U.S. General Services Administration

Improving Citizen Customer Service

Metrics, Benchmarks, Best Practices, and Technology Trends

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1. Introduction

1.1 Background

The U.S. General Services Administration (GSA), Office of Citizen Services and Communications, USA Services, is responsible for the development and operations of services that provide or direct U.S. citizens to information about federal government agencies and agency services, benefits, regulations, and operations. This information is accessible by telephone and Internet and in federal publications. GSA services to citizens include operations and maintenance of the FirstGov.gov Web site, which serves as the gateway to federal agency Web services, and its counterpart, FirstGov e-mail information service. GSA services also include a toll-free central telephone information number to the National Contact Center (800-FED-INFO) and U.S. mail and Internet access to publications from GSA's Pueblo, Colorado, distribution center. In fiscal year 2003, 209 million citizens contacted USA Services through Firstgov.gov, the National Contact Center, and the publication distribution facility.

In addition to the services provided to citizens, USA Services offers a contract vehicle that enables federal agencies to bring an outsourced contact center solution online in a rapid and cost-effective manner. The GSA multi-channel contact center services contract vehicle, FirstContact, offers a full range of contact center services, e-Government solutions, and customer relationship management strategies to agencies. FirstContact supports USA Services goals of improving customer service to citizens across the federal government and reducing labor and information technology costs agencies incur when providing citizen inquiry services. FirstContact also helps agencies follow Office of Management and Budget guidance to reduce duplication of services.

To fulfill its mission, USA Services is pursuing several goals mandated by the President's Management Agenda, including expanded electronic government, competitive sourcing, and improved financial performance. GSA also is leading the charge to improve citizen services and increase customer satisfaction. To reach these goals, USA Services has put in place the process illustrated in Figure 1-1.

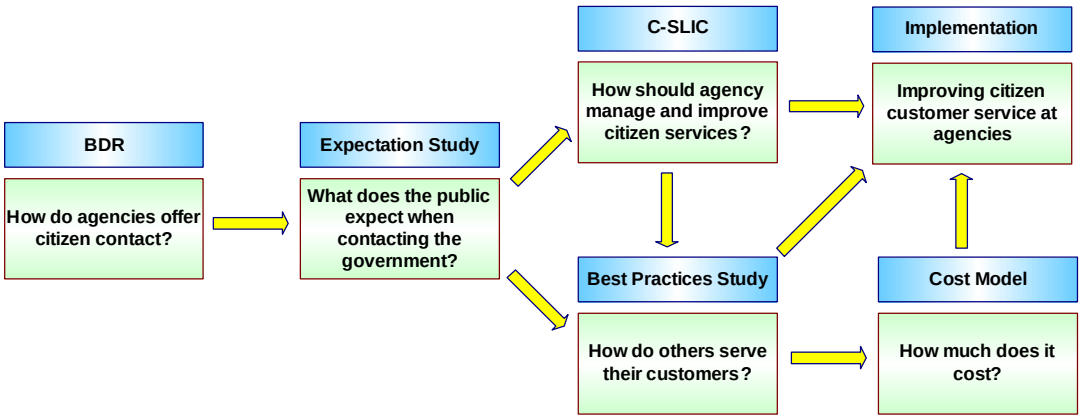


Figure 1-1. GSA Strategy to Improve Citizen Services and Increase Customer Satisfaction

The process includes reaching sources of information inside and outside the government to ascertain areas that need improvement and establish an approach to implementing improvements.

As part of this effort, The MITRE Corporation (MITRE) was tasked with conducting studies of the following:

- Existing, evolving, and emerging expectations of citizens when they contact government agencies
- Metrics, benchmarks, best practices[1], and technologies used by organizations to monitor, manage, and improve citizen services and increase customer satisfaction

The two studies are complementary and closely related. This document captures the results of the metrics, benchmarks, best practices, and technologies study.

1.2 Overview of Benchmarking Study

The President's Management Agenda includes clear objectives for improving the management and performance of federal agencies. The agenda focuses on competitive sourcing and improved financial performance to control costs and on expanding e-Government capabilities to improve citizen services and increase customer satisfaction. The agenda proposes an approach to integrating budget and performance that establishes the relationship between efficiency and effectiveness measures.

Arguably, citizen contact and service functions are areas in which the objectives of the President's Management Agenda have practical, tangible, and measurable impact. The Budget Data Request (BDR) and the follow-up Citizen Contact Survey, both sponsored by GSA, were aimed at determining how citizens contact various agencies, how well agencies respond to these contacts, the costs of managing these services, and whether these costs correspond to performance levels. The two surveys reached several important conclusions:

- Most agencies strive to provide citizens with consistent, accurate, and relevant information in a timely manner.
- Agencies lack a standardized system for measuring their performance in meeting citizens' needs and expectations.
- Many agencies are challenged by the need to track the cost of citizen services and manage expenditures.

This document and its underlying study as well as the efforts of the Citizen Service Level Interagency Committee (C-SLIC) are directed at addressing how agencies can improve citizen services and increase customer satisfaction. The document addresses the following fundamental questions:

- How can federal agencies improve citizen services and increase customer satisfaction?
- How do agencies gauge their performance and monitor improvements?

[1] Note that the concept of a "Best Practice" in this document does not refer to a single best methodology for a specific function. It is meant to capture the approach taken by world class organizations to improve their performance. See section 5 for further discussion and definition.

The needs and requirements of federal agencies vary widely based on their mission, the services they provide, and the population they serve. Still, there are a number of common scenarios under which agencies can benefit from this document and its companion document, *Citizens' Service Level Expectations*.

First, some agencies have large, established contact center operations. These agencies often have multiple citizen service centers that are spread across bureaus, locations, and functions. These centers often offer overlapping, possibly redundant, services. The performance and cost of the multiple centers are monitored and managed differently. This arrangement often leads to inconsistent and confusing service to citizens and excessive operational costs. These agencies must find ways to consolidate their operations or streamline and standardize existing ones.

Second, some agencies have difficulties in meeting citizen service requirements and expectations, which can manifest themselves in different ways, including low customer satisfaction survey scores, numerous citizen complaints, and elevated contact center costs. These agencies must find ways to improve their services, gauge their progress, and manage their costs.

Third, some agencies are looking to consolidate decentralized citizen services. In these agencies, citizen inquiries and requests often get directly routed to public relations or other functional staff. Citizens often have trouble identifying the correct contact within the agency, and their inquiries are often rerouted. The agencies struggle with determining the true cost of citizen services. They must establish a formal services environment for managing telephone, email, and Web inquiries.

Fourth, some agencies are looking to enhance their existing services through improved processes and new technologies. These agencies, which are planning to add new capabilities or bring existing ones to best practices levels, must examine the viability and feasibility of emerging technologies, performance levels of leading organizations inside and outside the government, and proven approaches to transforming citizen services.

Finally, some agencies are looking to outsource all or part of their contact center and citizen services operations. These agencies must determine performance levels that must be stipulated in Requests for Proposals and contracts.

Agencies facing the aforementioned challenges can use this document as a practical guide to develop a viable and actionable plan for improving citizen services and increasing customer satisfaction. The document is designed to help agency leaders define strategies, goals, and methodologies for achieving these goals and to help citizen services managers plan, implement, and manage citizen services improvement initiatives.

1.3 Purpose of This Document

The purpose of this document is to help federal agencies and their citizen services organizations improve citizen services and increase customer satisfaction. To achieve its purpose, the document pursues the following objectives:

- Establish an approach or methodology for building best-in-class contact centers.
- Provide a framework for the correlation of citizen expectations, internal performance measures, and best practice initiatives.

- Provide common performance metrics and target levels for internal performance measures and an analysis of what they mean and how they should be used.
- Provide people, process, and technology practices that can be used to achieve performance targets and improve citizen services and increase customer satisfaction.

This document can be used as a field guide by contact center managers and architects and as a strategy guide federal agency leaders.

Although the underlying study focused on available research on metrics and best practices across many industries, it also incorporated information from C-SLIC discussions. As a result, the study includes a broad range of resources and expertise across federal and state governments and the private sector.

1.4 Audience

This document is designed to be useful to a wide audience. The following groups are it primary beneficiaries:

- Managers of contact center and service operations who are responsible for the implementation, transformation, and day-to-day management of these operations can benefit from the entire document. Sections 4 and 5 and both appendices are targeted primarily at this group.
- Agency leaders can use Sections 2 and 3 to define an approach and methodology for improving citizen services. These sections provide a strategic but actionable perspective on citizen services processes and technologies. The conclusions in Section 6 provide a snapshot into tactical issues involved in providing superior citizen services.
- Government leaders can use Sections 2 and 3 when considering and defining policies that address the federal government's approach to improving citizen services and increasing customer satisfaction.

1.5 How to Use This Document

To serve the wide audience this document is intended to serve, the document begins with discussions on general and strategic concepts and topics and becomes more specific in subsequent sections.

Section 2, Citizen Expectations, provides a link to a companion study on citizen expectations. The section provides an understanding of what drives citizen satisfaction with services provided by government agencies. Using this section and the citizen expectations study, agencies can examine what citizens expect from them and whether they are meeting these expectations.

Once they have determined how well they are meeting citizen expectations, agencies can use the methodology described in Section 3, The Road to a Citizen-Focused Organization, to develop an effective approach to improving citizen services and increasing customer satisfaction.

Section 4, Citizen Services Capability Model, examines the people, process, and technology components of a contact center and citizen services environment. The section provides a framework for agencies to use to determine which components in their citizen services organizations need improvement or are affected by best practices. The Citizen Services

Capability Model is used when discussing best practices and benchmarks in Section 5 to give readers a perspective on the impact of performance metrics, improvement initiatives, and technology.

Section 5, Metrics, Benchmarks, Best Practices, and Technology Trends, provides contact center and citizen services managers with information on how leading customer service organizations measure their performance, the levels of performance they are achieving, and how they are accomplishing their goals. The information is based on research MITRE conducted on benchmarks and best practices across all industries. Telephone, email, and Web interactions are discussed, and information on issues not specific to a particular channel is included.

Section 5 includes references to categories of citizen expectations and the component of the citizen services model affected by a particular element. These references will help the reader understand why the subject is important.

The section also includes a detailed analysis of each issue to provide managers of citizen services and contact centers with information they can use to meet their agency's goals and missions.

Section 6, Conclusions, contains practical recommendations based on the results of the research reported in Section 5. The recommendations, focusing on setting performance levels, tracking citizen satisfaction, and implementing the disciplines and technologies of performance management, can be used by agency leaders to formulate citizen-focused policies and by contact center managers in the day-to-day operations of their organizations.

1.6 Document Organization

Section	Purpose
Section 2: Citizen Expectations	Discusses the impact of citizen expectations on the analysis of metrics, benchmarks, best practices, and technology trends.
Section 3: The Road to a Citizen-Focused Organization	Lays out a framework and methodology for improving citizen services and increasing customer satisfaction. It helps provide a context for the analysis of metrics, benchmarks, best practices, and technology trends.
Section 4: Citizen Services Capability Model	Provides a perspective on the internal operations of a contact center and the major components of contact center operations.
Section 5: Metrics, Benchmarks, Best Practices, and Technology Trends	Provides research results and analysis of metrics, benchmarks, best practices, and technology trends for each communication channel.
Section 6: Conclusions	Offers conclusions and recommendations based on the information discussed in earlier sections.
Acronym List	Lists acronyms used in contact centers and this document.
Glossary	Describes common terminology used in contact centers and this document.
List of References	Lists all references used in the study.

