responding to objections during the body of the call, and gaining agreement with the customer on a course of action before closing the call. Calls are monitored on a 100 point scale.

Initiation of the performance measurement program also involved determining how to collect, process, and report the data. Chesterfield's Customer Operations management chose not to build any sophisticated tracking programs, believing that these can always be constructed later. They did place a premium on consistency, tracking the results relentlessly against the performance goals that had been set. During the early months of the performance measurement program, refinements were made to improve efficiency and the value of the measurements. In

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addition, goals have sometimes been changed in mid-year when appropriate to respond to conditions.

The following are some of the Billing and Customer Service metrics and goals tracked by Chesterfield's Customer Operations management, with FY 2008 results:

- % of ACD Calls Answered – 97.6%;
- % of ACD Calls Answered within 20 Seconds – 89.19% (Goal is 80%);
- ACD Average Talk Time – 1.91 minutes (2001-2009 Average is 2.02 minutes);
- Direct Cost per ACD Call -- $4.35 (2001-2009 Average is $5.48);
- Posting Adjustments Accurately – 100.00% (Goal is 99.996%); and
- Customer Surveys: Quality Service Rate of Experience – 100.0% for 2008 (Up from 80% in 2000).

Employee Development

The Customer Operations employee development program is an extension of the Chesterfield County government's strategic plan and quality management initiatives. A high level strategic objective adopted by the Chesterfield County government is "To be known as the employer of choice." The following quotation expresses the reasoning behind this objective:

> "We didn't get to be the most productive government in the region by hiring average employees. We got there by hiring the *very best*, by putting emphasis on *ethics and integrity* and by having a *commitment to diversity*. We got there by focusing on *continuous development* of our employees. We will ensure that we attract and retain *customer-oriented employees* who exemplify our values."

To accomplish the "Employer of Choice" objective, Chesterfield County focuses on attracting a diverse and well qualified applicant pool, and on retaining its work force by creating a superior work environment. Recruitment efforts include coordinated outreach efforts, targeted advertising, competitive salary ranges, and benefits that will attract well qualified applicants. Work force retention activities include employee and career development, programs to improve employee satisfaction, competitive rewards, and work force diversity. Quantitative measures that indicate Chesterfield's progress toward the "Employer of Choice" objective include the following:

- Citizens' perceptions of customer service;
- Employee turnover rate;
- Average number of applications received per vacancy;
- Organizational Climate Assessment;
- Number of workers compensation claims per 100 employees; and
- Average annual training hours per employee.

Employee turnover for the entire County has been between 6.9% and 9.6% between 2001 and 2007. Customer Operations' employee turnover (including retirements) has averaged one vacancy per year over the past nine years among the 15 positions. The Organizational Climate Assessment survey evaluates how employees feel about their jobs, supervisors, and work

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environment. The underlying premise of the assessment is that an increase in employee satisfaction will lead to an increase in customer satisfaction, organizational productivity, and employee loyalty.

Some of the County's initiatives to improve employee satisfaction include the following:

- Wellness seminars
- Employee assistance program sessions
- Annual health fair
- Violence-free workplace and building security program
- Leadership profile questionnaire
- Expanded new employee orientation.

The Chesterfield employee development program is designed to foster a high level of employee satisfaction, pride, and well-being, resulting in the attraction and retention of a superior work force.

Performance Recognition

The Chesterfield County Department of Utilities Customer Operations group has developed and refined an employee rewards and recognition program over a multi-year period. This program works in partnership with the performance measurement and employee development programs discussed above. Salary step increases and cost of living increases in compensation have been eliminated in favor of a pay-for-performance system that ties variable base increases to performance. This is aligned with the County government's continuous improvement philosophy, and emphasizes the Customer Operations function's strong commitment to providing customers with excellent service.

The performance recognition program is designed to encourage and reward above average performance. Both monetary and non-monetary rewards are given in recognition of both team and individual achievements. Supervisory, peer, or customer recognition may occur as employees can recognize and recommend each other for exceptional accomplishments, assisting others, taking on special projects, and/or demonstrating actions that improve customer service or productivity. The principles guiding Customer Operations' recognitions include the following:

- Every employee deserves appreciation;
- Recognition must be linked to desired behavior and be timely;
- Public recognition, usually in staff meetings, is given;
- Recognition must be meaningful to the person being recognized;
- Actions that merit recognition should be recognized;
- Recognition is not an entitlement or expected compensation; and
- Recognition is consistent and equitable.

Non-monetary rewards, such as gift certificates, lunches, or tickets are most often awarded for incremental improvements and accomplishments. Teams, such as the Billing and Customer Service section or the Field services section, are eligible for quarterly rewards for surpassing their goals for the performance measurements described above. Currently, a quarterly

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reward of $85 is paid to each member of the Customer Service section when that team outperforms its performance goals.

Summary

The Customer Operations group of the Chesterfield County Department of Utilities achieves a consistently superior level of customer satisfaction and efficiency by attentively managing important details that include agent training, performance measurement, employee development, and performance recognition. A key result has been the stability of the work force, which has minimal turnover. Ongoing training and the performance recognition programs provide skills and incentives that encourage good customer service. Performance measures are tools that enable managers to refine various aspects of the operation. Because most of the "easy" opportunities for improvement have already been addressed in this well-managed organization, Customer Operations management must refine and innovate to realize further improvement.

Further improvements are expected to result from the adoption of new technologies, such as the CIS being implemented and the IVR and AMR that will come later. These projects are justified by the expectation that they will provide customers with additional functionality and options. However, these technologies are also expected to reduce staff workload, improve efficiency, and be easier for staff to use, thus complementing the management programs discussed above.

Case Study – City of Virginia Beach Department of Public Utilities (DPU)

Why Virginia Beach Was Selected As A Case Study:

Virginia Beach is a mid-sized water and wastewater utility. It was selected because of its early commitment to a hosted solution.

What City of Virginia Beach DPU Does That May Be Of Interest To Utilities:

This study presents a detailed description of Virginia Beach's reasons for selecting a hosted solution, how they went about implementation and their experience with it.

Background

The City of Virginia Beach Department of Public Utilities (DPU) is a Department of the City of Virginia Beach municipal government. Virginia Beach provides full City services to 435,000 residents on the southeastern coast of Virginia. The Department of Public Utilities is responsible for water supply, treatment, and distribution for 135,000 customer accounts. DPU also provides wastewater collection service to these customers. Sanitary sewage is transported to the Hampton Roads Sanitary District (HRSD) for treatment. Approximately 85% of water customers are residential accounts. The Department of Public Utilities Business Division bills and collects revenue for water and wastewater collection services. Meter readings and adjustments are also provided to HRSD, which sends separate wastewater treatment bills to customers.

The Public Utilities Business Division staff is organized into the following five sections:

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- Administration and finance – 4 employees;
- Call center – 14 employees;
- Water service inspection – 14 employees;
- Billing and collection – 14 employees; and
- Accounting and line fees – 6 employees.

The call center responds to approximately 150,000 telephone calls annually, and includes dispatch for the Water Service Inspection section. Service orders and work orders are handled by the Water Service Inspection section. The billing and collections section generates bi-monthly bills, processes adjustments, sends delinquent bills, and performs other "back office" activities. Coordination of new service connections and collection of the service/connection fees is the responsibility of the Accounting and Line Fees section. Meter reading is performed in DPU's Operations Division, which is separate from the Business Division.

In 2005, DPU went into production with the Ventyx® BANNER™ Customer Information System (CIS), which is "hosted" by the vendor. "Hosted" means that the application servers (which perform the processing) and database servers (which store DPU's data), are owned and managed by the vendor, and located at the vendor's data center. DPU employees access the CIS programs and data through desktop and laptop computers, just as if the servers were located in the City's data center. In addition to the software vendor's normal responsibilities for maintaining and enhancing the application software, Ventyx® is responsible for day-to-day system reliability and system administration including data backups and disaster recovery.

DPU has integrated its outsourced CIS with the following other applications:

- The City's Oracle® Financial system;
- The City's Inova® Cashiering system;
- HRSD's billing system (meter readings and adjustments);
- Hansen work order management system;
- Radix hand-held meter reading system;
- Nortel™ interactive voice response (IVR) system;
- TeleVox® outbound dialing services; and
- Public Utilities Online Services application.

Potential future integrations with CIS include recording calls, virtual hold, and automated meter reading (AMR).

DPU recently extended Ventyx's® contract to continue hosting this application for up to five additional years, until 2013. This case study will provide additional information about DPU's choice of a hosted CIS solution, and its experience in the areas of implementation and production usage of the system.

Impetus

The outsourced Ventyx® BANNER™ CIS replaced an in-house developed legacy application that ran on the City's central computer. The legacy application was written in the COBOL programming language and maintained by City information technology (IT) staff. In the late 1990s, the following issues with the prior CIS caused DPU to consider replacing it:

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- The City's IT department wanted to move departmental applications off the City's central computer, which was becoming increasingly expensive to maintain; removing CIS would eliminate three existing applications.
- The City was having a difficult time hiring and retaining COBOL programmers to maintain the existing CIS.
- The old CIS did not have the flexibility to support changing customer expectations, especially with regards to customers' interactions using the Internet.
- The City Council wanted storm water to be billed on the same bill as water, instead of a separate system sending customers an additional bill.

It required approximately two years to establish the necessary funding. A consultant specializing in CIS selection began gathering DPU's requirements in 1999. Specific customer features that DPU desired in a new CIS included the following:

- Electronic bill presentment and payment;
- Customer access to certain account information 24 hour/day, 7 day/week; and
- Integration with the Internet.

Some of the user features desired by DPU in a new system included:

- Graphical user interface (to replace the outdated green screens); and
- An account number architecture based upon premise identification and customer identification.

DPU's objectives in the area of system administration included:

- Simplification of changing rates or adding new rates; and
- Decreased risk of associated with making application changes and enhancements.

Outsourcing was considered a viable option from the beginning of the selection process. A key driver encouraging outsourcing was the City IT department's concern that they could not hire and retain the necessary technical skills to maintain an in-house system within the City's compensation structure. As DPU's project team focused on outsourcing, they developed ideas on service level agreements, and identified issues that potential outsourcing vendors needed to address, such as data integrity and security.

Actions Taken

In early 2002, DPU entered into a contract to implement the hosted BANNER™ CIS application. The new CIS went into live production in January, 2005, completing a 36-month implementation project. The implementation of the outsourced system was virtually identical to that of an in-house CIS. A DPU team of seven employees worked full time to implement the system. These employees were augmented with contracted resources when needed. While sparing seven people from their regular jobs at DPU was a strain, these individuals gained experience and an understanding of the new system, and became partners in its deployment and support. No one on the Business Division staff had any prior experience implementing CIS.

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One of DPU's goals was to modify business processes as necessary to use the "base functionality" of the BANNER™ application and thus minimize customization. The implementation included the following challenges, none of which were specific to the fact that the BANNER™ CIS was outsourced:

- As mentioned earlier, the CIS replaced three existing applications; these three systems had differing addresses which had to be reconciled prior to data conversion to the new CIS.
- Customizations included delinquencies, the City's storm water charge, and the Virginia State utility tax.
- CIS was integrated with existing systems for financial accounting, cashiering, work order management, meter reading, and IVR, as well as HRSD's billing system.

Virginia Beach DPU's CIS is hosted by Ventyx® in a Verizon™ data center in Beltsville, Maryland. Ventyx® already was hosting asset management customers' applications at this data center, and had a hosting model and staff in place. The data center has redundant power, redundant fire protection, and redundant roofing. Disaster recovery includes a hot backup site in California (to which the CIS is backed up every three hours) and off-site data storage. Mr. Bob Montague, Manager of the Virginia Beach Public Utilities Business Division, considers the data center's disaster recovery planning and facilities to be superior to anything that City IT could provide. In addition to visiting the data center prior to entering into a contract, DPU and City IT examined various contingencies that are specific to outsourcing, and made sure that adequate protections were in place.