2. Citizen Expectations

The fundamental objective of this document is to help federal agencies improve citizen services. At the core of this improvement is the degree to which these services meet citizen expectations. These expectations are discussed at length in the companion document, *Citizens' Service-Level Expectations*. This section will establish a context for the impact of citizen expectations on performance level and service improvements. The goal is to help agencies translate their understanding of the needs and expectations of their constituencies into performance measures they can track on a day-to-day basis and into initiatives that can affect how they meet those expectations.

2.1 The Citizen Satisfaction Equation

The true measure of whether an agency is successful in providing services to citizens is the citizens' satisfaction with the services. The question then becomes "Which factors affect a satisfactory outcome?" Figure 2-1 provides a model for the citizen satisfaction equation.

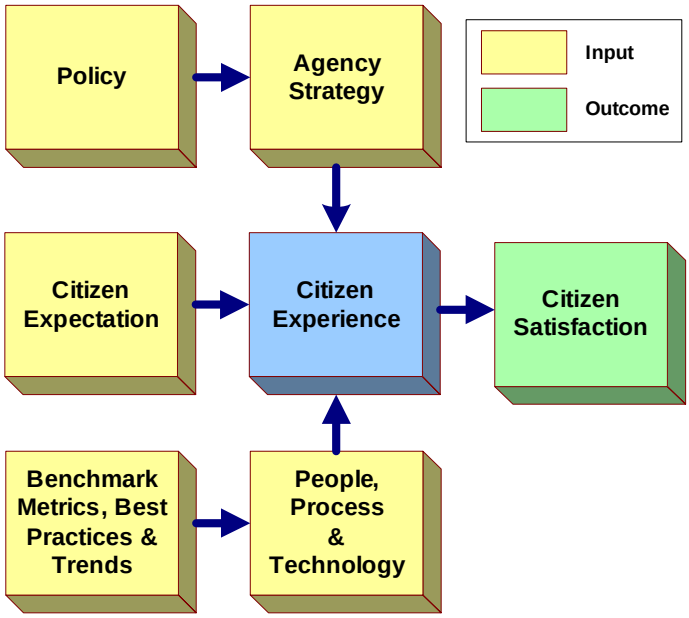


Figure 2-1. Citizen Satisfaction Equation

Based on this model, the satisfaction of citizens is a direct outcome of their experience in interacting with agencies. Note that this outcome could be the cumulative result of multiple contacts.[2] Citizens enter into an interaction with a set of expectations. Broadly speaking, these expectations fall into the following categories:

- Requirements. These are the specific needs that citizens intend to address through an interaction. The requirements need to be fully resolved for a citizen to be satisfied.

[2] In this document, the terms "interaction" and "contact" are used interchangeably. Alternatively, an interaction is sometimes considered to comprise one or more contacts.

- Preferences. In addition to their hard-and-fast requirements, citizens may have specific wishes that are not relevant to the outcome of their request or inquiry but are pertinent to the process of the interaction. For example, specific citizens might be more comfortable interacting with the government through a specific channel or in a particular language.
- Wants. Citizens may have wants, or desires, regarding the outcome or the process. Citizens may not require or expect their desires to be met but they are more satisfied if they are.

Agencies address expectations through two elements, which are the two inputs into the citizen satisfaction equation over which agencies have control.

The first element is agency policy and strategy of the agency. This element affects the level of citizen focus across the agency and the funding and effort invested in managing citizen services. Agencies may institute rules and regulations that constrain their response to citizen expectations. As a result, for example, citizens might not get some of their inquiries resolved the way they had hoped. Agency policy and strategy is a function of the agency's mission, over which service center managers often have limited control.

The second element is the set of people, processes, and technologies agencies use to serve their constituents. Agencies and their service center managers have greater control over the design, implementation, and operation of these factors. Although this element is affected by issues peculiar to individual agencies, there is a greater opportunity for agencies to use the experience and body of knowledge across call, contact, and service centers to meet the expectations of citizens, enhance their experience, and increase their satisfaction. The primary focus of this document is to consolidate and catalog this body of knowledge to help federal agencies.

2.2 Expectations in Action

The federal government and its agencies can use the findings of this study's companion research on expectations to establish or enhance policies and strategies that better serve citizens. At the same time, service center managers can use these findings as the basis for short- and long-term service improvement initiatives. These initiatives can address one or more of the following factors:

- Capability. Adding a new service. For example, an agency can build an interactive voice response (IVR) self-service capability if citizens express a preference for that channel.
- Capacity. Increasing the capacity of existing capabilities. For example, an agency can increase the number of customer service representatives (CSR) handling email inquiries in response to an increase in contacts through that channel.
- Quality. Improving existing people, process and technologies to address gaps in meeting citizen expectations. For example, an agency can improve CSR training to increase first contact resolution of inquiries.

Agencies can use the approaches, findings, and recommendations detailed in this document as the basis for implementing initiatives that address all three of these factors.

2.3 Expectations, Metrics, and Best Practices

The study underlying the *Citizens' Service Level Expectations* document determined that citizen expectations can be classified into several categories. The core expectation categories in this research are availability, competence, courtesy, responsiveness, and outcome. Readers of this benchmarking document can correlate metrics, best practices, and technology trends discussed in Section 5 to the expectations research through these categories.

The categories are used in two ways. First, the summary portion of each section of this document identifies the expectation categories affected. Second, a cause-and-effect diagram at the beginning of each section, which covers a particular communication channel, provides a summary of the mapping between expectations and metrics. Figure -2 provides an example of this mapping.

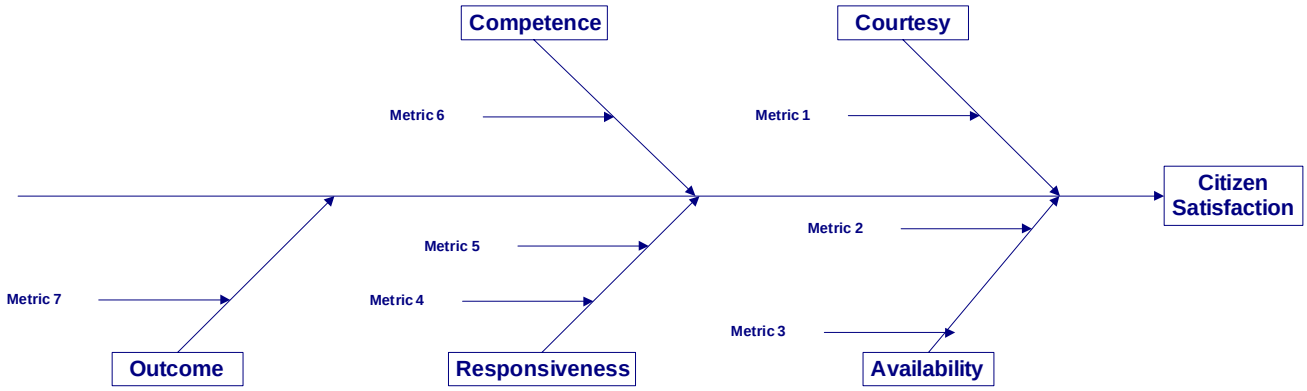


Figure 2-2. Expectations Causes and Effects

3. The Road to a Citizen-Focused Organization

As labor-intensive and operationally focused organizations with state-of-the-art technology at their disposal, call centers have spent the past 30 years developing well-established performance metrics. The universe of these metrics is bounded, and most call centers monitor a subset of these metrics on a regular basis. To a large extent, the same is true as these centers transform themselves into multi-channel contact centers that manage email, chat and Web collaboration interactions as well as telephone interactions.

Still, federal agencies striving to improve citizen services and increase customer satisfaction must recognize several factors when managing these metrics:

- Metrics are often internally focused. Their correlation with customer satisfaction must be examined before they are used for that purpose.
- Most of the metrics measure the efficiency of the operation (i.e., Are we doing things right?) and not its effectiveness (i.e., Are we doing the right things?).
- In the absence of a well-defined citizen service strategy and goals, many metrics can drive unintended and undesirable behavior and results.
- Using arbitrary benchmarks and performance levels for these metrics instead of establishing forward-looking targets and implementing improvement initiatives often makes problems worse.

This by no means implies that the collective experience and wisdom of contact center operations can or should be ignored. On the contrary, these operations provide methodologies and best practices that can enable agencies to improve citizen services and increase customer satisfaction.

Although this document focuses on capturing and analyzing metrics, best practices, and technology trends, the following sections briefly discuss the strategic perspective on citizen services and the corresponding methodology.

3.1 Translating Strategy into Initiatives and Metrics

The path to improving citizen services and establishing a citizen-focused organization is conceptually straight forward. Organizations need to ensure that their strategy drives initiatives and metrics. Furthermore, these initiatives and metrics should correspond not only to a limited number of internal objectives (cost and financial drivers being the most common) but also to a broad set of critical success factors.

Obviously, there is no one single way to achieve these objectives. In the past 10 years, however, Balanced Scorecards have gained wide acceptance in government and industry as a methodology for mapping initiatives and metrics to strategic goals.

A detailed description of Balanced Scorecards is outside the scope of this document. Nor is it necessary for organizations to undertake a full-fledged Balanced Scorecard initiative to improve citizen services and increase customer satisfaction.

Nonetheless, a number of components and principles of the methodology are directly applicable and can be easily followed:

- All metrics and initiatives should be directly or indirectly tied to strategy and goals.
- Metrics should be forward looking, providing targets.
- Initiatives should be planned and executed to achieve metric targets.
- Metrics and initiatives should be balanced, taking into account internal and external dimensions important to the organization. The conventional Balanced Scorecard recognizes four dimensions: financial, customer, internal processes and learning, and growth.
- The organization needs to be able to track, monitor, and report key metrics.

As noted previously, the core principle in this approach is the central role of strategy. In fact, the founders of the Balanced Scorecard methodology concentrated significant effort on elaborating on what they called the strategy-focused organization.[3] For clarity, given that a goal of this document is to discuss the approach to a citizen-focused organization, this document will refer to strategy as a "driver" of metrics and initiatives.

Customer focus in a strategy-driven organization in the commercial sector can take the form of one or more of these six outcome categories. The first five categories focus on effectiveness; the last one focuses on efficiency.

- *Acquiring* new customers
- Increasing the revenue generated by individual customers or customer groups by *expanding* the relationship (selling additional products or services)
- Increasing the revenue generated by individual customers or customer groups by *extending* the relationship (reducing attrition and turnover)
- Increasing the *profitability* of individual customers or customer groups
- Establishing brand, creating competitive advantage, and improving market presence and penetration
- Decreasing the cost of doing business with individual customers or customer groups

Identifying similar categories of strategic goals for government agencies can be more difficult. The challenge lies partly in the fact that there are significant variations in the overall mission and structure of these agencies. Depending on the nature of the agency, the strategy could include the following:

- Compliance with public policy, government standards, and regulatory requirements
- Adherence to agency plans
- Expanding agency services and, as a result, increasing funding
- Reducing the cost to taxpayers

[3] *The Strategy Focused Organization*, RS Kaplan and DP Norton, Harvard Business School Press, 2001

- Improving public security
- Improving public service

Note that in the case of the government, citizens have a stake in cost reduction. As such, cost reduction can be considered an effectiveness goal as well as an efficiency goal.

Obviously, I\it is up to Individual agencies to establish appropriate customer-focus strategies. Figure 3-1 captures the essence of a strategy-driven approach to improving citizen services and increasing customer satisfaction.

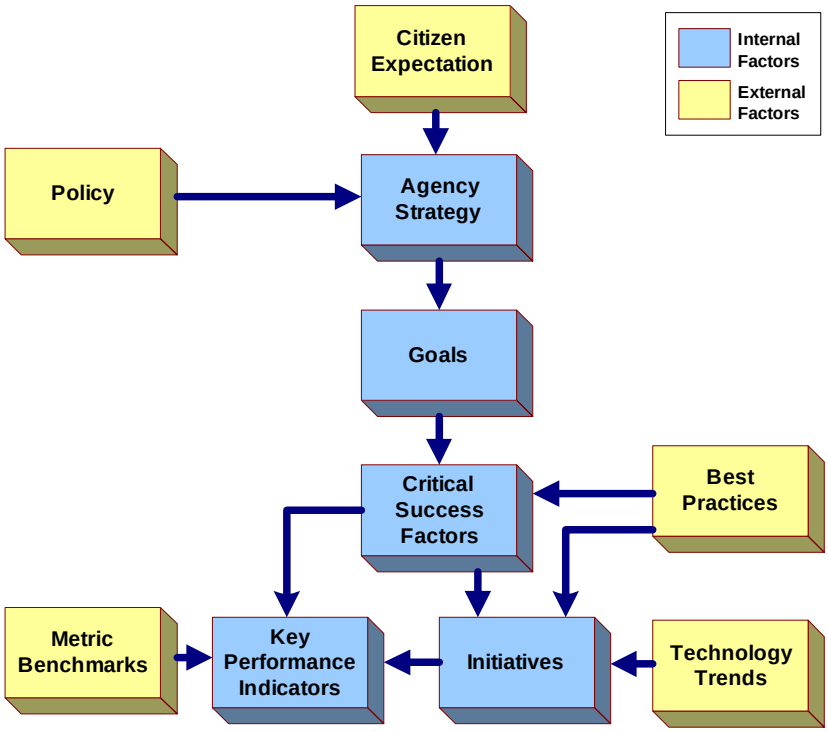


Figure 3-1. Roadmap to Citizen Focus Strategy

Following is a brief description of the components of Figure 3-1:

- **Agency Strategy:** An agency's strategy describes the overall vision and direction of the agency as articulated by senior leadership. Strategy is influenced by external and environmental factors and, in the case of government, by policy. More relevant to this discussion, an agency's strategy should take into account citizen expectations.
- **Goals:** Goals translate agency strategy into targets for specific groups within the organization.
- **Critical Success Factors (CSF):** These factors are objectives that define success in achieving goals.
- **Key Performance Indicators (KPI):** KPIs are the target metrics set for the initiatives and the measures through which the success and progress of initiatives, departments, and organization are measured.

- **Initiatives:** Initiatives are specific projects and programs that the agency undertakes to accomplish its goals and achieve its performance targets.

In establishing CSFs and KPIs and designing their initiatives, agencies can examine the experience of others to ascertain best practices, benchmark metrics, and technology trends. The purpose of this document is to do exactly that for citizen services operations.

3.2 Roadmap Example

As an example of how the roadmap in this section might be implemented, consider the hypothetical example of an agency that has been the subject of numerous complaints sent by citizens to members of Congress. Agency leaders decide that the complaints are the result of poor implementation of recently enacted legislation and sets out to remedy the situation.

- **Step 1 (Strategy):** As part of its strategy, the agency plans to implement the new legislation across the organization in six months.
- **Step 2 (Goals):** This strategy impacts multiple areas within the agency. Each area develops goals that are aligned with the strategy. The contact center defines providing training and offering consistent service across all channels in accordance with the new legislation as its goals.
- **Step 3 (CSFs):** The contact center determines that training every CSR, providing CSRs and citizens with correct information on the new legislation, and ensuring the quality of responses to citizens are critical to accomplish its goals.
- **Step 4 (Initiatives):** The contact center plans and executes a training program, a knowledge base for new legislation, and a call monitoring initiative to achieve success.
- **Step 5 (KPIs):** The contact center tracks CSR quality ratings, first contact resolution rates, average handle times, and the number of citizen complaints to monitor performance.

4. Citizen Services Capability Model

4.1 Overview of the Model

Ultimately, regardless of methodology, all citizen services improvement efforts need to be translated into implementation of new capabilities or enhancement in the capacity and quality of existing ones. Similarly, while there are customer satisfaction metrics and indices that can and should be tracked, there are often viable internal proxy measures that are easier to monitor on a daily basis.

Although contact center and citizen services capabilities vary widely, Figure 4-1 captures a summary of the capabilities that can be implemented in these centers. This Citizen Services Capability Model is used elsewhere in this document to indicate the type of capability that needs to be implemented or improved to achieve a certain target metric or accomplish a specific best practice.

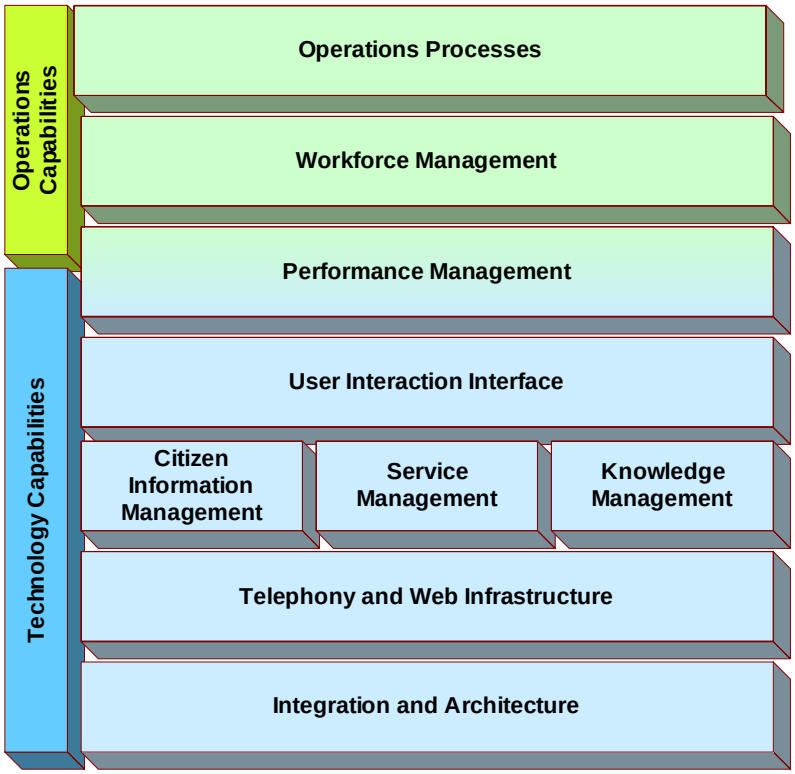


Figure 4-1. Citizen Services Capability Model

4.2 Operations Capabilities

These capabilities span all the competencies involved in organizing, staffing, operating, and managing a citizen services organization. These capabilities, which may or may not be automated, but their primary focus is not on the technology of the contact center.

4.2.1 Operations Processes

Planning, documenting, implementing, monitoring, and managing processes are critical to a world-class citizen services organization. The scope of these processes include the following:

- Call, email, and Web chat flow
- Call and Web chat handling
- Service assignment, elevation and escalation
- Compliment and complaints (feedback) workflow

Contact center best practices require that these processes be standardized, documented, and well-communicated. Many telephony systems (e.g., automatic call distribution [ACD], computer telephony integration [CTI], IVR) and customer relationship management applications enable automated workflows, facilitating adherence to standards.

4.2.2 Workforce Management

People are at the core of contact center operations, accounting for almost 70% of the cost and, in most cases, providing the direct point of interaction with the public. As a result, contact centers have accumulated a significant body of knowledge on recruiting, organizing, managing, and retaining CSRs. This knowledge applies to the following disciplines and capabilities:

- Initial and ongoing CSR training
- Capacity forecasting and staffing level planning and scheduling
- Quality control of CSRs, including call monitoring and recording
- Supervision, elevation and escalation
- Managing attrition

As is the case with processes, contact center systems and applications increasingly provide mechanisms for automating capabilities. Applications for workforce management, an emerging field in recent years, give supervisors the ability to plan staffing levels, arrange schedules, and monitor CSR adherence. Many call monitoring systems capture not only the voice component of a call but also screen navigation during the call. Finally, CBT systems are used to provide CSRs with ongoing training and refresher courses.

4.3 Performance Management

Establishing performance metrics and deploying best practices are effective only when their results are closely and reliably monitored. The adage that “one can only manage what one can measure” certainly applies in the contact center and citizen services environments.

Most, if not all, hardware and software components sold today that address an element of the Citizen Services Capability Model provide a level of reporting and analysis. Still, agencies face two challenges in effectively monitoring and managing their performance:

- The reporting capabilities offered by most technologies are insufficient because they are limited and isolated. Reports may be difficult to extract, change, or distribute. They usually offer a limited perspective into the citizen experience.

- Even when the technology for effective reporting exists, it cannot be fully leveraged when the people and process components of performance management are not in place. Getting the right information to the right person at the right time, analyzing the significance and implication of the information, and acting on that information require more than technology.

As a result of these challenges and their importance, performance management is included as a stand-alone component in the capability model, straddling both technology and operational categories.

Business intelligence (BI) technologies available in the market can be used to collect, report, and analyze data from across multiple components of the capability model. Performance management methodologies such as Balanced Scorecard and Six Sigma can be used to bring context and meaning to the reported information and to devise an approach for acting on it.

4.4 Technology Capabilities

The technology landscape of contact center operations is complex and evolving. The telephony infrastructure used in call center environments has reached significant maturity. Still, new technologies, such as Voice over IP (VoIP), and wireless devices are introducing ongoing changes. At the same time, capabilities for multi-channel contact centers are rising from their infancy. These emerging systems include Web collaboration and chat, Web self-service, and even email.

Regardless of the channels and functions of the contact center, its technology capabilities fall into one of the categories discussed in the following subsections. It is important to note that this categorization by no means implies separate systems and applications. It is meant to denote different types of capabilities that could and often are addressed by a single system or suite of applications.

4.4.1 User Interfaces and Applications

The interface that enables users (citizens and CSRs) to interact with underlying applications provides the first citizen impression and often has a great impact on satisfaction. Following are examples of user interfaces and applications:

- Customer relationship management applications used by the CSRs
- Web sites
- Email forms
- Web self-service applications
- Web collaboration and chat
- Interactive Voice Response (IVR) prompts and functions

4.4.2 Citizen Data Management

When appropriate and allowed by privacy and security practices, capturing relevant information about citizens who contact federal agencies has a significant bearing on the quality of service they receive and their experience. Most citizens have come to expect that their interaction,

through any channel, takes into account all relevant information about them. For this reason, most CRM applications are data-centric and act as a repository of information about citizens and their interactions. Given that, even under best circumstances, citizen information can be distributed across multiple applications, data integration capabilities play a significant part in what is commonly referred to as the "single view of the citizen (customer)," "360° view of the citizen," or the "single version of the truth." These data integration capabilities are discussed again in the Integration and Architecture subsection.

4.4.3 Service Management

This category of applications is also referred to as "case management," "contact management," or "trouble ticketing" (when dealing with help desk functionality). Similar to citizen data management applications, service management applications provide a repository of information about past interactions. More important, they provide a way for a citizen or CSR to record a request and for the request to be assigned, processed, and tracked.

Service management applications can be used for telephone, email, and self-service interactions and requests.