DPU's contract addresses service levels that include "percentage of uptime", with Ventyx® being responsible for keeping the hardware, communications, and application running reliably. Ventyx® has established an individual who provides a "single point of contact" for any DPU issue, including the communications network, the BANNER™ application, and DPU's integrations. This "Account Manager" is supplemented by an in-house support team of City employees who address day-to-day end user issues, and a contract support person at DPU who develops ad hoc reports. These in-house resources do no programming. DPU has been fortunate to have an outstanding database administrator provided by Ventyx®, who has been involved in this project since it began. DPU also has required a provision for a monthly allotment of application development hours as part of the Ventyx® outsourcing contract. This enables DPU to utilize Ventyx® as an extension of its staff for integration work or enhancements of the CIS application.

At the beginning of live production use of the system, responsibility for DPU's installation was moved from the Ventyx® "Installation Manager" to the Ventyx® "Hosting Manager". This person was highly competent on the outsourcing aspects of the project (i.e., hardware, networks). Under this model, it was necessary for DPU to go to other individuals in different parts of the Ventyx® organization for support on the BANNER™ application and DPU's integrations. After working for a year with this arrangement, Ventyx® revised this structure to create a single point of contact that is responsible for all of DPU's issues, including hosting, application support, and professional services. That "Account Manager" has access to resources throughout Ventyx® to resolve DPU's issues. This reorganization of Ventyx's® support model resolved DPU's only major challenges with the outsourcing relationship.

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Results

The outsourced CIS has been highly reliable, with more than 99% uptime, and never below the uptime specified in Ventyx's® contract. Initially, there were some sporadic performance issues, when system response speed would slow down. A combination of hardware improvements (data servers, terminal servers) and configuration changes have improved system performance.

Other implementation results were typical for a new customer information system, and not specific to the fact that the BANNER™ CIS was outsourced. The implementation of DPU's new CIS required staff to learn new business processes and a different computer application. As a result of these learning curves, management observed that productivity and service took a step backwards for up to 18 months, before it rebounded to prior levels and began improving. After staff familiarity with the new CIS stabilized, management has observed productivity gains that have enabled the Business Division to avoid hiring staff, and maintain service levels when staff is down due to vacations, position vacancies, and sick leave.

In addition, the new CIS has facilitated gains in productivity and service levels due to its integrations with IVR, outbound dialing, and a web-based customer service application called Public Utilities Online Services. Some of the specific capabilities of these integrations include the following:

- IVR is being used to automate customer requests for payment extensions. Implementing this involved standardization of policies for eligibility, limitations, and duration. This is currently handling 150 requests for payment extensions weekly, reducing call center volume by that amount.
- IVR is also being used to enable disconnected customers to check the status of their reconnection service order.
- IVR supports additional high-volume, low complexity calls, including inquiries on account balance, payment information, and addresses for payments.
- Outbound dialing uses automated telephone messages to remind customers about past due balances. This service has received a good response from the customer base and has resulted in an 18% reduction in delinquent service order.

DPU has recently integrated Public Utilities Online Services, a web-based customer service application that provides customers with access to account information and services through the Internet. The new application has provided an additional channel for customers to make inquiries, view account information, and to request billing extensions and other services. The new application is available on a 24/7 basis and is expected to lower the number of calls received in the call center. Again, these enhanced capabilities are facilitated by the new CIS, and do not necessarily result from the fact that the application is outsourced.

In addition to extending Ventyx's® contract to continue hosting the CIS application until 2013, DPU's planned future projects with Ventyx® include the following:

- Migrating to a web-based version of the CIS application
- Re-engineering DPU's service order processes and deploying automated service orders to mobile workers.

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DPU management believes there are substantial opportunities to make quantifiable efficiency improvements by providing mobile workers with access to an integrated automated service order solution, and optimizing business processes to exploit these capabilities.

What Would You Have Done Differently?

The major issue that DPU would have handled differently was the shifting of responsibility for DPU's installation from the Ventyx® "Installation Manager" to the Ventyx® "Hosting Manager" at the beginning of live production use of the system. This is described above, along with the resolution of the issue. A larger project team (than the seven staff dedicated to the project) possibly could have finished the project earlier, but DPU is satisfied with the balance between the project duration and "borrowing" staff from their full time jobs.

Summary

"A good outsourced solution should be invisible to the users; they shouldn't notice whether the servers are in the basement or in Beltsville," says Bob Montague, Manager of the DPU's Business Division. The outsourced CIS implementation at Virginia Beach meets that criteria, and has been integrated with other DPU systems. During implementation, DPU experienced the same issues as most CIS implementations, but no major problems that were related to the outsourced environment.

Case Study – Passaic Valley Water Commission (PVWC)

Why PVWC Was Selected As A Case Study

PVWC is a medium-sized utility that served as a pilot utility testing the Optimization Toolkit.

What PVWC Does That May Be Of Interest To Utilities:

PVWC operates under budget constraints and is a good example of the efficiencies that can be achieved through the use of best practices, which are detailed in this case study. In addition, PVWC is a contract call center operator for two nearby utilities.

Background

Passaic Valley Water Commission (PVWC) is a Commission owned by three cities in northeast New Jersey. PVWC provides retail and wholesale water service and wheels water through its transmission and distribution system. There are 77,000 retail accounts serving about 275,000 people; another 500,000 people are served through wholesale and wheeling arrangements. The retail customer base is very diverse with a substantial percentage of Spanish-speaking residents and a small but growing percentage of Arabic-speaking immigrants.

PVWC was a pilot utility in the AwwaRF study *Best Practices for a Continually Improving Customer Responsive Organization* (Olstein, Stanford and Day 2001). PVWC piloted

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the customer service toolkit (the "BP toolkit") developed in that study by implementing such changes as:

- Linking multiple sites with multiple phone numbers into a single "virtual" customer service center;
- Improving training to levels defined in the BP toolkit including web-based training and improved software. Some AWWA training videos were also used;
- Speeding-up internal work processes including electronic work order systems, lock box service, improved customer information systems, and co-locating Customer Service and Field Services;
- Becoming more customer-friendly through expanded payment plans, improvements at walk-up payment centers and developing a Web site; and
- Accelerating meter change-outs and improving delinquent collection processes.

It should be noted that PVWC is an old utility, dating back to the early 1900s. It serves communities that are not wealthy, so improvements have to be accomplished on very tight budgets. The BP toolkit assisted PVWC in making sure that its money was spent in the right places, in the right amounts and in proper sequence. This meant, for example, implementing telephone upgrades in phases to stretch out costs. Training accompanied these phased improvements. An important part of the program was the implementation of tools that produced key metrics so that PVWC knew that each phase was producing improvements. PVWC has continued to use the BP toolkit as the improvement progressed forward from the initial pilot effort.

Currently, the PVWC Customer Contact Center (Customer Service and Field Services) has 12 full-time equivalents (FTE), 4 of whom are call center agents. The other eight personnel have primary duties that include exception reports, manual entries, report preparation for the CIS, financial reporting and IT support. They are also cross-trained and can assist the call center agents during overflow conditions. The four agents serve, in addition to the 77,000 retail accounts, another 12,000 accounts of two of their wholesale customers (the communities of Elmwood Park and Garfield) on a contract basis. These two towns approached PVWC due to PVWC's growing reputation for excellent customer service. PVWC is a full service provider to the two towns from meter reading through billing, customer service and collections. PVWC has remote agents at two walk-in payment centers.

The improvements that PVWC has made since the initial improvements as a pilot have been in the following areas:

Managing (Leveling) Demand

Since call centers are a demand responsive organization, load leveling is a good way to achieve staffing efficiencies. Bills are sent out every working day, minimizing call surges. PVWC has a significantly upgraded Web site at www.pvwc.com. The Web site includes downloadable forms, an explanation of the billing statement, alerts and other useful information which reduces call volume. The Web site can take credit card payments online.

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Reducing Demand

Until 2005, PVWC contracted with a local electric and gas utility to provide meter reading services. The arrangement was not satisfactory as it affected customer satisfaction. The missed reads exceeded PVWC's targets. In 2005, PVWC contracted-out meter reading on a different basis. PVWC owns all of the hardware and sets the routes – the contract is for reading only. The Commission also upgraded the meters to a touch read system. Concurrently, PVWC continued to update its CIS. The combination of improved meter reads, an upgraded CIS and the improved Web site reduced call volume by 50%.

Improved Telephony

As part of the original improvements in the early 2000s, PVWC installed a virtual queue. In 2002, the utility installed an interactive voice response (IVR) system. This has reduced the volume of calls that require an agent.

Training

One of the most important lessons PVWC learned from the BP toolkit was the importance of training and allocating sufficient time and resources to provide the training to make the best use of the new equipment, software and techniques. PVWC allocates both time and training budget to insure that training keeps staff current. In addition to Web-based training, PVWC sends its employees to conferences by their CIS provider and participates in user groups.

Overflow Management

Customer service hours are from 8:30 am to 4:30 pm. Overflow situations during the day are handled through cross-trained staff, although the combination of call demand management, reduced call demand and IVR has kept that to a very low level. After hours calls are a problem, particularly since staff was reduced from 3 shifts to 1 for budgetary reasons. This has eliminated the ability to redirect incoming calls. Presently, after hours calls go to security. If there is an adverse event (such as a main break) overtime will be used and the front end message on the phone will be changed to identify where work is being done, anticipated outage time, etc. Fortunately, there has not been a large volume of after-hours calls so this has not had an impact on customer satisfaction.

Benchmarking and Metrics

PVWC implemented metrics from the BP toolkit. The Commission currently tracks abandonment rate, queue length, and talk time. PVWC has attempted to track First Call Resolution (FCR) but currently cannot do so reliably – it will be necessary to acquire contact management software to confidently track FCR. Although all of the metrics seem to indicate high levels of customer satisfaction, PVWC would like to perform a comprehensive customer satisfaction survey. Fiscal constraints prevent such an expenditure at this time. PVWC is exploring brief surveys online and at the end of phone calls.

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Summary

PVWC is an excellent example of how to achieve substantial improvements under highly constrained budgets by having a sound plan and paying attention to strategy and metrics. Following their original improvements some eight years ago, PVWC has continued its improvement by following the following strategies:

- Manage Demand – by staggering mailing of bills, providing a wide range of information on its Web site;
- Reduce Demand – by getting the bills right (even though they are not using AMR, and offering a user friendly IVR;
- Managing Overflow – through cross training, although after hours call response could be better;
- Internal Efficiencies – "virtual" call center, improved internal processes. Interestingly, the utility avoided possible CIS problems by opting for multiple upgrades as opposed to replacement;
- Customer Friendly – there are multiple payment options and multiple sources of information for customers. The upgraded Web site was relatively inexpensive; and
- Training – PVWC has kept the level of training up with the hardware and software improvements.

At four call center agents for 89,000 accounts (12,000 contracted), PVWC is one of the most efficient customer contact centers. PVWC does not have AMR. With an already low call volume, all but 2,500 accounts billed quarterly and meter reads costing $1.35, AMR is not cost effective at this time.

Case Study – Town of Leesburg Water and Sewer Utility

Why Leesburg Was Selected As A Case Study

Leesburg is the smallest call center (2 agents) in the smallest utility (49,000 people served) that is a case study for this research effort. While it is a small utility, with the attendant budget limitations, it has one of the lowest ratios of agents to accounts (2 agents for 15,000 accounts) of the utilities we studied, demonstrating the power of their strategies - – accurate bills, leveling-out incoming calls, direct numbers in, reducing transaction time, etc. Also, the call center is operated by the Town's Finance Department, a situation that is not uncommon in city- and county-owned utilities and can have an impact on the decision making process. While Leesburg operates under financial constraints, it was able to implement fixed network AMR and use some good operating practices to deliver good service.

What Leesburg Does That May Be Of Interest To Utilities:

The case study shows what a small utility operating under a constrained budget can do, including:

- Aggressive use of AMR capabilities to keep incoming call volume down;

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- Taking advantage of low hardware prices to overcome software limitations (using multiple computers and screens to speed up transaction time and eliminate the need for costly software upgrades); and
- The use of best practices to overcome financial limitations (single number in, leveling out demand, consistent message, identifying and transferring calls meant for nearby utilities. etc.).