4.4.4 Knowledge Management

Knowledge management is consistently singled out by contact centers as a significant capability in improving the quality and reducing the cost of service. Knowledge management applications are capable of the following:

- Creating a repository of structured data and information
- Capturing, cataloging, and managing access to unstructured data (e.g., publications, forms)
- Creating a repository of case history and resolutions
- Providing search capabilities for repositories

These knowledge management capabilities can be made available to CSRs as well as citizens who access government Web sites or enter self-service requests.

4.4.5 Infrastructure

Web and telephony infrastructure capabilities are often invisible to the citizen but have a direct bearing on the accessibility and responsiveness of a channel. Infrastructure components include the following:

- Telephony switching and ACD
- IVR and CTI systems
- Queue management (along with ACD) for routing emails and Web chat sessions
- Forecasting, capacity management, and CSR scheduling applications
- Web and email servers
- Hosting, backup, and disaster recovery capabilities and facilities

4.4.6 Integration and Architecture

To provide effective service and a consistent experience across channels, organizations often need to integrate disparate systems and applications. These systems might be specific to a channel or provide back office, transaction or fulfillment services. The underlying architecture and the technologies used to achieve this integration can have significant impact on the quality of service provided to citizens.

5. Metrics, Benchmarks, Best Practices, and Technology Trends

5.1 Concepts and Organization

The primary purpose of this document is to help federal agencies establish citizen services standards in compliance with the President's Management Agenda, Executive Order 12862, and other initiatives. Mandated target metrics are often unenforceable and unachievable, however, without an analysis of their significance and an explanation of how they can be measured and met. To rectify this problem, three types of standards and guidelines are included in this document.

- **Metrics and Benchmarks:** Discussion of these *standards of performance* include an analysis of what they are, how they are measured, and their relationship to citizen satisfaction. Metrics and benchmarks serve as KPIs, which were discussed in the Section 3.
- **Best Practices:** These *standards of operations* describe how world-class service and support organizations achieve and maintain superior satisfaction and meet their performance metrics. Best practices provide the basis for the initiatives central to the Balanced Scorecard approach.
- **Technology Trends:** These *standards of technology* are similar to best practices but are limited to the technology tools and systems used in citizen services operations.

Figure 5-1. Service Standards Model

Helping government agencies improve citizen services and increase customer satisfaction by providing tangible performance metrics and ways to improve performance (best practices and new technologies) is the primary objective of this document. When discussing and considering metrics, it is important to note the following:

- Metrics provide measures by which contact centers can gauge their performance. Benchmarks offer potential targets for those measures based on available averages or best performances.

- Benchmarks are often industry and application specific. For example, one would expect the average handle time (AHT) of calls to a travel reservation number to be longer than those to a bank. As seen later in the document, this assumption is indeed supported by available data.
- Establishing target metrics (benchmarks) outside the context of defined strategy and business objectives can lead to unintended and undesirable consequences. For example, setting an unsubstantiated and unrealistic AHT target can often result in repeat calls and unhappy citizens.
- The best use of metrics is not in achieving an "industry best" standard but in planning and managing continuous improvements.

To ensure a proper understanding and use of metrics, any discussion of benchmarks that follow includes an analysis of their significance, context, and meaning. When establishing target metrics, contact centers should consider these analyses as well as the compatibility of their agency with the industries included in the benchmark.

Finally, although best practices and technology trends may be applicable to a broad spectrum of organizations, wide variations in agency missions and operations exclude establishment of governmentwide performance metrics. Instead of a universal set of normative measures, federal agencies should strive to establish the following:

- **Standards**, which are metrics and best practices to which all CSRs can and should adhere (e.g., emails acknowledged within 24 hours)
- **Guidelines**, which are metrics and best practices with a demonstrated impact on citizen satisfaction that vary across agencies (e.g., a certain percentage of calls should be answered within a certain number of seconds)
- **Recommendations**, which are suggested improvements at the discretion of the agency

Each section starts with a representation of the **"value realization chain"** specific to a channel. "Value delivery chains" traditionally have been used to capture how organizations perceive the high-level process by which they provide value to their customers. Although they are important and effective tools, value delivery chains are inherently internally focused.

Value realization chains, on the other hand, capture how customers perceive the way they are realizing a value through their interaction with an organization. As such, they are effective when studying support and service operations. Citizen interactions go through processes as varied as the citizens themselves and the agencies with which they are dealing. Consequently, not every interaction goes through every stage of a value realization chain. Similarly, many interactions are not linear and go through multiple loops. Still, value realization chains offer a valuable tool for identifying potential opportunities for improvement or points of failure.

When evaluating the significance of the value realization chain, organizations need to remember this truism of customer service: *Your service is as good as the weakest link in its chain*.

The sections on metrics and benchmarks open with a **cause-and-effect** diagram (also known as a fishbone) that depicts the relationship between citizen satisfaction, citizen expectations categories, and the metrics discussed in the section. The diagram provides a way to map metrics

to citizen expectations. It also offers a perspective on prioritizing metrics based on how an agency intends to meet citizen expectations.

Finally, each section on metrics, best practices, and trends starts with a summary that includes a description, customer expectation category affected, and service capabilities involved. In the case of metrics, this summary is followed by available data on average or best-of-breed performances. In all cases, the section includes an analysis that provides guidance on understanding and addressing the specific subject.

5.2 Research

Information and analysis from a variety of sources were used in conducting the study and developing this document. The sources included the following categories:

- Industry Experts (e.g., Benchmark Portal, Call Center Learning Center, Incoming Calls Management Institute [ICMI])
- Analyst Companies (e.g., Gartner, Forrester)
- Technology Vendors
- Industry Web Sites (e.g., CRM Daily, Destination CRM)
- Academic Research (e.g., university research on customer service)
- Books and Periodicals (e.g., publications on customer relationship management and change management)

When appropriate, sources are cited within the document. All sources used to develop this text are listed at the end of the document.

When more than one source was used to report on a specific metric, factors such as the recency, breadth, and statistical validity of the research as well as its applicability to government were used to establish a value.

5.3 Telephone Contact

The telephone continues to be the leading channel by which citizens contact the government. The reason for this primacy is varied and includes accessibility, immediacy, and privacy factors.

Telephone is also the best understood contact channel. Because the underlying technology is very mature and structured call centers have been around for almost two decades, a great body of knowledge exists on how to plan, implement, monitor, and manage telephone service operations.

Figure 5-2 represents a typical phone service process. Although some steps in this diagram may be unnecessary in particular circumstances, agencies should consider all steps to ensure that citizens' expectations are met.

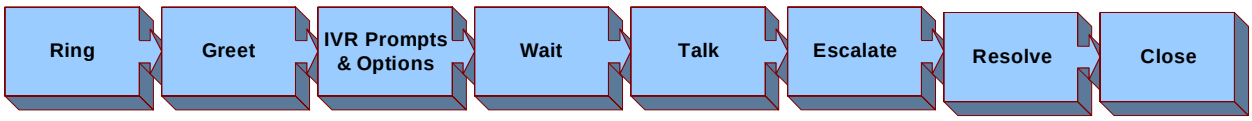


Figure 5-2. Telephone Value Realization Chain

5.3.1 Basic Observations

Table 5-1 captures averages and best performance values for a number of metrics commonly used in call center environments. These metrics, along with others, are discussed further later in this section.

Table 5-1. Call Center Performance Metrics[4]

Metric	Average	Best
Cost of Inbound Calls	$6.31	$3.52
Service Level (80% of calls answered in how many seconds)	62.83 sec	21.33 sec
Average Speed of Answer	59.40 sec	18.60 sec
Average call handle time	7.1 min	6.9 min
Abandon rate	9.18%	5.46%
Calls closed on first call	49.1%	65.3%
CSR occupancy	70.1%	73.3%

Table 5-2 summarizes the results of a recent study on cost structure in call centers. As expected, CSR cost is the most significant component of ongoing call center costs. Even so, improving call center operations may involve significant investments in hardware, software, and infrastructure.

Table 5-2. Call Center Cost Allocation[5]

Cost	Percentage
Human Resources (e.g., salary, benefits, training, recruiting)	68%
Telephony Equipment	7%
Computer Software	6%
Computer Hardware	6%
Telecommunication Charges	6%
Physical Infrastructure	7%
Other	1%

4 *Government & Non-Profit Industry Benchmark Report*, Benchmark Portal, 2003.

5 *Government & Non-Profit Industry Benchmark Report*, Benchmark Portal, 2003.

5.3.2 Benchmark Metrics

Figure 5-3 captures the relationship among citizen satisfaction, citizen expectations, and performance metrics in the context of a phone interaction. Although it is important for agencies to gauge and track satisfaction and expectations regularly, it is more practical to monitor internal metrics on an ongoing basis. It is imperative, however, to examine and establish a relationship and correlation between these internal metrics and the citizen expectation areas important to the agency.

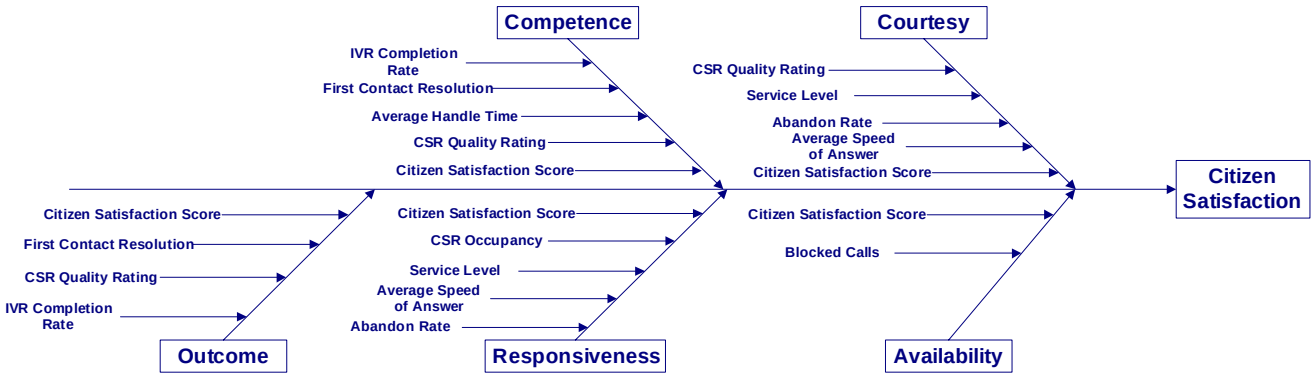


Figure 5-3. Citizen Phone Interaction Satisfaction Cause and Effect

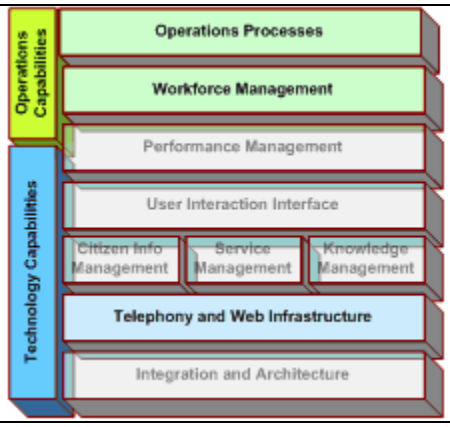
5.3.2.1 Abandon Rate

Expectation Category: Courtesy and Responsiveness

Interaction Channel: Phone and Web (Collaboration)

Capability: Operations Processes, Workforce Management, and Telephony and Web Infrastructure

Description: Calls that are disconnected by the user before reaching a CSR are considered abandoned. Abandon rate refers to the ratio of these disconnects to the total number of calls received.



Benchmark(s)

Figure 5-4 captures the results of a 2004 study on target and existing abandon rates across multiple industries.

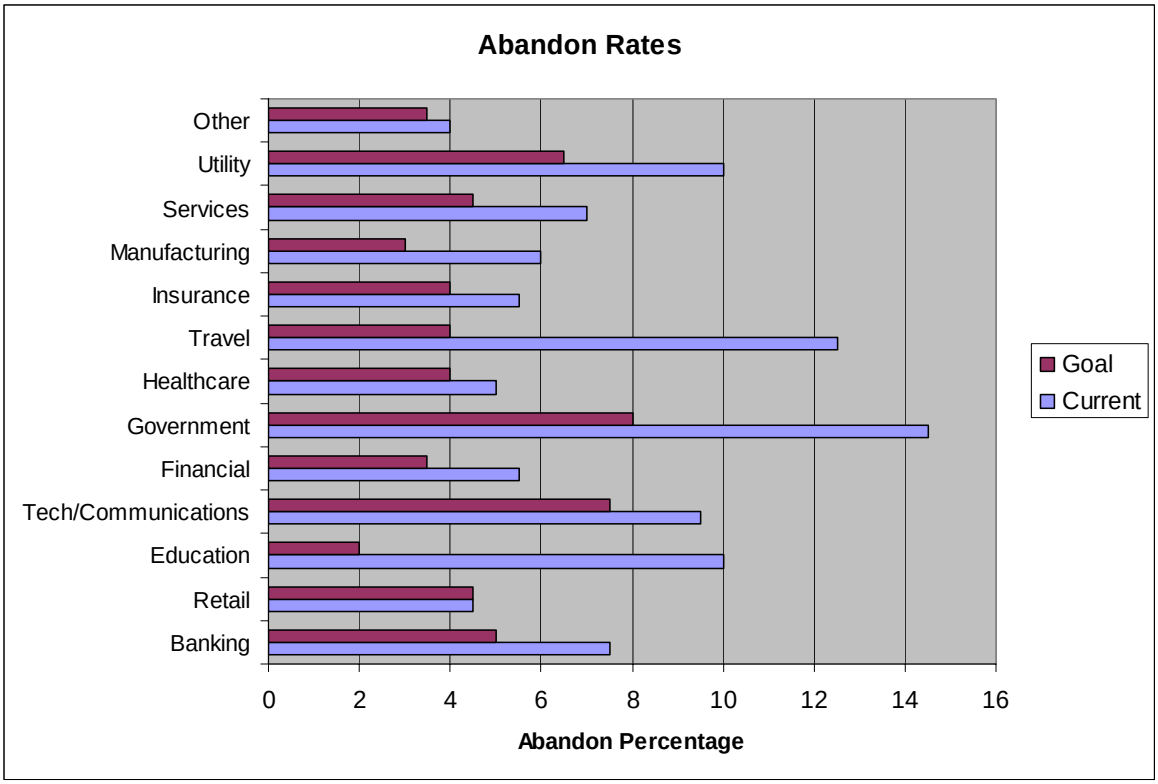


Figure 5-4. Abandon Rates[6]

Analysis

Before the advent of IVRs and multi-channel contact centers, abandoned calls were associated with citizen dissatisfaction. It was assumed that the caller dropped a call because of a long or unknown wait time, concern about phone charges, or confusion about the status of the call.

Still, even in a traditional call center, calls may have been abandoned because they were misdialed. Today, there are other *desirable* reasons for abandoned calls. Citizens may drop calls because an IVR resolved their issue or alerted them to an alternative channel or a required piece of information. A few simple strategies can help contact centers distinguish between desirable and undesirable abandons:

- Callers who drop calls because of a misdialed number usually do so very early in the process, often during the initial greeting. These dropped calls are often called "short abandons" and are insignificant indicators of citizen satisfaction.

[6] *Call Center Best Practices Report – Special Technology Edition*, Call Center Learning Center, 2004.

- In the absence of a callback option, callers who drop their calls while waiting in a queue can be assumed to be dissatisfied. These abandons can be used as a strong indicator of citizen satisfaction.
- Calls abandoned while navigating the IVR are more difficult to evaluate. Callers may abandon a call because they accomplished their goal or found a piece of information relevant to their next steps (e.g., an alternate channel or a requirement). On the other hand, callers may be frustrated by an IVR tree that is difficult to navigate. In this case, a correlation between abandoned calls and citizen satisfaction can be established by examining patterns or conducting surveys.

Desirable abandoned calls can be managed by properly designing an IVR system that is information rich but easy to navigate. Often called a "call avoidance strategy," this approach can help contact centers minimize costs.

Undesirable abandon rates can be decreased by properly forecasting demand and planning capacity (including overflow capabilities at peak times), adding a callback option, and informing callers of wait times. See the best practices section for further discussion.

Example: Less than 2% of calls will be abandoned.[7]

In addition to the abandon rate, some call centers track the time a citizen spends on the line before abandoning the call. The **Average Time Before Abandon** can provide additional insight into the reasons behind the abandon, including whether it was related to a long wait.

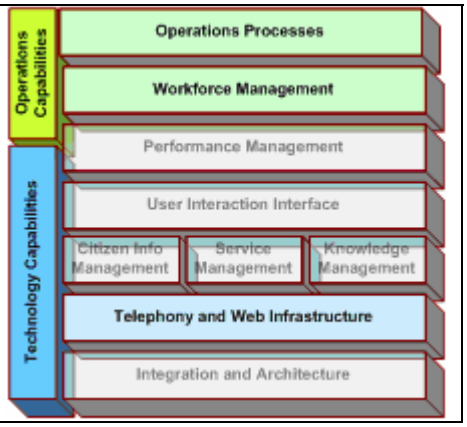
5.3.2.2 Average Speed of Answer

Expectation Category: Courtesy and Responsiveness

Interaction Channel: Phone and Web (Collaboration)

Capability: Operations Processes, Workforce Management, and Telephony and Web Infrastructure

Description: Average speed of answer (ASA) is a measure of how long a caller waits before reaching a CSR. Also called **queue time** or **wait time**, this metric is considered to have a direct impact on citizen satisfaction.



[7] Cancer Information Service Performance Requirements, Cancer Information Service, 2004.

Benchmark(s)

The Figure 5-5 captures the results of a 2004 study on target and existing ASAs across multiple industries.

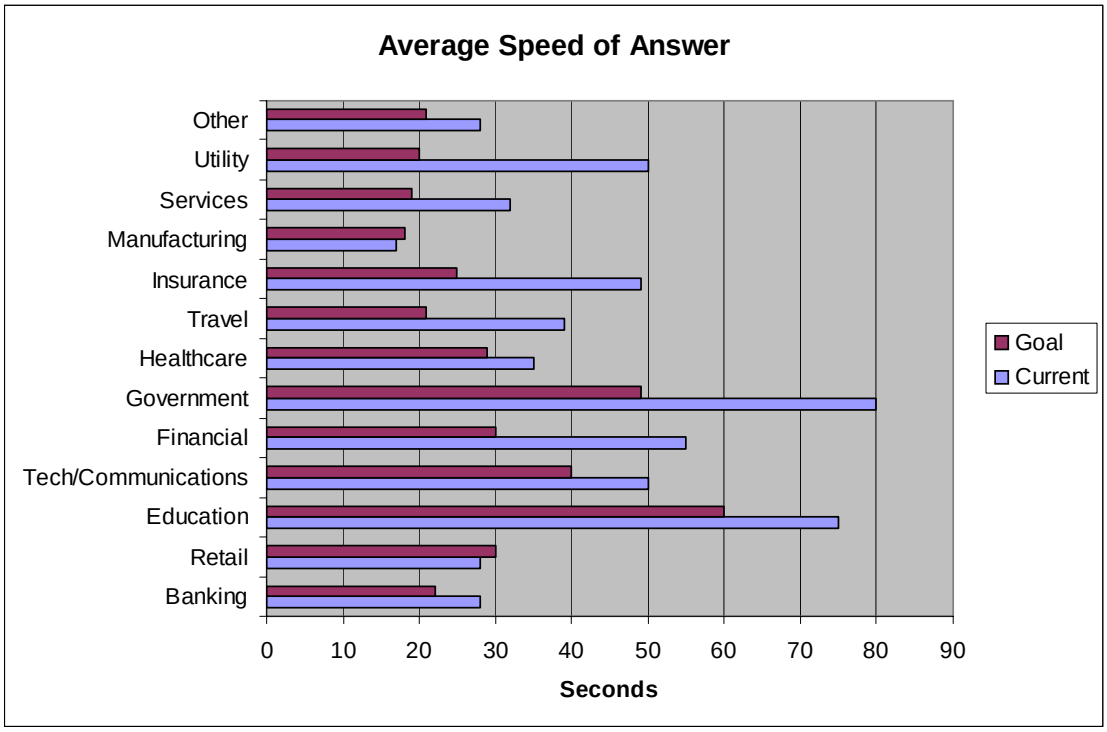


Figure 5-5. Average Speed of Answer[8]

Analysis

Citizens can experience delays during their call. These delays may include the following:

- Waiting while the line is connected (called **ring time**)
- Listening to the initial greeting
- Navigating through the IVR
- Waiting in a queue for a CSR to become available

ASA often takes into account a number of these delays. How an organization defines ASA depends on a number of factors. First among them are the specific performance improvement and customer satisfaction goals. For example, if an organization is trying to improve customer experience during the IVR process, it stands to reason to record and analyze the IVR navigation time separately. Also, organizations may define ASA so that it is consistent with benchmarking data available to them. Finally, technology capabilities may limit how an organization can capture and measure ASA.

[8] *Call Center Best Practices Report – Special Technology Edition*, Call Center Learning Center, 2004.

ASA is a function of the capacity of a contact center to manage call volume and the type of calls it receives. Driving a contact center toward an ASA goal without providing the required telephony capacity, staffing levels, and skills-based call routing can lead to unintended behavior. For example, a CSR may try to cut calls short, resulting in a poor customer experience and unresolved issues.

Finally, as a statistical average, ASA may hide anomalies and not provide an accurate picture of performance. While monitoring ASA, contact centers should periodically analyze the distribution of wait time to get a better picture of their performance. Also, **service level**, a related metric discussed later in this document, should be used as a companion measure to ASA.

Call centers can address performance issues with ASA or service level by improving handle times and adjusting their staffing levels. Figure 5-6 demonstrates the cost involved in improving ASA, assuming that ASA is currently at 50 seconds, the cost per CSR is $30,000, and AHT is 240 seconds.

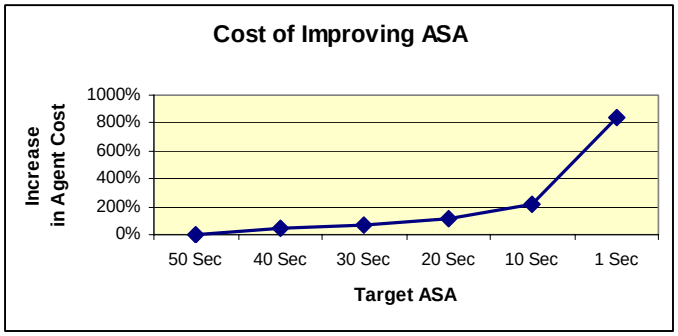


Figure 5-6. Cost of Improving ASA

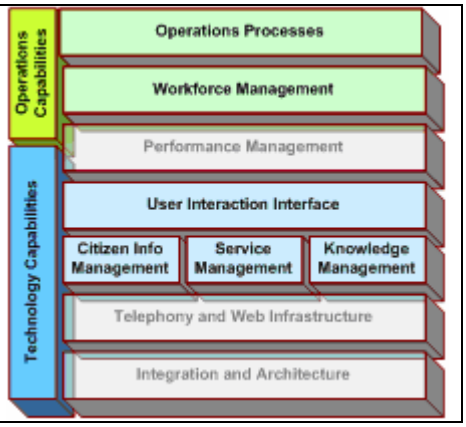
5.3.2.3 Average Handle Time

Expectation Category: Competence

Interaction Channel: Phone and Web (Collaboration)

Capability: Operations Processes, Workforce Management, User Interaction Interface, Citizen Information Management, Service Management, and Knowledge Management

Description: The time a CSR spends speaking with a citizen (**talk time**) and the time spent after the call to complete a request or enter additional information (**post-call time**) are combined into one metric referred to as AHT.