Background

The Town of Leesburg, Virginia operates a water and wastewater utility serving approximately 49,000 people. The total number of served accounts at the time of the case study was 15,094. Approximately 80% of the served population resides within the Town; the remainder is out-of-Town suburban customers. Until the recent economic downturn, this was a high growth area with annual growth rates as high as 5%. The water rate structure includes a senior rate, an out-of-Town rate and a seasonal conservation surcharge. The sewer rate structure is based on the winter quarter reading and includes a senior rate and an out-of-Town rate. The Town relies on connection and availability fees to fund growth-related capital improvements.

There are two CSRs, one of whom is Director of Customer Service. Overflow during the 8:30 am to 5 times when they are open goes to up to 5 Finance Department clerks who are cross-trained. After 5 pm, calls are routed to the police department which forwards emergency calls to the Utilities Department. There are no metrics collected other than isolated instances when call logs are kept. This past January 1, 200 calls were logged; in February the number was 900. A planned phone system improvement will provide the typical range of metrics.

In addition to handling complaints and inquiries, the CSRs can take payment over the phone and handle shut-offs. Collection calls are predominantly done by the Finance Department clerks. The utility has the ability to lien but has not used that capability to date.

AMR

The Town was an early acquirer of a fixed network AMR system. They were offered an attractive price by the vendor because the vendor wanted to have a successful installation in the area. The number of stations was initially underestimated and needed to be doubled to 16 which the provider installed at no additional cost (under contract terms). The accurate readings provided by the AMR system and the ability to identify leaks and other high usage information have reduced the number of incoming calls and the time required for high bill complaint calls.

Call Center Practices

As a small utility, Leesburg must strive to provide good service within a limited budget. They have done this through the implementation of a number of best practices, described below.

Emphasizing The Accuracy Of AMR

Some utilities who have implemented AMR have not seen initial reductions in call volume for a variety of reasons (e.g., bad press during the installation period, high bills after implementation as a result of catching up on estimated reads). Leesburg was fortunate to receive

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good press for their implementation of AMR and solidified it through their response to bill complaint calls. When customers call with a high bill complaint (bills can get very high in the summer through the high use surcharge) the agent pulls up the meter reading information and identifies the exact date of the increase in water use and, if appropriate, recommends that the customer identify and manage the source of increased usage. Aggressive use of the AMR capability to pinpoint the exact date on which usage increased leads to a quick resolution of the call and has reduced the number of calls challenging the accuracy of the meter reading.

Reducing Transaction Time

Tight budgets have limited the ability to implement hardware and software upgrades, but Leesburg still manages to keep talk time within target amounts (calls observed by the project team member who performed the case study all stayed within the target 2 to 6 minute range). Leesburg has taken advantage of the low cost of computer hardware to eliminate time lost in switching between programs. The lead agent has two screens and two computers – one for the meter system and one for the billing system. The other CSR needs to toggle between the two programs.

Leveling Out Incoming Calls

To the extent possible, leveling is done by spacing out the sending of bills, although there are a few days when the interaction of the billing periods and the calendar result in no bills being issued.

Direct Lines In

There are two direct phone lines (one for each agent) printed on the bills. There are separate phone lines for emergencies and for technical (pressure, taste and odor) complaints. Customers usually get the right person on the first try.

Consistent Message

The two CSRs compare notes frequently (start of the day and during the day) to identify any trends and to make sure that they are conveying the same message to callers.

Training

Training is either on-the-job (OTJ) or training provided by software vendors as part of software updates or additions. The most recent CSR hire was previously a cross-trained Finance Department clerk who had received OTJ training to handle overflow calls and needed minimal training. Some customer satisfaction training is planned following the phone system upgrade.

Range Of Payment Options

The utility's Web site allows for bill payment through a firm called Official Payments which charges $4.95 per bill for payments up to $200. The other modes of payment include

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mailed check, walk-up (Finance Department window which handles other transactions for the Town), credit card by telephone and ACH.

Minimizing The Impact Of Incorrect Calls

Leesburg occasionally receives calls from customers of a neighboring utility, but can quickly determine that is the case when the customer address is provided and they immediately do a single button transfer of the call.

Low Income Calls

Some calls come from low income customers who have difficulty in paying the utility bill. The CSRs can set up payment plans; callers with more serious problems are referred to social services.

Implementing Improvements

The utility currently has an old phone system which is slated to be replaced in 2010. The phone system could have been earlier, but other events (they were considering a 311 system) and tight budgets delayed improvement efforts. The improved phone system will include VOIP and the ability to generate metrics. The materials in the Optimization Toolkit (Leesburg was one of the pilot utilities) will be used to help design their metrics reports. Their plans do not include an IVR system – the Town wants to make sure that callers reach people and not a machine.

Customer Satisfaction

Management believes that indirect measures (bills paid on time, few complaints by phone or noted in the press, etc.) reflect satisfaction. Leesburg, like many towns of its size, has a citizenry that is interested and active in civic affairs. Town Council meetings involving the utility typically have standing room only. Meetings are also televised on the local cable network. The utility is frequently written about in the local newspaper. Customers are not afraid to speak up and frequently do regarding what they consider to be high rates.

Being able to serve 15,000 accounts with two agents is also a sign of satisfaction. The utility manager showed the interviewer a number of letters praising the utility for its fast and responsive service (some of the letters also included complaints about the high rates).

Summary

Some of the metrics that can be calculated (e.g., calls per agent, calls per 10,000 accounts) and the metrics that were observed during the case study (talk time and availability) were good. A good part of the credit goes to the fixed network AMR, some workarounds, and the practices implemented by the CSRs. The agents know what they are doing and work hard to deliver a consistent message. The use of multiple computers and screens is a cost effective solution to multiple non-integrated programs and keeps handle time down. Telephone system improvements planned for 2010 will result in improved service and substantially improved performance measurement.

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Case Study – Philadelphia Water Department (PWD)

Why Philadelphia Water Department Was Selected As A Case Study

The Philadelphia Water Department (PWD) is a large City owned water and wastewater utility. It is served by two call centers – one that it operates and one operated by the Water Revenue Bureau, another City agency. It is a well-regarded water utility within a City that is in its first year of conversion to City-wide 311.

What PWD Does That May Be Of Interest To Utilities:

PWD is currently involved in a first-year conversion to support a new City-wide 311 system implementation. This case study compares original objectives of the 311 roll effort to other major cities' 311 implementations and outlines the early statistics of call handling implications on PWD contact center work load.

About Philadelphia Water Department

The PWD is a City-owned, water and wastewater department where revenue collection is the primary responsibility of a sister department – the Water Revenue Bureau. Fiscal oversight is provided by the City Mayor, Council, Deputy Mayor and Financial Director. Day-to-day operation, management and leadership are provided by a Water Commissioner, several Deputy Commissioners and General Managers. PWD serves some 500,000 customers with water, wastewater and stormwater services.

The Philadelphia Water Department and Water Revenue Bureau serve the Greater Philadelphia region by providing integrated water, wastewater, and stormwater services. The utility's primary mission is to plan for, operate, and maintain both the infrastructure and the organization necessary to purvey high quality drinking water, to provide an adequate and reliable water supply for all household, commercial, and community needs, and to sustain and enhance the region's watersheds and quality of life by managing wastewater and stormwater effectively.

Whether providing safe water for residents to drink, supplying water for industries in the City, or protecting the region's water resources, serving customers with quality has been a commitment of the Philadelphia Water Department throughout its nearly 200-year history.

More than 2,000 women and men of the Philadelphia Water Department work around the clock to make sure that a safe, high-quality supply of water is always on tap, that stormwater drains away without major flooding, and that area rivers and streams become cleaner with each passing year. Table B.1 below summarizes actual and projected water service measurements for PWD in 2008 and 2009.

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Table B.1
PWD Water Services Measurements

	2008	2009 (Projected)
Millions of gallons of treated water	93,679	93,261
Percent of time met or surpassed State/Federal Standards	100%	100%
Miles of pipeline surveyed for leakage	1,113	1,260
Water main break repairs	687	760
Average time to repair main breaks (hours)	7.6	8.0
Percent of hydrants availability	99.7%	99.6%
Number of storm drains cleaned	78,804	109,459

Source: PWD 2009

Contact Center Measurements

The PWD Customer Information Unit has 16-20 agents working from 7 am to 10 pm Monday through Friday. Emergency calls are answered between 10 pm and 7am directly by field dispatch. The Water Revenue Bureau has about 20-24 agents that work from 8 am to 5 pm Monday through Friday. An overflow arrangement between automatic call distribution (ACD) systems allows for call transfer and rollover.

The call volume is approximately 13,000 – 15,000 per month. Cold weather months and the end of non-payment shut-off moratoriums result in higher call volumes. PWD operates with an average speed of answer (ASA) goal of 80% of calls answered within 30 seconds. PWD benchmarks of contact center performance metrics are presented below in Table B.2.

Table B.2
PWD Benchmarks of Contact Center Performance

Metric	Target
Telephone Success Factor (rings to pickup) Also called Average Speed of Answer	Rings to pick up not measured; ASA is 80% of calls answered within 30 seconds
Average Time in Queue	32.25 seconds
Time per call	1.68 minutes
Agent availability	80%
Billing accuracy	Not measured
Abandonment Rate	10.6 %
% of customers using on line bill pay	N/A
% of web transactions completed	N/A
% first call resolution (FCR)	Not measured
Full time equivalent (FTEs) personnel	16

Source: PWD 2009

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Customer Service (CS) Operations And Technology – Customer Base

Table B.3 below provides an overview of PWD's customer base.

Table B.3
PWD Customer Base

Retail Population Served	1,463,281	100% served by CS
Wholesale population	190,900 water treatment 700,000 wastewater	100% served by CS
Wholesale Accounts	2 water 10 wastewater	100% served by CS
Retail Residential Accounts (break down into single and multi-family,	431,586 average	100% served by CS
Retail Commercial/Industrial Accounts	41,930 average	100% served by CS
Total Capacity (MGD) Retail+ Wholesale	683 water treatment 1,044 wastewater	N/A
Average Capacity (MGD) Retail+ Wholesale	546 water 522 wastewater (design-rated capacity)	N/A
Part of 311 City/county?	Yes	City currently installing

Source: PWD 2009

Technology Inventory

The following is a summary of the initiatives in use or being implemented by PWD. Some systems, such as SCADA, are used by other departments and not the Customer Information Unit directly.

- SCADA – Currently in use for pumping stations and treatment plants.
- AMI/AMR (Smart grid) – Currently in use with Itron®.
- Telephony technologies: interactive voice response, Speech recognition, virtual hold/queuing, work flow/schedule management systems, knowledge management, outbound automation, vehicle location, VoIP, system analysis capabilities – IVR application under development for Water Revenue Bureau (WRB) application; speech recognition may be included in the future; online payments still limited to credit card application plus toll free number and $3.95 transaction fee to pay via telephone.
- CIS – Internal application with ongoing maintenance and upgrades.
- GIS – Normal mapping system in place to document distribution system, but without integration into work order management and dispatching systems.
- Remote agent management: VoIP, integrated database, remote access, real-time support/communication software, server support, wireless technology – Remote agents in 3 separate locations have access to inbound callers to field operations,

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billing and dispatch request – limited staffing between 10 pm and 7 am. Telephone switch are TDM versus VOIP with overflow tie lines to separate agent queues on selection customer requests.

- Web capabilities: online training, Webcast, internal IM/forum, real-time support, access to integrated database – None currently available; agent screen and voice recording for simulcast play back now being pursued for quality assurance.
- Contact management systems – None.
- Benchmarking data/tools – Monthly Manager's Report with 58 subcategories for all of the Water Department; ACD data tracking.
- Customer service automation: online/offsite payment, automatic direct pay, bank draft, email work request, electronic process from check conversion, credit card payment – Improved online payments under review plus new IVR application for automated account balance, bill payment and payment agreements now under development.
- Self service/automation functionalities: telephone and online support for FAQs, payment, online statements, service requests, information, etc. – Only as explained above.

Focus Of This Case Study

The PWD is currently involved in a first-year conversion to support a new City-wide 311 system implementation. This case study compares original objectives of the 311 roll effort to other major cities' 311 implementations and outlines the early statistics of call handling implications on PWD contact center work load. The Water Department is not responsible for the 311 contact center. PWD continues to operate a separate contact center as well as take calls from the 311 call center when more technical assistance and utility operation skills are needed. The focus and overall objective for the City of Philadelphia in installing the 311 center is to greatly increase availability for citizens' access to all city services and assure a broader work order management system for following-up on citizen requests.