Benchmark(s)

Figure 5-7 captures the results of a 2004 study on target and existing AHTs across multiple industries.

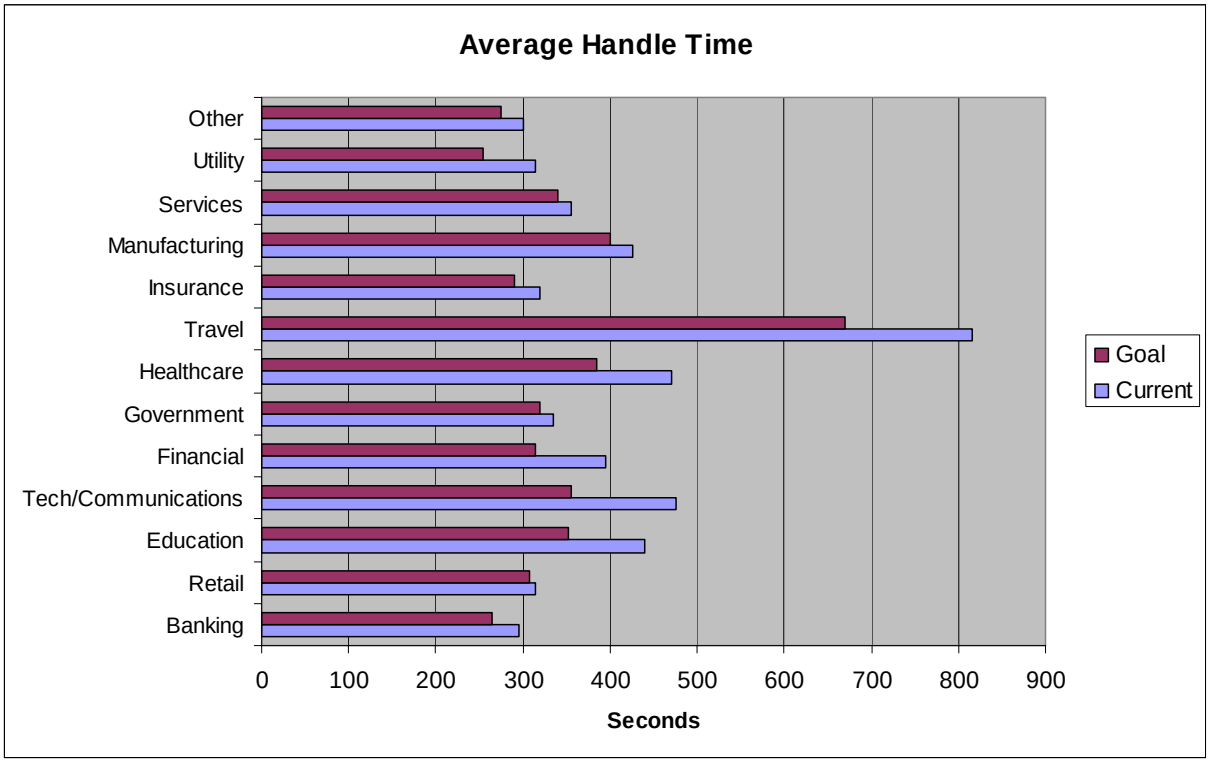


Figure 5-7. Average Handle Time[9]

Analysis

AHT is used primarily as a measure of the efficiency of a contact center and individual CSRs. Citizens, who are concerned about the time they spend on the phone, are also concerned about service effectiveness. AHT improvements can indicate greater CSR effectiveness achieved through better training, quality monitoring, and technology. On the other hand, AHT improvements can be a sign of CSRs rushing through the call process. Consequently, although AHT is a fairly simple metric to capture and monitor and is valuable in managing costs, its correlation with citizen service and satisfaction must be studied and established before it is used for that purpose.

Furthermore, as is the case with ASA, AHT is a statistical average and as such may hide variations that might be of interest. With AHT, this issue is amplified by the fact that, over the short run, handle times can vary significantly by call type and CSR. As a result, AHT benchmarks must be based on a larger number of calls and handle time monitoring and management must include analysis of call distribution over a number of attributes. Contact

[9] *Call Center Best Practices Report – Special Technology Edition*, Call Center Learning Center, 2004.

centers often track AHT values based on call type, CSR, business cycles, and time cycles (sometimes down to hourly patterns).

In addition to providing a direct measure of contact center efficiency and an indirect measure of citizen satisfaction, AHT analyses provide important input into volume forecasting and capacity planning.

A number of strategies can be used to improve handle times, including the ones that follow:

- Improving access to citizen and interaction information through better data and service management systems and easier-to-use interfaces
- Enhancing CSR skills through training and quality management
- Decreasing information search and access time through CTI and IVR integration
- Enhancing CSR effectiveness through improved knowledge management systems and practices
- Improving skills-based routing of calls through better operational processes and ACD capabilities

The sections on best practices and technology trends present ideas for initiatives to improve AHT.

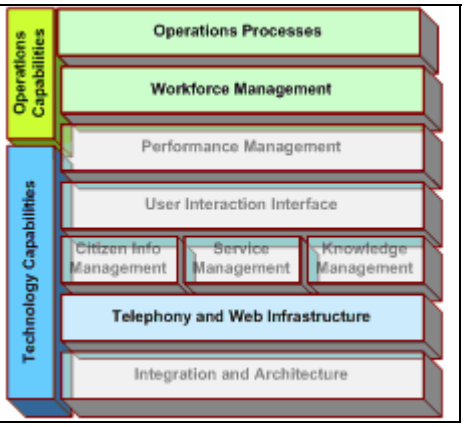
5.3.2.4 Service Level

Expectation Category: Courtesy and Responsiveness

Interaction Channel: Phone

Capability: Operations Processes, Workforce Management, and Telephony and Web Infrastructure

Description: Service level is the percentage of calls reaching a CSR within a prescribed timeframe. This timeframe is usually the same as ASA.



Benchmark(s)

The 2004 survey used to generate Figure 5-8 reports that the objective of most call centers is to answer 80% of calls in 20 to 90 seconds.

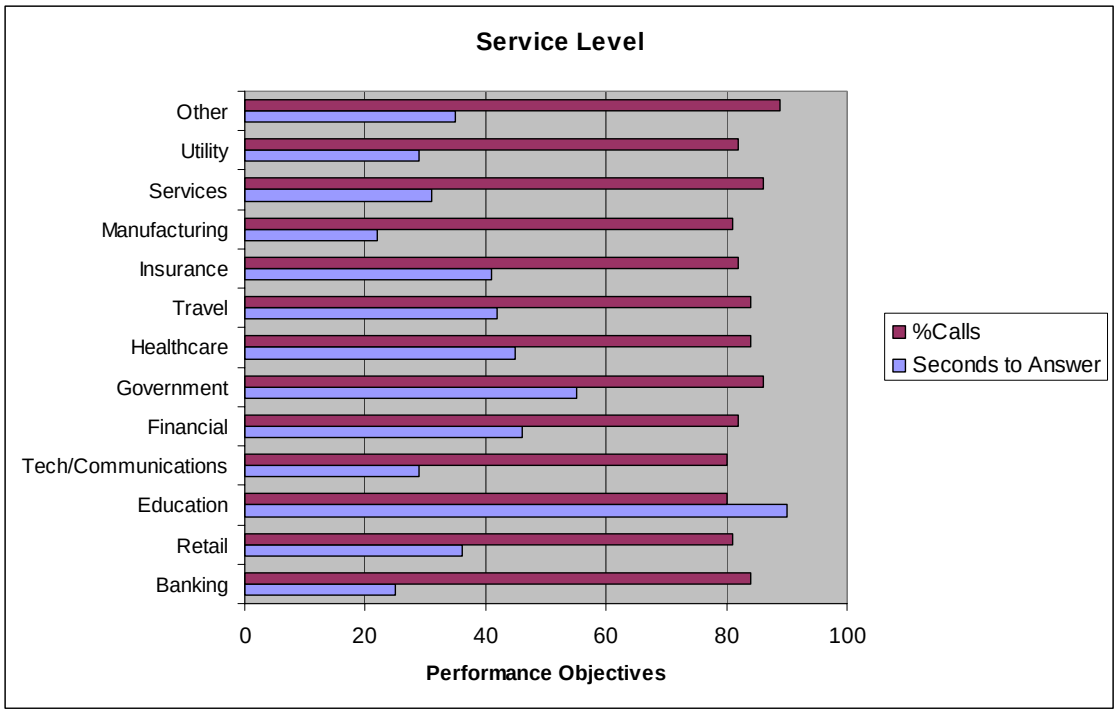


Figure 5-8. Service Level[10]

Analysis

Service level is a companion metric to ASA. It addresses the fact that, as a statistical average, ASA can hide significant variabilities in answer time. For example, the ASA in the two scenarios in Figure 5-9 might be the same. Scenario B, however, includes a high number of calls with longer duration. Using the service level metric in conjunction with ASA addresses this disparity.

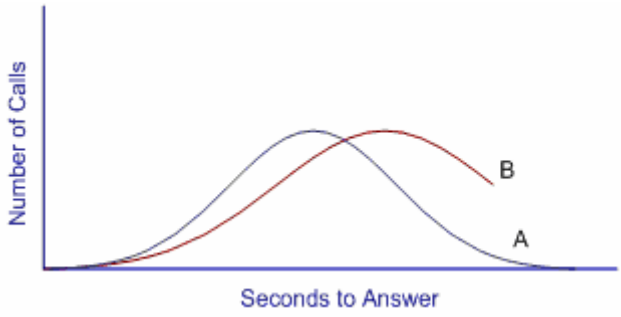


Figure 5-9. Speed of Answer Distribution

[10] *Call Center Best Practices Report – Special Technology Edition*, Call Center Learning Center, 2004.

Studying call distribution, in addition to ASA and service level, can shed additional light on call center performance. The fact that the distribution of calls in scenario B does not follow a normal curve is indicative of nonrandom factors that might need to be investigated.

In calculating service levels, call centers deal with some wait time issues discussed in the section on ASA. The service level metric is slightly more sensitive to how the actual number of calls is calculated. Considering the number of calls as those received on the switch as opposed to the ones entering the queue in ACD, can result in significantly different values. The difference between these two values would be in abandoned calls. It is often important to distinguish between short abandons (discussed previously), abandons for alternate channels, IVR completions (see the sections on IVR for discussions on the last two factors), and abandons in the queue when calculating service levels (and ASA, for that matter).

The type of investigation is important in determining the causes of performance problems. Still, regardless of the definition, performance metrics can and should be used as a measure of relative improvement as long as they are defined and used consistently.

Finally, given the cyclical nature of call volume at most centers (e.g., it is not uncommon for call volumes to be higher on Mondays and Fridays), the time period for which ASA and service level are calculated has a significant bearing on their validity.