Clearly there is no single way to implement a 311 contact center. Philadelphia has fashioned a 24 X 7 central contact center augmented by ten (10) different 8 X 5 call center operations to improve service and responsiveness to the public.

Strategic Objectives, Planning And Operating Guidelines

- Philadelphia's 311's mission is to provide fuller access to City services and City information with the highest possible levels of customer service. The focus is on efficiency in managing workload, responding to the needs of residents and tracking measurements on how well information and services are being provided.
- The 311 system is intended to divert non-emergency calls from 911 emergency services; so there is parallel operation in Philadelphia for 311 and 911 contact centers. If there is a burning building, citizens are asked to call 911, but when there is a burning question, they are to call 311.
- While PWD still maintains its own separate telephone numbers, as prior to 311, emergency calls (e.g., water in the basement versus inlet cleaning requests) will also be transferred by 311 agents directly to PWD on a 24 X 7 basis.

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- The City departments that are now accessible through Philly 311 include: Prisons, Courts, Parking Authority, Parks & Recreation, Health & Human Services, Law, Records, Utilities (Gas, Water, and Electric), Streets, Transportation (SEPTA, PATCO), Commerce (Library, Revenue, License & Inspections), Public Property, City Council and Special Events.
- Examples of calls to Philadelphia 311 include: illegal burning, non-working parking meters & street lamps, noise complaints, minor injuries, road debris, hydrant running, local government complaint & questions.
- The Philadelphia 311 center also has own web site at www.philly311.phila.gov. The 311 center also allows walk-ins, but does not handle police reports.

Major Benefits And Challenges Of 311 Systems Thus Far

Benefits

- With Philly 311 handling general information calls, PWD and other City departments handle more immediate and complex concerns;
- Track calls by zip code and City Council district; and
- City Council staff can enter their constituent complaints directly into system for multiple departments.

Challenges

- Becoming familiar with City street names and spelling;
- Updating of GIS system; and
- Obtaining enough information from the customer or contact information.

Procedural Framework and Performance Management

- To minimize customer transfers, most general information calls are answered by accessing what is referred to as a "Knowledge Center," which contains basic information for each City department. The Water and the Streets Departments can enter basic high volume requests into a standard form for inlet cleaning, hydrants, or mailing requests, which are transmitted directly to PWD's Work Order Management System. All Streets Department requests are directly entered into their Work Order System except for traffic lighting.
- Requests are entered into PWD's work order system and the 311 service request is updated when an inspector completes a visit and, when required, a PWD crew completes the work. For instance, if the request is for inlet cleaning, the 311 ticket is updated when the request is entered into PWD's system and when the crew completes the cleaning.

Summary Notes And Points

- Philly 311 is still in its infancy and continues to improve its operation and the handoff to other City departments, including PWD. It is highly measured and determined to meet initial operating objectives and assure a high degree of customer satisfaction.

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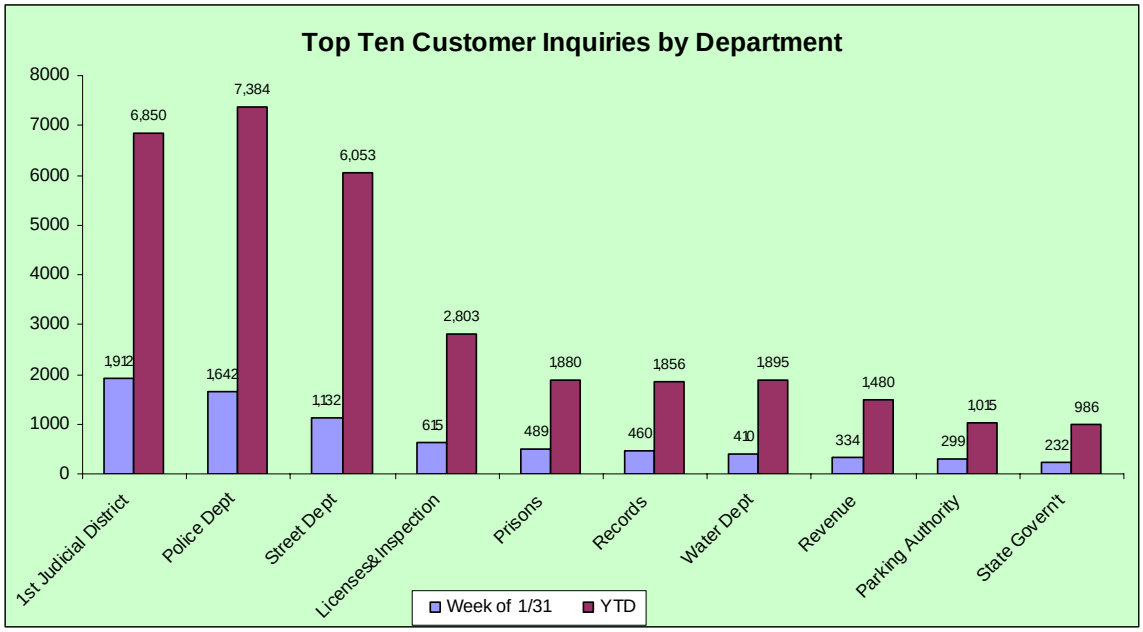
- Call volumes for the PWD emergency call center did not decrease with the changeover to Philly 311. In the first month of Philly 311 operation, the 311 center handled 32,202 calls for the ten departments then interconnected. The Water Department accounted for a total of 1,895 calls or 5.9 percent. Additionally, PWD handled over 13,300 calls directly during the same period.
- Managers believe that the increase in accessibility constitutes value and is the basis for stimulating even more calls than before.
- Agent skills in Philly 311 appear to be broader in knowledge of many different systems and department procedures, but not deep enough to handle full water emergencies as in the PWD call center.
- Staff for Philly 311 has not reached its peak forecast, but the center did benefit from absorption of some employees scheduled for lay-off. Also, the employees originally staffing the City-wide information number, the Mayor's Office of Information and Complaints, and the Licenses & Inspection Call Center are now part of the 311 Call Center. One employee from the PWD Customer Information Unit was transferred to assist as a supervisor in the new Philly 311 contact center.
- Assistance is also provided on part-time basis to answer e-mails directed to Philly 311 by PWD employees on a remote-agent basis
- See Figure B.2 below for relative weekly volume across the first ten (10) departments associated with Philly 311 call handled during initial month of operation. Note that water-related calls account for a modest percentage of 311 calls. This is attributable to two reasons: first, City departments other than the Water Department are the main drivers for 311 implementation; secondly, many customers bypass 311 and call the Water Revenue Bureau or Water Department directly.



Source: PWD 2009

Figure B.2- Top Ten Customer Inquiries by Department, PWD

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Case Study – City of Dallas, Texas 311 System

Why Dallas Was Selected As A Case Study

This is a case study of the Dallas 311 call center. Within the Dallas 311 call center is the call center for the Dallas Water Utilities, a large water and wastewater utility.

What the City of Dallas Does That May Be Of Interest To Utilities:

This case study provides insights into 311 call center operations. It also includes recommendations from the call center manager as to how a utility can constructively interact with a 311 call center.

Background

Dallas was one of the early cities that implemented 311. The Dallas Water Utilities (DWU) is a large water and wastewater agency (more than 2 million people served). Currently, the water utility call center is contained within the City of Dallas' 311 system. This call center performs all water utility call center functions except those related to back office operations (collections, etc.). The chronology of events leading to the current organization structure is described below:

- 1994 – the City of Dallas folded seven of the city's departments call centers into their 911 call center.
- 2002 – the City of Dallas water utility call center was folded into 911.
- 2008 – the various 311 call centers in 911 and the water utility call center were consolidated as a 311 call center and separated out from 911.

Some historic observations – when the 311 call centers and the water utility call center were part of 911, the agents were cross-trained and the 311 agents could handle overflow calls when there were peak periods of water calls.

Some historic negatives – in 2002 when the water call center was absorbed into (then) 911, some calls still went to the back office operations leading to the perspective that they took the water call center people but DWU still gets the calls. The 2008 separation of 311 out of 911 coincided with a new billing system being implemented by DWU. Some of the 311 agents received limited training in this new billing system. In addition, some of the 311 agents stayed with 911. The result was a combination of an increased number of calls and a limited ability to handle overflow by cross-trained 311 agents, resulting in an increase in busy signals. Many customers called the back office numbers directly. The number of 311 agents has since been increased and fewer of these direct call incidents are happening.

Most recently, Dallas hired a former water utility call center manager as an Assistant Director of 311 and things are improving.

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311 Call Center Numbers

There are a total of sixty-seven (67) agents in 311; twenty-five (25) of those agents perform dispatch functions. According to the budget, twenty-seven (27) of the 67 agents are water agents. Three of the 27 water agents are specially trained to handle complex calls. The 311 operation is a 24 X 7 operation; the water hours are 7:30 am – 5:30 pm with afterhours call handled by 311. If calls are received requiring DWU back office personnel, notification is sent, calls are not transferred. In a typical day there will be twenty-two (22) water agents working. Weekly call volumes in mid-April of 2009 were:

- 311 Call Center: 14,652
- Water: 10,445 (on top of the 14,652)

Technology And Training

DWU currently has AMR in a small section of the city and is looking at expanding its AMR system. All water agents are trained by DWU. The 311 center recently hired one person to be a trainer to augment the training provided by DWU. The IVR system is considered antiquated. DWU does not have a Virtual Queue.

Coordination

The assistant director of the 311 center meets with the water utility every two weeks. If the nature of the calls received warrant it, Customer Information System specialists are requested to attend the meeting. The agenda for these meetings include:

- What is 311 seeing?
- What is the water utility doing (or planning to do) that needs to be communicated to the agents?

Outside of the regularly scheduled meetings, the 311 center coordinates with the utility on a regular basis to stay aware of actions that might generate calls and provide uniform responses. A daily report of call volume is sent to the water utility, however, the reporting of calls by type has not been automated yet and so is not in the daily report.

The water portion of 311 strives to provide value to the water utility. It maps complaints geographically using MAPSCO, a large map and street atlas publisher and retailer. Unfortunately, this information is of limited value because asset information is not overlayed on their GIS maps (something 311 hopes to be able to do in the near future).

Benefits And Challenges

Based on their seven years of experience, the three major benefits of having the water utility call center within 311 is:

- The benefit of scale – more people, better technology (than if purchased separately);
- Unified call center – shared resources; and

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- Improved flow of information to service departments.

The challenges of 311 include:

- Knowledge – staying on top of what needs to be known about every served department;
- Helping citizens know what 311 does; and
- Still can't predict spikes in calls.

Advice To Others

The following advice is provided to departments in 311 cities:

- Decide if you want an integrated call center (all agents able to handle any call) or a specialist group within 311 (such as the water call center arrangement in Dallas);
- Have a good skills-based routing methodology so that the call goes to the right person (an associated decision: differentiate based on skills or cross-train?);
- Make sure you provide initial and ongoing training (initial training is essential to getting the program off on the right foot);
- Make sure you use technology to reduce handle time (if you can't afford software take advantage of low hardware costs as discussed in the Leesburg case study);
- Have regular coordination meetings and communicate informally;
- Develop and utilize scripts (identify hot topics);
- Push self service (Web and IVR); and
- Implement multi-channel capability – chat, text and FAX in addition to phone. Consider whether or not utilizing social media is appropriate for your department.

Case Study – Greater Cincinnati Water Works (GCWW)

Why GCWW Was Selected As A Case Study:

GCWW is a large water utility that also provides wastewater customer service. It is well known as a utility that studies its processes as part of its continuous improvement program. Other factors in its selection were its extensive call center contracting-in, its use of workload scheduling software and its training program.

What GCWW Does That May Be Of Interest To Utilities

- GCWW's meter-reading related calls have dropped by more than 90% as a result of deploying AMR, which allowed GCWW to eliminate high bill investigations in the field. GCWW reads its meters monthly, but bills quarterly. It often can notify customers of high consumption before they get a bill.
- GCWW uses predictive call center workload scheduling, a significant percentage of part-time workers, and highly flexible work schedules to adjust staffing levels needs to handle calls.