Example: 80% of calls will be answered in fewer than 15 seconds[11]

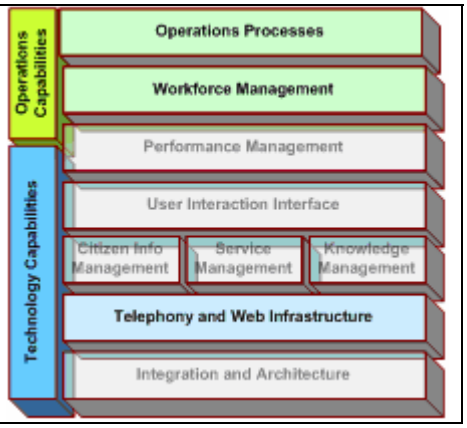
5.3.2.5 Blocked Calls

Expectation Category: Availability

Interaction Channel: Phone

Capability: Telephony and Web Infrastructure

Description: When the telephony switch handling a call center or the trunk leading to the switch reach their maximum capacity, callers get a busy signal. These calls are considered blocked. The ratio of these calls to the total received is the blocked call rate.



Benchmark(s)

Most organizations consider a blocked call rate of less than 2% to be optimal and a rate of more than 5% to be unacceptable. Benchmark Portal reports that the average blocked call rate for government and nonprofit organizations is 1.66%, with best-of-breed organizations having as few as 0.18% of their calls blocked.

[11] *Cancer Information Service Performance Requirements*, Cancer Information Service, 2004.

Analysis

Blocked calls usually become a problem a problem during high call volume periods. Call centers determine their switch and trunk capacity by adding a margin to the capacity they project based on expected call volume and AHT. As noted earlier, however, call center activities are usually cyclical over days of the week, an annual period, or business cycle phases. During these peak periods, callers may be unable to reach the call center, an experience that can become a significant source of dissatisfaction.

Call centers can address this issue by accomplishing the following:

- Decreasing their AHT, which would reduce the time the CSR spends on the phone
- Increasing their telephony capacity if a chronic issue exists with meeting demand or performance metrics
- Routing their overflow call volume during peak periods to secondary centers, other parts of the organization, other geographic areas, or outsourced call centers.

Example: 5% or fewer callers will receive a busy signal when calling the Cancer Information Service[12]

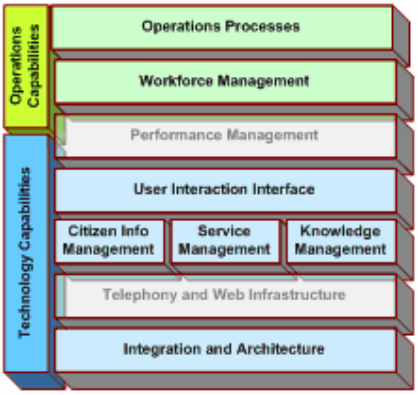
5.3.2.6 First Contact Resolution

Expectation Category: Competence and Outcome

Interaction Channel: Phone, Email, and Web

Capability: Operations Processes, Workforce Management, Citizen Information Management, Service Management, Knowledge Management, and Integration and Architecture

Description: First contact resolution refers to the ratio of the number of citizen requests resolved at first contact to the total number citizen requests. A traditional metric in the call center environment (also referred to as one call resolution), the metric should be applied to Web and email interactions as well.



[12] *Cancer Information Service Performance Requirements*, Cancer Information Service, 2004.

Benchmark(s)

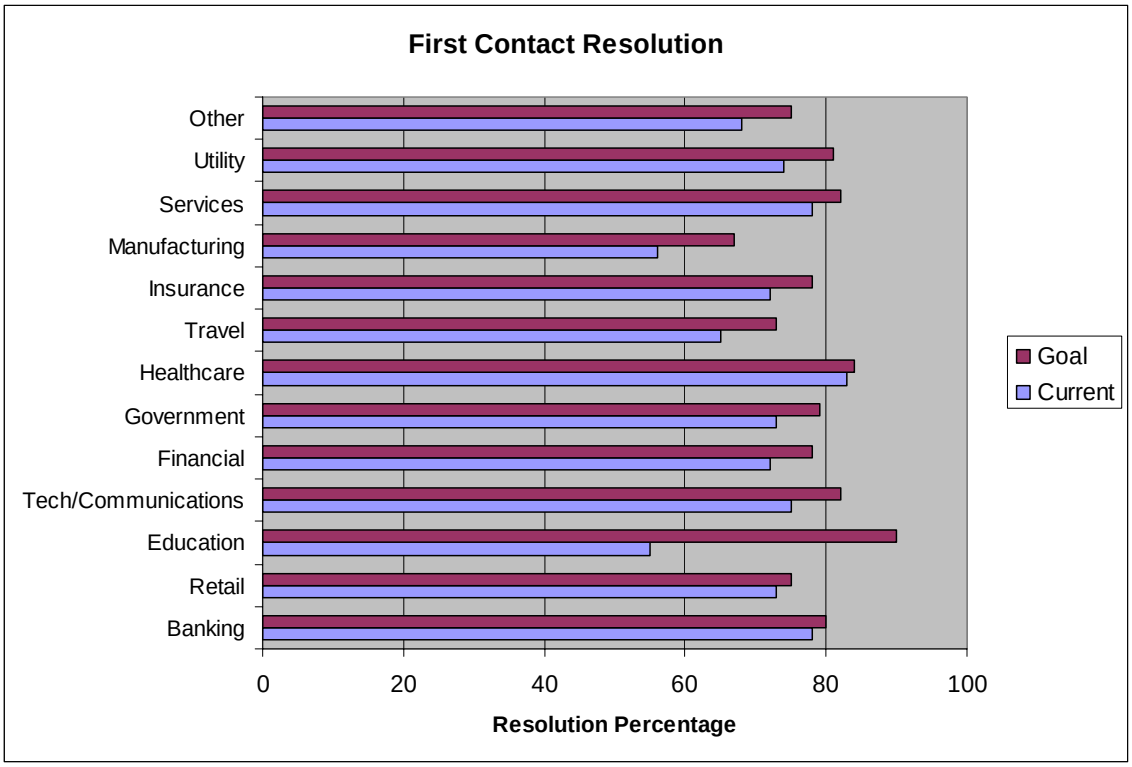


Figure 5-10. First Contact Resolution[13]

Analysis

First contact resolution is a clear measure of contact center effectiveness. Studies show that citizens are willing to tolerate longer wait times if their requests are addressed on first contact. Citizens perceive their wait to be much longer if their request is not resolved on first contact. These facts demonstrate that the outcome of an interaction is more than a driver of satisfaction; it also has a significant impact on other drivers.

At the same time, avoiding repeat contacts by resolving citizens' requests the first time can have a measurable impact on the efficiency and cost of a contact center by reducing the number of calls, required capacity, and the need for Tier 2 and 3 CSRs.

By definition, first contact resolution in call centers excludes calls that need to be transferred or escalated as well as those requiring CSR callbacks or repeat calls by citizens. First contact resolution is different from first interaction resolution. Calls completed in the IVR are discussed later in this section and measured through the IVR completion rate.

Measures similar to first call resolution for call centers and IVR completion for voice self-service can be defined for email and Web self-service to track whether a request through those channels was resolved during the first interaction.

[13] *Call Center Best Practices Report – Special Technology Edition*, Call Center Learning Center, 2004.

There are a number of different circumstances under which a contact fails to result in the resolution of a request. These failures can be the result of a lack of preparation by the citizen (e.g., not having the required information available), extreme complexity of the request (e.g., requiring additional research), inadequate systems, or poor CSR training. It is not uncommon for citizens, however, to call back in follow up to a request because the CSR rushed through the first interaction to meet AHT performance targets. This demonstrates the fact that, in the absence of proper context and clear directions, metrics can become counterproductive.

Fundamentally, there are two ways for call centers to establish their first call resolution rate. First, they can approximate the number of first call resolutions by asking a sample of citizens whether their request was fully resolved. Second, call centers can track the resolution of requests through a citizen relationship management system. This presupposes that a system is in place, organizational disciplines and processes exist to properly use the system, and no restrictions (e.g., privacy, security) are in place to prevent an agency from keeping track of citizen or request information.

Achieving acceptable first call resolution rates assumes that most components in the contact Center Capability Model are in place and well-tuned. As noted earlier, CSRs must have easy access to citizen and request information and history. They must be well-trained and complement their knowledge with information provided through a knowledge base. Also, there is often a need for a front-end system (e.g., a citizen relationship management system) and a back-end system (e.g., ERP, financial, legacy) to be properly integrated.

Example: Benchmark Portal reports that the average first call resolution rate for government and nonprofit organizations is 49.1%, with the best performers achieving a rate of 65.3%

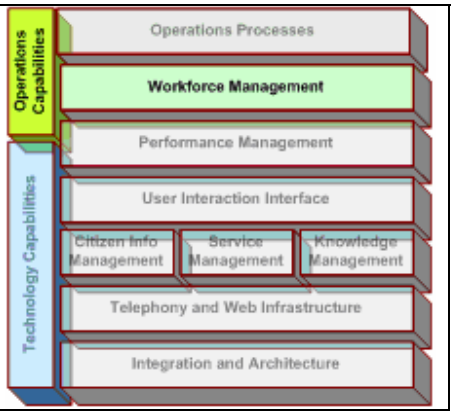
5.3.2.7 CSR Quality Rating

Expectation Category: Courtesy, Competence, and Outcome

Interaction Channel: Phone, Email, and Web (Collaboration)

Capability: Workforce Management

Description: Most call centers have a process for recording and monitoring calls for quality purposes. Call centers commonly assign either a single rating or a set of scores (e.g., for courtesy and responsiveness,) to a CSR based on a monitored call.



Benchmark(s)

As is the case with the citizen satisfaction rating (discussed later in this section), the methods for monitoring and evaluating CSR quality vary widely across organizations. As such, establishing useful benchmark values is extremely difficult.

Analysis

Most citizens are familiar with the fact that their calls can be monitored and recorded when they call a service number. Unless prohibited by law or regulation or restricted by privacy or security concerns, agencies can use quality monitoring of calls to evaluate their overall performance as well as the quality of the work performed by individual CSRs.

Implementing quality monitoring can be as simple as having a supervisor listen in on a separate headset. Quality monitoring also can be as sophisticated as recording the entire conversation along with CSR's screen navigation using a call recording and quality monitoring system.

Although calls are usually monitored by supervisors, many contact centers to have a dedicated team assigned to quality monitoring and management.

As is the case with other metrics, the number of times the calls for individual CSRs are monitored is the result of a calculation that balances the cost of the effort with the benefits. Still, one to times a month is the sampling frequency most often reported by contact centers.

CSR quality ratings are used as the basis for providing immediate feedback to CSRs (when issues specific to an individual are observed) or for designing training material and courses (for more widespread issues).

Finally, this metric can be adapted to email and Web collaboration contacts.

Example: 90% of sampled phone calls will meet expectations in each quality measure[14]

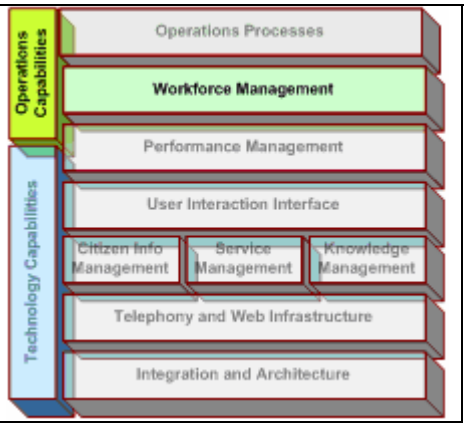
5.3.2.8 CSR Occupancy (Utilization)

Expectation Category: Responsiveness

Interaction Channel: Phone, Email, and Web (Collaboration)

Capability: Workforce Management

Description: CSR occupancy (also known as agent, or CSR, utilization) is the ratio of the sum of the time a CSR spends on calls and performing post-call activities to the time the CSR is available in the queue. It provides a measure of the efficiency of a contact center as well as an input to staffing levels.