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- GCWW has applied its staffing and expertise to provide contract billing and customer contact services for surrounding municipalities. About 70% of the operating budget of its Commercial Services Division is covered by revenue from these contracts.
- GCWW uses RoboHelp to create and provide on-line manuals for its customer care representatives, which helps it cut training costs, facilitates consistency among agents, reduces supervisory intervention, and allows it to create processes for its billing and customer service contracts.

Background

GCWW is a progressive utility serving about 235,000 accounts (not including its contract accounts) in an 811 square mile service area. Through its contract operations (discussed in this case study) it covers a diverse range of services. The City of Cincinnati itself is approximately 78 square miles, and provides less than half of GCWW's customer base. GCWW is well known for its continuous improvement efforts. Technology tools are making GCWW customer service more efficient.

AMR Impact On The Contact Center

GCWW installed mobile radio AMR over a 4 year period commencing in June 2003. Both GCWW and its customers are pleased with the system. GCWW's customer service managers refer back to the AMR business case frequently, to compare performance and savings with the AMR system to what was projected. GCWW eliminated 57 positions, which is more than was projected in the business case. When the AMR business case was prepared, GCWW's Contact Management System wasn't in place.

GCWW estimated that AMR would reduce customers' calls by 20%. This result has not been achieved, although the volume of calls related to meter reading has declined substantially. The total volume of calls has been relatively flat over the several years, including the period during and after deployment of AMR. No Customer Care Representative (CCR) positions in the contact (call) center were eliminated as a result of AMR.

As noted, the number of meter reading related calls has declined. GCWW tracks meter reading calls in two ways: (1) the IVR has a menu option for meter reading related issues; and (2) agents can code the call when it ends, so that GCWW staff can do a "stroke count" to give them an idea of the distribution of calls by type. GCWW has a high percentage of calls for which CCRs record the call type. This is not always exact. Sometimes agents don't code the call. CCRs can code 4 different items to the same call, since customers may call with multiple issues.

The IVR reports from the inception of the Contact Center in 2001 through 2009 show the total number of hits on the main IVR menu related to meter reading have declined. In 2001, GCWW received 3,000-4,000 meter reading related calls per month, about 12% of total call volume. These calls could be for anything to do with meter reading, including calls from customers who provide a meter reading, and calls to schedule a meter reading. Now, such calls number 200-300 per month, less than 1% of all calls. GCWW's meters are fairly new, so the utility does not receive many calls regarding metering.

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AMR And Other Areas Of Impact Field Service Requests

As the AMR system has eliminated most estimated readings, billing adjustments are much diminished and GCWW has been able to streamline its billing operations. As a result, positions in billing were eliminated.

GCWW no longer performs high bill investigations in the field. Instead, GCWW provides customers with detailed information on how to detect and address water leaks that may be contributing to the high bills. GCWW bills most customers quarterly, but reads the meters monthly. GCWW uses the monthly readings to identify accounts with elevated usage and sends a high consumption letter to customers. This allows the customer to investigate and repair possible leaks in the middle of the billing period; reducing high bills and potential calls and requests for adjustments.

The AMR system has enabled GCWW to adjust the workload coming into customer service. For example, agents can devote more time to collections rather than billing adjustments.

IVR, Call Volumes And Types

The Contact Center became operational in 2001 and included an IVR. The IVR penetration rate has consistently been high, at about 40%, with variation within 2-3%. More people are making payments through the IVR. Most of these payments are made through the self-service option on the IVR and do not require direct agent assistance. GCWW's IVR has 7 main menu options, including the option for calls about meter readings, and a "Press 0" option for all other questions. In the stroke counts feature of the system, there are 9 selection options.

Many calls are about move-ins and move-outs, and other account-related questions. About 50% of the calls are about billing, account information, and payments. Calls about payment plans are now higher than in the past. These calls take a relatively long time. There is no stroke count option specifically for payment plans. From a data gathering standpoint, it's hard to get down to that level of detail with the IVR and phone system tracking system. The number of calls for payment plans is better tracked through some other means.

On-Line Billing

About one-quarter of GCWW's customers registered to use its on-line billing. However, some registered once, and then they didn't use it. Only about 12% of customers are using web billing. The customer's account is debited right away. ACH is the preferred method for on-line payment. GCWW also accepts payments through credit cards.

Call Center Work Force Management

GCWW managers believe the key to managing call center performance is matching staffing to need. The goal is to avoid being overstaffed or understaffed. GCWW uses predictive workload scheduling software to estimate when the peaks will occur. GCWW manages its customer call center work force against predicted call volumes using Blue Pumpkin® software. The program is fed data by the CMS. It provides a major improvement over manual scheduling. It predicts how many calls the contact center is going to receive, as well as the service level (i.e.,

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waiting time, abandon rates, etc.) associated with certain staffing levels. GCWW can call people in for emergencies or any time it expects to get many more calls than normal.

Some optimizing of the schedule and workload can be intuitive, but predictive workload scheduling software provides an analytical, factual, data driven schedule. For example, it enables GCWW to determine the hours of the week that the next person it hires is going to work. The application requires a willingness to invest time for usage and maintenance on the part of sophisticated managers. The effort is time consuming, and GCWW staff believes that they probably do not use the software to its full potential. However, it is used to set the schedule for phone agents, to determine break times and lunch times, to identify the best times to have training and meetings, and to provide data for other decision-making. At the time this case study was prepared, GCWW staff were unaware of any other water utility that is using a similar call center work force management package.

GCWW has worked with the civil service system and collective bargaining groups to create work-force flexibility and a career track for agents. This initiative helps with employee retention. It developed a Senior Customer Relations Representative position that is a step up from a telephone agent position. In the Contact Center, GCWW has entry level CCRs, senior CCRs, and supervisors. All collection agents and billing agents are senior CCRs. GCWW's agents are trained to handle any kind of transaction from beginning to end.

GCWW has 20 full-time CCRs and 23 part-time CCRs. It addresses the peak hours with the part-time agents. The part-time employees provide flexibility to meet changing call volumes. For example, on Mondays, all employees are typically working. GCWW has more people on the phone on Mondays, Tuesdays and Wednesdays, and has some mid-day shifts. The part-time employees are members of the Teamsters Union, while the full-time agents are members of AFSCME. GCWW has not increased contact center staff levels since 2004, despite taking on contracts with other municipalities.

Work at home (WAH) CCRs have not been used; there are many potential complications including labor contract issues. It would require stringent operating criteria. WAH employees would need a dedicated, sound proof workplace. Choosing who can work from home would be difficult if not impossible; all employees have to be treated equally. Moving to VOIP phone technology is probably a requirement for WAH.

Call Handling

GCWW previously used call-back management software, but no longer does so. When a customer chooses to speak with an agent, the IVR announces the estimated wait time.

The average time to handle a customer call to GCWW is consistently around six minutes, consisting of 3 minutes on the phone and 3 minutes of after-call transaction processing time. To maintain high quality transactions, GCWW staffs its Contact Center based on this 6-minute expectation.

GCWW has used a customer service quality program for four years. It involves seven steps of quality control, including having agents end their calls with, "Is there anything else we can do for you today?" GCWW records calls, but does not have a robust call monitoring program.

GCWW is trying to determine the best way to handle contact management. "We don't know how many times Mrs. Jones called us in the last month, unless we look at every note in the

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comment field. Who are the top 100 customers that called last year? We need to be able to pull up this information." This capability may be part of a CIS upgrade.

Field Service

GCWW has been developing an application with Sprint™ for mobile computing and field work order management. All field service employees carry cellphones for safety. This application helps GCWW with routing and location. Priority field work orders can be slipped into the schedule. The cellphones enable timestamping the beginning and end of each job. The cellphones are equipped with GPS. This enables GCWW to assign an additional work order to someone nearby. The system also enables GCWW to determine if someone is driving off route.

Benchmarking

GCWW managers have concerns with benchmarking performance statistics, since the comparison is not always "apples to apples". Terms and acronyms don't always mean the same thing from one place to another. For example, average call length is 6 minutes for GCWW, whereas in a simple call transfer center it's 30 seconds. GCWW believes first call resolution and total resolution time are the important performance measures.

Another concern with benchmarking against other water utilities is that GCWW's customers do not compare GCWW to other water utilities; they compare their service to that provided by Duke Energy, Cincinnati Bell, and Time Warner Cable.

Continuous Improvements

GCWW recently had a consultant conduct an assessment of its contact center IT and operations. One of the recommendations of the assessment is to create a command center, with a dedicated staff for scheduling and real-time monitoring, similar to a corporate contact center. The recommendations will be followed by a contact center enhancement program next year. GCWW has identified a number of enhancements to the IVR system, and plans to upgrade IVR based on these recommendations.

The assessment recommended some strategies to improve first call resolution, such as escalation to a supervisor during the call, rather than supervisor call back. Other strategy recommendations involve queues and direct number, and assistance from supervisors to help agents in real time.

GCWW intends to enhance its customer service web site in a separate project. At present, customers can look at their bills, pay their bills, and change their names on the web site. However, they cannot request service, make a payment arrangement or ask for an extension of the bill due date. GCWW will also be looking at developing videos for its web site.

GCWW has a goal of undertaking a certain number of customer service process improvements every year. Its current focus is having the management team drill down to identify where process improvements could be made.

GCWW intends to refine its customer service metrics, including such things as speed of answer or abandoned calls. It might increase the weights on outliers (such as excessively long call waiting times) to promote certain goals.

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Contract Services

GCWW is in the customer service outsourcing business and is endeavoring to expand its billing and customer service contracts. It has ten contracts with other smaller government agencies around Cincinnati. It collected over $7M in billing services from other agencies in 2008. About 70% of the operating budget of GCWW's Commercial Services Division is covered by these outside contracts.

GCWW has a contract to provide billing and customer contact services for nearby Butler County, which has 40,000 accounts. Before GCWW assumed responsibility, Butler County's call center only handled billing questions. GCWW operates a separate call center and a separate billing system for Butler County; the phones are answered, "Butler County." GCWW is also exploring providing some customer field services to Butler County.

GCWW has also entered into several smaller back-office billing contracts recently, mainly from surrounding jurisdictions that have to start charging for solid waste.

GCWW will expand what it bills for the City of Cincinnati, which already includes stormwater, to include trash pickup. GCWW is paid under a reimbursement formula.

Training Tools

For more than 1 1 /2 years, GCWW has been using RoboHelp®, a web-based training manual development tool, to create and provide on-line manuals, procedures and policies for its customer service agents. The tool is a dynamic expert system trainer. It contains all of GCWW's business processes, and provides on -line help with, for example, how to add a new customer. One of GCWW's senior CSRs updates the tool. RoboHelp® facilitates a much higher level of consistency in service delivery among agents, and cuts down on paper by obviating the need for large training manuals. If a question arises, the first thing the CSR does is refer to RoboHelp®. As GCWW takes on additional customer service contract clients, RoboHelp® helps them accommodate the unique business processes and policies of each.

GCWW also uses Captivate® software, which helps it make training videos. The videos have helped reduce the need for individual trainers, enabling staff to spend more time answering customer inquiries.

Case Study – District of Columbia Water and Sewer Authority (DCWASA)

Why DCWASA Was Selected As A Case Study:

DCWASA is a large water and wastewater utility that was an early acquirer of a fixed network AMR system. It was an important part of their billing and collection effort which has resulted in a significant reduction in delinquencies.

What DCWASA Does That May Be Of Interest To Utilities:

The District of Columbia Water and Sewer Authority (DCWASA) serves 101,360 residential and 22,215 nonresidential accounts in a 68 square miles of service territory and has a resident population of 591,833. Metered customers are billed monthly. About 90% of its meters are outside in pits. Its annual retail revenue is $279 Million (average cost is about $6.75 per

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hundred cubic feet). About 1/3 of the typical bill is for water and 2/3 is for sewer and stormwater. It bills 123,500 customers on a monthly basis and 8,607, "impervious-only" customers on a semi-annual basis.

Like many water utilities, DCWASA has seen a recent reduction in billed-for consumption. DC WASA's federal customers represent about 20% of retail revenue. Many have undertaken some form of green initiative as have some large commercial enterprises. DCWASA had an approximate 4% reduction in consumption for its retail services customers in 2009 and their prognoses is that retail consumption will remain flat or decline in the foreseeable future as more green initiatives are undertaken.

Call Center

DCWASA's call center handles about 15,000 non-emergency and 4,200 emergency calls per month. The percentage of calls per thousand bills is approximately 14.4%. Eighty five to 90% of the calls are answered in 40 seconds or less. The abandonment rate is less than 1%. The IVR tells customers how long they have to wait. DCWASA resolves customers' issues during the first call 81% of the time. Agents attempt to resolve high bill concerns over the phone without a field trip (unless there is a suspected service line leak). Ninety two percent of customer issues are resolved within 6-days.

DCWASA generates approximately 13,393 correspondences per year related to customer inquiries, such as general information, billing issues, requests for service and protests (not including collections notices such as late notices, disconnect notices, intent to lien notices, and lien notices). These inquiries come into DC WASA through email or written correspondence. DCWASA contacted 3,884 via email and/or telephone during FY2009 and alerted them of higher than normal water usage before billing.

DCWASA has Commercial Care Associates that handle accounts that have meters of 3" and above. They establish relationships with these accounts. These key customers can call them directly.

Collections

DCWASA's managers feel that shut-off for non-payment represents an organizational failure. In principle, there's no reason to shut-off a customer. DCWASA offers a wide variety of payment terms to customers. Its philosophy is that it is much better to have the customer make a payment arrangement than to literally terminate the relationship. DCWASA believes that most of its delinquent customers are honest people who are trying to get by and don't want the embarrassment of a shut-off. Since shut-offs are expensive, the utility's approach is to avoid them if it can in a drive to lower its cost of service. It makes 10,000-12,000 outbound collection reminder calls per month.

DCWASA encourages customers who are in arrears to call and make payment arrangements. Payment arrangements or payment extensions can be made by the customers through the IVR system, if the account meets the established criteria. The customer is only given one opportunity to do this. If the customer doesn't live up to the arrangements, they are automatically defaulted and, of course, cannot reestablish payment terms through the IVR System. However they can speak with a CSR in order to renew or establish a different payment

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plan. If the customer attempts to establish payment terms via the IVR after defaulting, they are transferred to a CSR.

DCWASA holds the property owner responsible for payment of the bill. However, if it is a rental property, at the owner's request, a third party/tenant will be added to the account and will receive a monthly bill as does the owner. If a bill remains unpaid and reaches the amount of $200.00, DCWASA automatically sends a notice of intent to lien to the owner only. Sometimes this is enough to induce the owner to pay the bill.

Another hallmark of DCWASA's success in collections is integrity. It doesn't simply threaten without follow-through.

DCWASA is permitted to terminate service on 54th day following account billing and with appropriate notice to the customer. DCWASA has established the amount of more than $150 as the criteria for turning off service for non-payment. Although DCWASA is not regulated relative to out-door temperatures and the disconnection of service, it exercises good judgment by not turning service off if the temperature is below 32 degrees within a 24-hour period. Those accounts that are not turned off in the winter due to inclement weather or cold temperatures are identified and, if they are not paid current, will be shut off as weather permits. These accounts typically are liened when the arrears balance hits $200 thus securing the balances.

The DCWASA lien is continuous, meaning that if you place a lien on a property for the amount of $200.00 and the balance increases monthly as the customer is billed and the bill is not paid, the lien is good for the cumulative amount outstanding. It is not released until the account balance has been paid in full. The DCWASA lien is a powerful collection tool. The lien is recorded and subsequently becomes a part of public records. Once the lien is recorded, it will appear on the customer external credit report. This can pose a very serious problem to customers who apply for various types of credit beyond that of a water account as their credit rating score is adversely affected.

DCWASA does not shut off multi-family apartment buildings although the regulations allow them to do so. However, they will take the owners of the building to court and request that a percentage of the tenants rent be paid to a receiver and forwarded to DCWASA. Generally, this is incentive enough for the apartment owner to pay the bill so that the rents may again be paid to the owner of the building.

DCWASA sent out 3,298 intent-to-lien letters in 2009 and placed a lien on 83% of these properties. DCWASA charges a 10% late charge on all unpaid balances on day 31 following the account being billed. On day 60 a 1% penalty, which is compound monthly is assessed.

DCWASA has reduced its 90-day receivables over a 6-year period from $27M to $4.9M through its arrears management plan, which is a combination of inbound and outbound calls, shut-off process, lien process, receivership process, payment plan process and customer self-service applications and participation in the city's annual tax sale.

Advanced Metering System (AMI)

Before AMI, DCWASA billed most customers quarterly. Meter reading performance was poor; 22% of the bills were estimated, and some accounts had a large number of successive estimated bills. Less than 2% of its small meters (2 inches and less) are located inside and approximately 40% of it large meters (3 inches and greater) are located inside. The high cost of reading meters coupled with the lost revenue attributable to old and slower meters, the desire for

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actual meter reading and converting to monthly billing as well as providing quality service to customers were the impetus for implementation of AMI.

There were many initial problems with installations, since most transmitters had to be installed in meter pits that frequently flooded. These have been largely resolved. Some customers, including some Federal facilities and foreign embassies continue to be resistant to AMI installation although more than 99% of all DCWASA's meters are now equipped with AMI.

The AMI system's normal read success rate is between 94% and 97%. The meter transmitting units (MTUs) fail at a rate of about 4% per year. Causes of failures include: wiring issues, battery life, and water damage.

DCWASA is going to replace the existing data collection units (DCUs) and MTUs with the new DCU2s and MTU2s to allow for two-way communication of these devices. This will allow meter reads to confirm MTU programming changes and readings in real time upon installation as opposed to the current transmission cycle of every 12-hours which can be adjusted if DCWASA wanted to read more frequently.

AMI-Generated Customer Consumption Information

AMI implementation has helped with call volumes and field service orders. Prior to AMI, DCWASA was getting 40,000 calls per month, which meant multiple calls from customers. Many were about estimated meter readings and high bills. True up calls were very time consuming, and still often resulted in rolling a truck, which costs DCWASA about $50. By the time a field investigator confirmed the meter reading, the customer was contacted, the customer appealed the bill, and the meter was tested, the total cost to sustain the bill could easily be more than the amount being contested.

When DCWASA installed AMI, the system provided 2-reads per day. Since installation, DCWASA has collected more than 300 million readings. Over time, the large volume of data can become unmanageable. A CSR had to use a calculator to make sense of the data. This could increase the length of the phone call transaction, and still would result in a truck roll. Customer service enhancement using this information has evolved in small steps.

DCWASA had an older version of the AMI system software that provided only a list of consumption numbers, no graphs. This was causing CSRs to spend too much time looking at the data and using a calculator. DCWASA built its own call center application to chart the numbers, which was later moved to the web as a value added service for customers.

As a first step, DCWASA created a database application to assist the call center representatives. This application downloads the data from the AMI system daily and graphs the daily, monthly and annual consumption to make it more intelligible to customer service reps. Now, the representative can see the historical experience. This has enabled DCWASA to reduce the length of calls and the number of abandoned calls. With the graph in front of them CSRs can get into more immediate and detailed conversations with customers. For example, the normal daily bill for a customer was $1.36 but it jumped up to $24.91 per day, probably from a leaking toilet. A CSR can say to the customer, "On a particular date, your consumption spiked. We don't know what's going on in the house, but you may have a leak. Do you have to jiggle the handle on the toilet? If yes, go buy a new toilet flapper." DCWASA finds that if they can explain to the customer what's going on, the customer will generally accept the bill.

The next step was to make the consumption information available directly to customers on the web. About 34,000 customers have registered on the website to access their consumption

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information. For security, the customer is forced through the My Account process to look at the information. This requires account number, username and password, plus a check digit.

The next customer service evolution was proactive notification of customers with high consumption by CSRs. DCWASA has a High Use Notification (HUNA) process. DCWASA had already been using the IVR and web for customer notifications for main breaks, so they decided to do the same with consumption. If a customer has a high consumption that exceeds his average by 10 times (the goal is to find a toilet leak or greater) over four days, DCWASA will call and/or email the customer. This call is done via a flat file of the accounts' phone numbers and a prerecorded message through the IVR, which has outbound dialing capabilities. Notification can also be by email. Users can also download their data if desired. Customers are automatically enrolled within the HUNA as long as they have provided their phone number or have established a MyAccount (web) profile. Customers may specify their preference for being notified via phone, email or both.

In principle, if DCWASA can notify the customer before the bill date and avoid sending a high bill, it will save time in the call center and in the field, and will make the customer happier. This system has received a lot of awards and accolades. DCWASA has received requests to expand the program. In the next phase of this application development, the customer will be able to set the level of notification (i.e. do they want to be notified of small changes in consumption or just large ones).

Another step will involve grouping properties. Multi-account managers, including the Armed Forces, property managers with large tenant properties and universities that manage campuses, can get the readings DCWASA collects every day. These people look at consumption daily, and appreciate the on-line access to this data.

Move-Ins And Move-Outs With AMI

If a customer wants to move out, DCWASA will deactivate the account. When a new person moves in, DC WASA will activate it. It does a "soft shut-off," which entails monitoring the account. It gets a weekly investigative report of consumption on properties from which customers have moved out. It will final the bill based on the reading accessed from the AMI system. When the new property owner comes in, he has to show that the property has transacted to set up the new account. Using this procedure, DCWASA has saved significant money by reducing its field visits. DCWASA averages 5,000 move-in and 6,000 move-out transactions per year. Less than 2% of move-in/move-outs require a field trip for a physical turn-off.

If more than 2 hundred cubic feet are used after a soft shut-off, then DCWASA does a hard shut-off. If there is a problem, it removes the meter. If the meter is removed and nobody complains, then DCWASA will check to see if somebody has reconnected the service with a straight-pipe at the meter setting.

Vacant properties will show activity at times. As long as the electricity is connected, someone may come into the property. However, DCWASA will see the consumption activity. This system works because DCWASA is dealing with the property owners, even if they are banks holding foreclosures. It can easily determine when the property transacted by looking at the UCC property transfer information. The tax information is on-line.

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Field Service

DC WASA completes 1,521 field service orders per month. 98.5% of field service orders get completed.

DC WASA has completed the reorganization of its field service personnel based on the AMI project. DC WASA had 60 meter readers, water system investigators, instrumental mechanics, and instrument mechanics helpers. It reduced 9 job classifications down to 3. It has 19 one-person Field Technician crews that handle all work related to small meters (up to and including 2”). The field technician can service MTUs, handle collections shut-offs, change out a meter, and inspect the premises. When the field technician is at the customer’s premise, he is expected to do everything, and collect all information. The Billing Division generates low consumption work orders. The field technicians investigate to determine whether the property is occupied or vacant. If the property is occupied, he swaps out the meter. Since every truck roll costs $50, DCWASA wanted to minimize excessive trips.

DCWASA has 13-persons on 2-person crews, consisting of meter technicians I and II, that handle meters 3” and larger. These meters require confined space access.

Getting to this point raised difficult union issues, but DCWASA’s managers persisted. Employees were offered early-out cash packages and training to employees that wished to stay on. No one was laid off, but DCWASA required them to be qualified for the new positions.

DCWASA’s approach to staffing after AMI was based on the levels of performance it wanted in such areas as valve exercising and meter testing. It expected a certain amount of manual reading, and broken meters, and meter testing. For example, its 6” and larger meters are tested semi-annually, large meters smaller than 6” are tested every other year, and large meter crews can handle 2-3 tests per day. This provided an estimate of the staffing needed.

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APPENDIX C
FUTURE DISCUSSIONS SUMMARY

Meter-Related

- AMI - communicate with meter, have remote shut-off capability, etc.;
- Two way communication – meter sends readings; office sends out leak notice;
- More sophisticated rate-setting – time & usage-based rates, allow customer to set points within rate structure;
- With a Fixed Network there is a significant amount of data – would like to move to two- way communication with the meter;
- Unique rates per customer;
- Now being used mainly for leak detection, but in the future will allow customers to determine acceptable usage, have customers set parameters to warn of leaks; and
- Integrate large meters into SCADA to identify distribution system problems to do predictive, proactive dispatch.

Agent-Related

- Remote agents (if collective bargaining agreements allow) – work access for physically handicapped; and
- Develop procedures for effective remote agents.

Call Center

- Develop resiliency – move call centers on the fly – only need computer, intranet access and handsets to set up call center anywhere;
- Voice activated IVR – more self-service moving transactions from voice to IVR; and
- IVR and Web to reduce transaction costs.

Field Services

- GIS CIS integration – automate dispatch based on meter location;
- Integrate large meters into SCADA to identify system problems to do predictive, proactive dispatch;
- Automate dispatch from emergency calls – use CIS, GPS and VLS to send nearest crew, automate call to Miss Utility;
- A mobile solution for field crews – PDA lets you locate hydrant using GPS, get full data on hydrant (last exercise, details etc.);
- Reduce time to repair – automate dispatch triggered by emergency call using GPS and VLS – send closest crew, automate call to Miss Utility or equivalent “call before you dig” service; and
- Use SCADA to detect problems – marry with GIS to identify affected areas and do outbound 911.

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Strategy

- Paperless communications (some portion of customer base will still need to be served by paper);
- Multiple communication channels with customers (some portion of customers will not be comfortable with computers);
- 24/7 service delivery;
- Efficiently handle overflow/after work hour (arrangements with other utilities in different time zones);
- Multiple payment arrangements (methods, timing, etc.);
- Determine preferred payment modes and move in that direction, e.g., more electronic billing and presentment. Will have to cover PCI requirements;
- Change the physical environment in the call center - make it more visually centered
- Single number for all reasons; and
- Work management applications – CIS tracks customer interactions (bills & complaints) workload forecasting & management software– scheduler for meter maintenance and water audits.

Training

- Training – RoboHelp®;
- Training for new agents;
- More highly educated personnel – associate degree in call center;
- Paperless manuals;
- CS customer training for field and call center agents;
- Customized training based on written responses; and
- Training – "sandbox" environment using simulations and providing visual guidance for agents.

Systems

- Fully integrated GIS, enterprise resource planning (ERP), telephone, document management;
- AMI-SCADA link for demand forecasting (diagnostic to calculate where problems are likely to crop up);
- Automated dispatch and logistics for emergency and field work;
- Emergency dispatch – know status and location of work;
- GPS in field service vehicles;
- Be able to identify customer on emergency call or give them the telephone number of the serving utility;
- Virtual queue;
- Optimize workload forecasting;
- Voice recognition instead of punching numbers; and
- Expanded use of auto dialers.

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Communications With Customers

- VOIP for 2 way communication with customers;
- Upgrading internet site design – sending out messages for emergency conditions;
- Phone system with text capability allowing chats (utilizing e-mail now);
- Outbound collection calling via auto dialer; i.e., automated outbound; and
- Coordinating with other emergency agencies for outbound calling.

Internal Communications

- Combining a blog-wiki-IM.

External Relationships/Communications

- Developing "trusted business partner" relationships with parties such as escrow agents, etc.;
- Expand "trusted partner" relationships (low income assistance groups, etc.); and
- Expand on-line services.

Customer Relations/Satisfaction

- A changing relationship with the customer in which the utility extracts customer metrics regarding desires and satisfaction;
- Dynamically understand why customers are calling, and what business process is causing the call;
- Quality monitoring of calls – silent monitoring & coaching
- Survey after the call; and
- Expert agent system.

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APPENDIX D
OPPTIMIZATION TOOLKIT

The enclosed CD-ROM contains the following documents:

- Word document: System Minimum Requirement and Installation Guide
- PowerPoint document: Optimization Toolkit Guide
- Word document: Resource Guide for Optimization Toolkit
- Excel document: Self-Assessment Tool
- Excel document: Benchmark Tool
- Excel document: Improvement Tool

It is recommended that the use of the toolkit begin with a review of the Resource Guide, which provides details on the underlying toolkit approach and much more information than exists in the three individual tools – the Self-Assessment Tool, the Benchmarking Tool and the Improvement Plan Tool. Following a review of the Resource Guide, the suggested sequence of use is outlined below.

1. Minimum System Requirement and Installation Guide. This will provide an overview of the technical aspects of the CD-ROM.
2. Self-Assessment Tool. This will identify mismatches between strategic importance of the various goals and the practices employed by the utility. Suggestions for each strategy are presented on a size differentiated basis, as appropriate. Each utility should to determine where they are on the size scale. This tool will result in an assessment plan.
3. Benchmarking Tool. This tool allows the utility to benchmark itself. This tool includes a glossary to help the utility calculate its benchmarks using the correct definition, benchmarking resources and a selection of Best Practices. The benchmarks incorporated are the average values for the utilities with which the research team conducted structured interviews. A larger set of benchmarks includes a consensus of the research team values based on the team members' professional experience and various benchmarks provided by the various benchmarking resource providers (as presented on their web site or in documents they provided). We urge utilities to develop their own resources for these values. In addition, the toolkit provides guidance on how to improve a utility's benchmark scores and includes a set of Best Practices that can also help improve benchmark scores.
4. Improvement Plan Tool. This tool enables a water utility to tie everything together. It begins with a look at future trends and how they might affect the customer contact center and the improvement plan being developed. To add to that view of the future, this tool also includes summaries of the "futures" interviews with utility managers. To round it out we present the attributes of the optimized customer contact center of the future. An FAQ (frequently asked questions) section is included as is a list of resources. A worksheet is provided for the utility to develop their unique improvement plan.

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GLOSSARY

Abandoned Call: A call that is terminated by the calling party before being answered by an agent or customer service representative.

Abandonment Rate: The percentage of incoming calls abandoned by calling party.

Agent Availability: The percentage of time an agent is servicing a call, doing wrap-up work and available to take a call.

Analog: An older, but still commonly used, telecommunications transmission signaling technique that varies frequency, amplitude, or phase of a carrier's transmission and generally over copper wiring. Analog is often referred to as POTS, or plain old telephone service, telephone lines and contrasts with digital transmissions.

Automatic Call Distributor (ACD): A telephone system designed to distribute incoming calls with the longest waiting call routed to the most available agent (i.e., idle longest)

Average Speed of Answer (ASA): A measurement to gauge the average time a caller will remain on hold before an agent answers the calls. A good ASA target is that 80% of calls placed on hold will not wait longer than 20 seconds before being answered

Average Time in Queue: Time spent in queue by a caller waiting for an agent. Some contact centers provide estimated wait times and use this time to encourage caller use of IVR

Bandwidth: A range of frequencies expressed in hertz (Hz) that can be carried over a given transmission channel. It also refers to the rate and speed at which information can be carried over transmission facilities, that is, telephone lines or circuits. The greater the bandwidth such as 1.54 Mbps (T-1) versus 64Kbps (POTS), the more information can be sent in a given period of time

Blended Agent: A switching arrangement of blending inbound and outbound call handling with some of the agents in the contact center, as required, to insure priority is given to inbound calls for higher service level; the agents capable of doing both inbound and outbound call handling are generally referred to as "blended or swing" agents

Blended Contact Center: A contact center that allows agents to handle incoming and outbound calling as demand requires. An advanced blended contact center combines an ACD for incoming calls and a predictive dialer for outgoing calls achieving efficiencies.

Blocked Calls: A condition, presumably momentary, where all transmission facilities are busy (all trunks busy) and callers receive a busy signal. The number of calls receiving busy signals is considered blocked, incomplete or denied calls. Industry standards have set to configure network facilities and staffing to preclude blocked calls from occurring over 2-5% of the time.

Broadband: In voice communications, a channel having a bandwidth greater than a voice-grade telecommunications channel, such as 65Kbps. Sometimes used synonymously, and inappropriately, with bandwidth. Broadband typically employs coaxial cable, fiber optics or WiFi transmission mediums and uses radio-frequency carrier signals from 50 Mhz to 500 Mhz.

Busy-Hour Study: A study using call handling statistics from PBX/ACD reporting, coupled with defined periods of study by telephone network service providers to identify call attempts. This information can be used to size networks and calculate staffing requirements. Busy signal counts (denied calls), or blockage, can only be recorded and measured by tallying "offered" calling attempts outcomes by telephone network service providers.

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Call Center: One or several locations where customers' telephone calls are handled by an organization, usually with on-premise or network based switching equipment and automated computer applications, such as a CIS knowledge based system.

Call Detail Recording (CDR): Represents the software and reporting functionality in a call accounting system, or package, associated with a telephone PBX. CDR is also referred to as station message detail recording (SMDR).

Call Queuing: The act of placing an incoming call on hold to wait for access to telephone network facilities or an agent to become available

Caller ID (Identification): The telecommunications feature that enables the caller's telephone number to be seen by the receiver and used by an associated computer system to retrieve customer records (pop screens). Caller ID is often referred to as automatic number identification (ANI).

Central Office: A telephone company's facilities where subscriber lines are joined together with switching equipment for connecting to other subscribers and the public switched telephone network (PSTN). Voice, data and video can be transmitted locally and via long distance

Chatterbot: A program that simulates the conversation or "chatter" of a human being.

Circuit: A telephone network trunk facility or path of one or more channels from central offices to customers or between telephone switching equipment and computers. Circuit is often used to designate physical data transmission facilities in particular.

Cloud Computing: Cloud computing consists of information maintained on remote servers operated by service companies that is accessible through a web browser. Also referred to as Remote Computing - computing done from a distant location to minimize requirements of the centralized processing of data and applications.

Collaborative Browsing: A software-enabled technique that allows an agent to interact with a customer by using the customer's Web browser to show them something; also referred to as Cobrowsing and can be used for live online demonstrations, presentations, and web-bars without requiring downloads.

Computer Telephone Integration: A strategy for connecting standalone and networked computers to telephone switches so that computers can receive telephone calling information (caller's ID, number dialed, etc.) then initiate and route calls appropriately in contact center; screen pops often associated with CTI is feature which enables retrieval of customer records and placement on agent PC screen ahead of or at same time as call is transferred; most overlooked benefit of CTI is ability for one agent to note records and transfer call to a second agent for preview prior to answering the transferred call.

Contact Center: A contact center is a central point in an enterprise from which all customer contacts are managed. The contact center typically includes one or more online call centers but may also include other types of customer contact as well, including e-mail newsletters, public information mailings, web site inquiries and chats, and the collection of information from customers. A contact center is generally part of an enterprise's overall customer relationship management (CRM).

Customer Service Chat: An Internet service included as part of a utility's web site that allows the user to communicate in real time with a customer service agent by using an instant messaging (IM) application.

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Digital: A digital system is a data technology that uses discrete (discontinuous) values represented by high and low states known as bits. By contrast, non-digital (or analog) systems use a continuous range of values to represent information. Although digital representations are discrete, the information represented can be either discrete, such as numbers, letters or icons, or continuous, such as sounds, images, and other measurements of continuous systems.

Diversion Rate: Also used in computing and telecommunications, especially where information and voice are converted to binary numeric form for storage and transmission.

Drake P3: A psychometrically-based personality and performance management technology. It is used to screen, select and manage top performers.

Dual-Tone Multi-Frequency (DTMF): Dual-tone multi-frequency refers to the touch-tone capabilities of a telephone for directing calls and selecting options or extensions. This feature is generally required when using automated attendants, interactive voice response (IVR), and remote voicemail capabilities.

Electronic Bill Presentment and Payment (EBPP): A form of electronic billing where the utility bills its customers and receives payment electronically over the Internet.

Erlang: Agner Krarup Erlang (1878–1929) was a Danish mathematician, statistician and engineer, who invented the fields of traffic engineering and queuing theory. The name, Erlang, represents formulae used in contact centers to configure telephone networks to reduce blockage and optimize staff scheduling. An Erlang represents the intensity at which one traffic path would be continuously occupied.

FAX: The telephonic transmission of scanned-in printed material (text or images), usually to a telephone number associated with a printer or other output device. Within a customer service context - one of the channels referred to in multiple channel service

First Call Resolution (FCR): The percentage of incoming calls where customer issue is resolved with one call or the First call regarding the issue.

Handle Time: The amount of time an agent is on a call with the customer plus any after-call work associated with the call.

Hosted Network: In computer networking, a network host, Internet host or host is a computer connected to the Internet - or more generically - to any type of data network. A network host can host information as well as client and/or server software. Some contact centers are connected to distant CIS systems and agents operating remotely as part of a virtual contact center via Internet and Hosted Network arrangements.

Intelligent Virtual Agent: A chatterbot program that serves as an online agent

Interactive Voice Response System (IVR): An interactive technology that allows a computer to detect voice and keypad inputs. The IVR self-service capability uses CTI to access computer data, articulate results and accepts user inputs such as with payments and trouble reporting.

Internet: The Internet is a global system of interconnected computer networks that use the standardized Internet Protocol Suite (TCP/IP). It is a network of networks that consists of millions of private and public, academic, business, and government networks of local to global scope that are linked by copper wires, fiber-optic cables, wireless connections, and other technologies

IVR Success Rate: The percentage of calls entering an IVR that selected a transaction path and successfully completed within IVR

Knowledge Agent: A software that delivers information to the agent. Some of it is taken from a Customer Relationship Management system (CRM).

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Managed Services: Managed services is the practice of transferring day-to-day related management responsibility as a strategic method for improved effectiveness and efficient operations. A managed services provider (MSP) is typically an information technology (IT) services provider, who manages and assumes responsibility for providing a defined set of services to their clients. Many MSPs provide many of their services remotely over the Internet. Operation of contact center technologies and provision and management of VPN and MPLS network faculties are also examples.

Middleware: Refers to software that allows for enterprise application integration. The integration provides for two or more software applications to share data and functionality. Developed principally for sharing applications across different operating systems and architectures, which otherwise would be considered incompatible.

MPLS: Multiprotocol Label Switching (MPLS) is a mechanism in high-performance telecommunications networks which directs and carries data from one network node to the next. MPLS makes it easy to create "virtual links" between distant nodes. It can encapsulate packets of various network protocols.

Occupancy: The actual amount of talk time and available by agent as a percentage of a given hour, day or other defined measurement period. Also, referred to as available time or simply "availability."

Overflow: A technology arrangement and strategy used by call centers to route calls to other queues or systems when all agents are busy or after-hours to another call center for coverage.

Personalization: The process of tailoring actions to individual users' characteristics or preferences.

POTS: An acronym for Plain Old Telephone Service. Refers to generic or basic telephone connectivity. POTS is the voice-grade telephone service that remains the basic form of residential and small business service connection to the telephone network in most parts of the world. The name is also a retronym, and is a reflection of the telephone service still available after the advent of more advanced forms of telephony such as ISDN, mobile phones and VoIP. It has remained mostly unchanged to the normal user despite the introduction of Touch-Tone dialing, electronic telephone exchanges and fiber-optic communication into the public switched telephone network (PSTN).

Predictive Dialing: An automated method for making outbound telephone calls in which an algorithm determines the number of calls placed in advance of actual operator availability

Predictive Technology: A group of tools capable of discovering and analyzing patterns in data so that past behavior can be used to forecast likely future behavior. Used by predictive dialer programs to identify the best date and time to make collections calls.

Primary Rate Interface (PRI): Designation for a T-1 circuit where one data channel and 23 barrier channels are configured across 24 total T-1 channels. Data channels carry information on caller identification, etc. and each barrier channel has 64Kbps capacity for a total T-1 capacity of 1.54 Mbps.

Private Automatic Branch Exchange (PABX): A telephone switch that is usually located at a customer premise; sometimes referred to as PBX, CBX, or EPABX. This provides for connection of calls to and from the Public Switched Telephone Network (PSTN); the telephone switch enabled local extension to extension calling and other functions such as voice mail and automated attendant features; economies of scale are realized with the PABX requiring far fewer than one outside line per telephone set when connecting to the PSTN.

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Progressive Dialing: A form of predictive dialing that is slightly more automated than preview dialing. A predetermined amount of time is allotted for the agent to view the screen before automated dialing occurs.

Public Switched Telephone Network (PSTN): The network of the world's public circuit-switched telephone networks, in much the same way that the Internet is the network of the world's public IP-based packet-switched networks. Originally a network of fixed-line analog telephone systems, the PSTN is now almost entirely digital, and now includes mobile as well as fixed telephones. The PSTN is largely governed by technical standards created by the ITU-T, and uses E.163/E.164 addresses (more commonly known as telephone numbers) for addressing.

Queue: Incoming calls are kept in order so that the first call in is the first call handled, the second call is next, etc.

Remote Agent : An agent that works outside of the main call center, or remotely from each other. Remote and local call center agents are connected to a common telephone switch and knowledge based system and take calls from assigned queues the same as if they were all at same location. See Virtual Call Center

Remote Call Forwarding: A technique used to reroute calls to a particular telephone number or to a different telephone number in the same or remote location.

Remote Computing: Computing done from a distant location to minimize requirements of the centralized processing of data and applications. See Cloud Computing.

Side-by-side Monitoring: A live form of call monitoring where the monitor sits next to the agent listening in on the call, hearing both agent and customer. This form of monitoring also allows observation of screen navigation, after-call work, telephone and headset use, paper notations, and work that requires agent to leave the workstation.

Silent Monitoring: A version of call monitoring that allows for listening in on agent calls, remotely at center, in mute mode with ability to hear both agent and customer; often centers without automated call recording equipment will use manual recordings while on private office speakerphone to record calls and have available for review with agent.

Server: In regards to computing and telecommunications, a server is any combination of hardware or software designed to provide services to clients. When used alone, the term typically refers to a computer which may be running a server operating system, but is commonly used to refer to any software or dedicated hardware capable of providing services. Types of servers include: application, database, fax, file, print, standalone, web, web Feed Server, client, peer-to-peer, and communications.

Service Level Metrics: The measurements in telephone contact centers to gauge overall performance and customer service. This often refers to the average speed of answer (ASA), where typically 80 percent of the calls are answered from the queue within 20-30 seconds, avoiding abandoned calls and customer dissatisfaction. Other metrics for measuring serviced levels include busy signals, agent talk time, after-call-work time and occupancy.

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SIP – (Session Initiation Protocol): This broadband service connection is offered by many local exchange companies and ITSP (Internet Telephony Service Providers) to connect a company's PBX to the existing telephone system infrastructure (PSTN) via Internet using the SIP VoIP standard. Using a SIP connection may simplify administration for the organization as the SIP connection typically will use the same Internet connection that is used for normal data. SIP Trunking is also uses a compression technique to concentrate T-1 network facilities and reduce cost. Due to this compression, fax machines and dial–up devices may have performance issues compared to a standard TDM PSTN connection.

Speech Recognition: The ability of a program to receive and interpret spoken commands and responses; an advance features of interactive voice response (IVR) systems.

T-1: A digital carrier facility used to transmit a DS1 formatted digital signal at 1.54Mbps. It is the equivalent of 24 voice channels.

Talk Time: The amount of time spent by an agent on the telephone with a customer.

Tie Line: A private-line communications channel of the type provided by common carriers for linking two or more points together, typically PBXs and ACDs. Also referred to as trunks and leased line facilities

Time-Division Multiplexing (TDM): A means of obtaining a number of channels over a single path into a number of time slots and assigning each channel its own intermittently repeated time slot. At the end, each time-separated channel is reassembled. PBX systems using TDM are now facing competition with the newer voice over Internet protocol systems in office environments and call centers.

Trunk: Transmission paths that are used to connect telephone exchanges in the main telephone network. This also refers to a telephone exchange line that terminates in a PBX or ACD.

Twitter™: A social networking and microblogging service that allows its users to send and read text-based posts of up to 140 characters known as tweets.

VPN: A virtual private network is a computer network in which some of the links between nodes are carried by open connections or virtual circuits in some larger networks (such as the Internet), as opposed to running across a single private network. The Link Layer protocols of the virtual network are said to be tunneled through the transport network. One common application is to secure communications through the public Internet. This enables remote agents and employees to gain access to central processor and telephone switch faculties.

Virtual Call Center: A call center in which the agents are geographically dispersed, rather than being situated at work stations in a single location. Virtual call center agents may be located in number of smaller centers (such as emergency dispatch), but they frequently work from their own homes.

Virtual Queue: A system whereby a person on hold can leave a call back number. In some cases a preferred call time can also be left; this feature is often referred to as virtual hold, a company's name.

Unified Messaging: The handling of voice, fax, and regular text messages as objects in a single mailbox that a user can access either with a regular e-mail client or by telephone.

Voice Mail: The automated recording and storage of audio information used in conjunction with telephone PBX equipment and telephone network services that can be used for advanced call center customer handling

Voice Recognition: A type of speech synthesis application that is used to create a spoken sound version of the text in a computer document, such as a help file or a web page.

Voice Response Unit (VRU): See IVR

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Voice Synthesis: See Voice Recognition

VOIP: (voice over IP - that is, voice delivered using the Internet Protocol) -a term used in IP telephony for a set of facilities for managing the delivery of voice information using the Internet Protocol (IP); VOIP also allows for integration of the contact center telephone voice and CIS data system functionality on common server equipment.

Web Analytics: The process of analyzing the behavior of visitors to a web site.

Web Self-Service: A version of electronic support (e-support) that allows customers and employees to access information and perform routine tasks over the Internet, without any interaction with an agent

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ABBREVIATIONS

ACD	Automated Call Distribution
AFSCME	American Federation of State, County and Municipal Employees
AGM	Assistant General Manager
Amawalk	Amawalk Consulting Group
AMI	Automated Meter Infrastructure
AMR	Automated Meter Reading
ANI	Automatic Number Identification
APS	Arizona Public Service
ASA	Average Speed of Answer
AWWA	American Water Works Associations
AwwaRF	AWWA Research Foundation (Now Water Research Foundation)
BI	Business Intelligence
CCE	Customer Care Express, system used at APS
CDR	Call Detail Recording
CDRSMVR	Call Detail Reporting Station Messaging Detail Reports
CIP	Capital Improvement Program
CIS	Customer Information System
CMS	Call Management System
CRM	Customer Relationship Management
CSR	Customer Service Representative
CTI	Computer Telephony Integration
CWD	Cleveland Water Department
DCU	Digital Control Unit
DTMF	Dual-Tone Multi-Frequency
DPU	City of Virginia Beach Department of Public Utilities
EBPP	Electronic Bill Presentment and Payment
ERP	Enterprise Resource Planning
EWT	Estimated Wait Time
FCR	First Call Resolution
Foundation	Water Research Foundation
FTE	Full-Time Equivalents
GCWW	Greater Cincinnati Water Works
GIS	Geographic Information System
GM	General Manager
GUI	Graphical User Interface
HRSD	Hampton Roads Sanitary District, City of Virginia Beach

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HOA	Homeowners' Association
ICMA	International City/County Management Association
IFB	Invitation For Bid
IM	Instant Messaging
IP	Internet Protocol
IT	Information Technology
ITSP	Internet Telephony Service Providers
IVR	Interactive Voice Response
KCPL	Kansas City Power and Light
LIHEAP	Low Income Home Energy Assistance Program
MDM	Meter-Data Management
MPLS	Multiprotocol Label Switching
MSP	Managed Services Provider
MWD	Metropolitan Water District (CA)
MTU	Meter Transmitting Unit
O&M	Operation and Maintenance
OMS	Outage-Management Systems
OPEB	Other Post-Employment Benefits
PDA	Personal Digital Assistant
POTS	Plain Old Telephone Service
PRI	Primary Rate Interface
PABX/PBX	Private Automatic Branch Exchange.
PSTN	Public Switched Telephone Network
PTI	Ochs Center for Metropolitan Studies and Public Technology Institute
PVWC	Passaic Valley Water Commission
PWCSA	Prince William County (VA) Service Authority
PWD	Philadelphia Water Department
QA/QC	Quality Assurance/Control
RFP	Request for Proposal
RSS feed	Really Simple Syndication feed.
SCADA	Supervisory Control and Data Acquisition
SIP	Session Initiation Protocol
SMDR	Station Message Detail Recording
SPLASH	Serving People by Lending A Supporting Hand
TCO	Total Cost of Ownership
TDM	Time-Division Multiplexing

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TOU	Time-Of-Use
TPU	Tacoma Public Utilities
VOIP	Voice-Over-IP
VPN	Virtual Private Network
VR	Voice Recognition
VRU	Voice Response Unit
Westin	Westin Engineering
XML	Extensible Markup Language

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