[14] *Cancer Information Service Performance Requirements*, Cancer Information Service, 2004.

Benchmark(s)

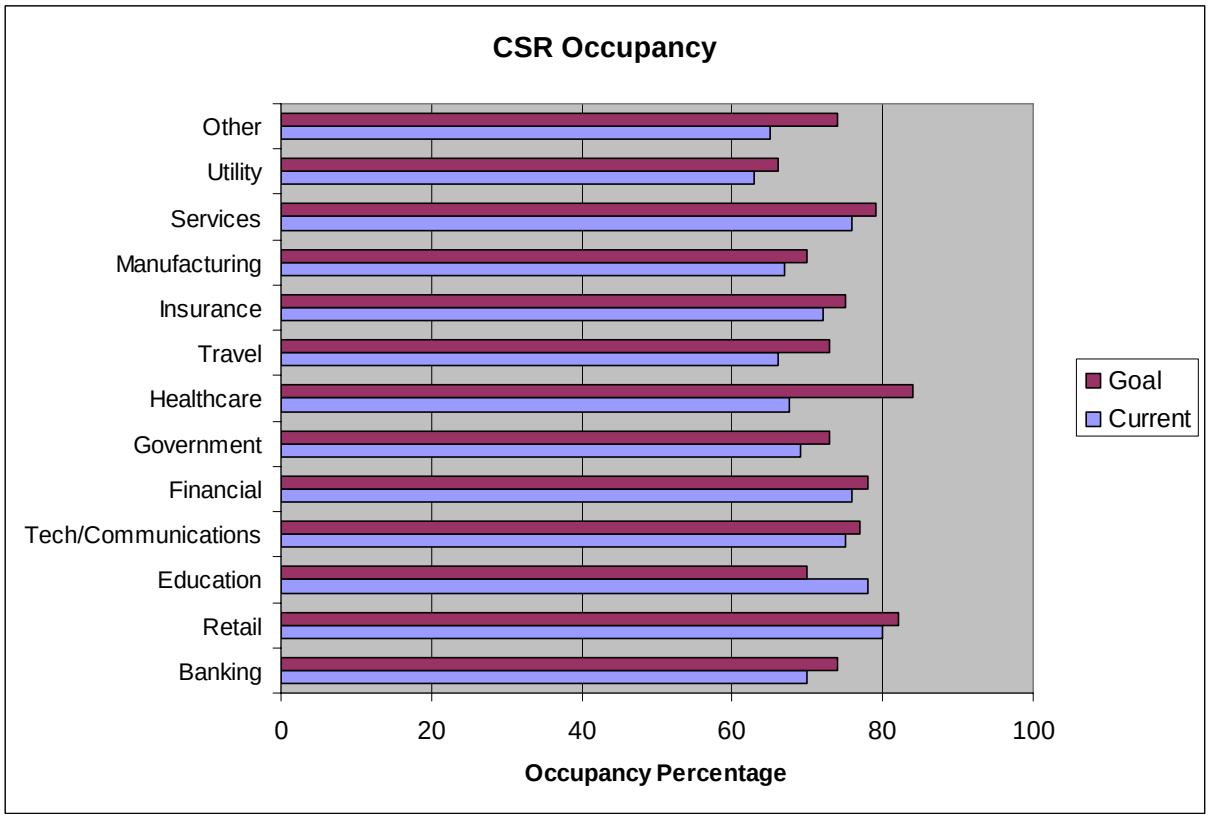


Figure 5-11. Customer Service Representative Occupancy[15]

Analysis

CSR occupancy is largely a measure of contact center efficiency. Still, it can be argued that utilization levels can affect CSR satisfaction and attrition levels. As such, they can impact the effectiveness of the services provided to citizens.

Although a low CSR occupancy rate is indicative of cost inefficiencies in a contact center, an unusually high rate can explain issues with other effectiveness metrics, including blocked calls and service levels. As a result, centers try to maintain their utilization rates below 90%, with most centers targeting an occupancy rate of 65% to 85 %.

Example: Occupancy rates with average 65% to 70% monthly[16]

[15] *Call Center Best Practices Report – Special Technology Edition*, Call Center Learning Center, 2004.

[16] *Cancer Information Service Performance Requirements*, Cancer Information Service, 2004.

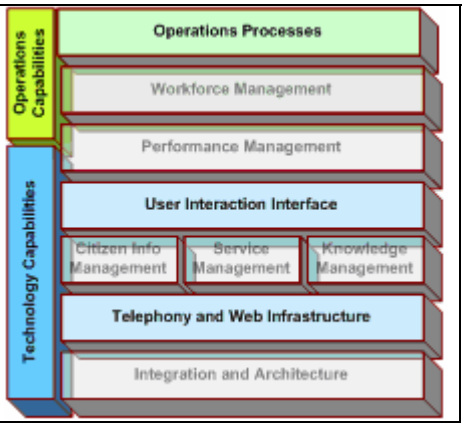
5.3.2.9 IVR Completion Rate

Expectation Category: Competence and Outcome

Interaction Channel: Phone

Capability: Operations Processes, User Interaction Interface, and Telephony and Web Infrastructure

Description: Also known as the IVR (self-service) success rate, IVR completion rate provides an indicator for the number or percentage of calls that are successfully and completely managed by the IVR system.



Benchmark(s)

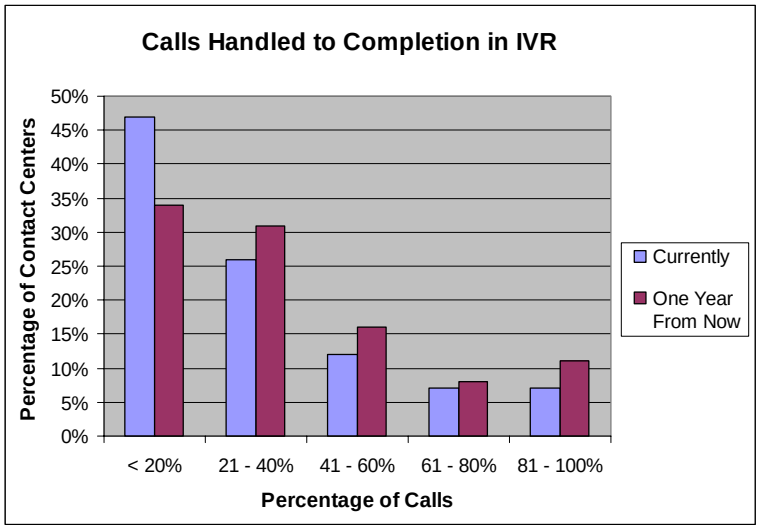


Figure 5-12. Percentage of Calls Handled to Completion in IVR[17]

Analysis

With the average cost of a phone interaction almost nine times that of an IVR self-service one, it is tempting to assume that migrating as many functions as possible to an IVR can produce significant cost savings. The reality, however, is that IVR self-service is well-suited for a few applications (e.g., account balances, flight status) and not for many others. Furthermore, the success of an IVR system is largely a function of its design and the profile of the caller.

Figure 5-13 confirms the fact that the effectiveness of an IVR self-service application and the cost savings it can produce are significantly influenced by the thought and effort put into its design.

[17] *Call Center Best Practices Report – Special Technology Edition*, Call Center Learning Center, 2004.

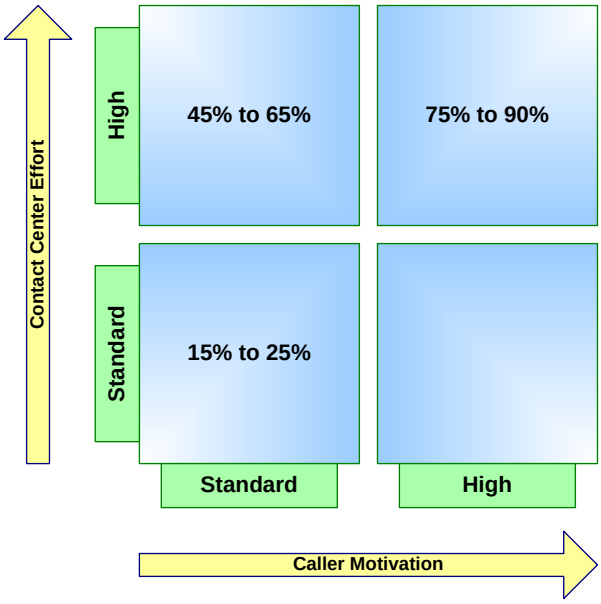


Figure 5-13. Factors Affecting IVR Completion Rates[18]

More important, Figure 5-13 illustrates that caller motivation is as significant in an IVR's success as its design. Caller motivation, in turn, is a function of several factors:

- The demographic and behavioral profile of the citizen population interacting with the agency. Segmentation of this population can be an effective means of identifying target audiences for self-service.
- The benefits perceived by citizens in managing their requests through a self-service application. Self-service can go beyond simply saving money for the agency and provide speed and convenience for citizens.
- The level of promotion and training an agency provides for the IVR application.

All of these factors apply to self-service applications provided through other channels.

[18] *Speech Recognition Self-Service: Playing to Win*, Gartner Research, 2002.

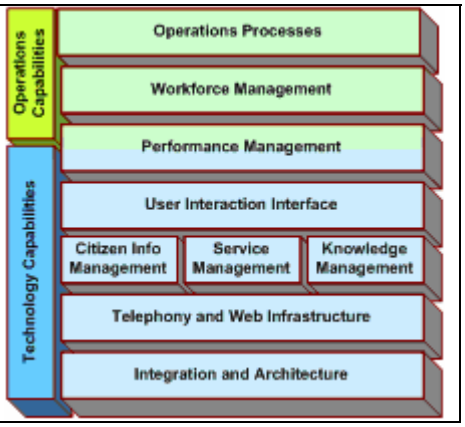
5.3.2.10 Citizen Satisfaction Score

Expectation Category: All

Interaction Channel: All

Capability: All

Description: The ultimate goal of agencies is to ensure that citizens are satisfied with their experiences when they contact the agencies. A citizen satisfaction score is generally the result of a survey in which citizens are asked about their contact experience and its outcome.



Benchmark(s)

Customer satisfaction ratings are commonly used as a relative measure to track improvements in satisfaction over time. As such, benchmark standards are difficult to ascertain. Different organizations, however, do provide figures that can be used as guidelines. For example, a recent survey by Benchmark Portal indicates that 34.6% of contacts resulted in a perfect satisfaction score.

Analysis

No other contact center performance metric provides a more authoritative measure of the effectiveness of an organization than a customer satisfaction rating. Satisfaction ratings are expressed either as an absolute measure (e.g., a value on a scale of 1 to 10) or a ratio (e.g., 50% of citizens are satisfied with their experience). Regardless of approach, several factors must be considered when compiling and evaluating satisfaction ratings:

- More than any other metric, customer satisfaction scores provide a relative measure of performance. Their value is not in ascertaining a reading at a certain point in time but in evaluating trends.
- Customer satisfaction scores require direct citizen surveys. Establishing valid scores requires close attention to sample size, survey frequency, citizen segmentation, methods, and survey questions.
- Although the most important metric, citizen satisfaction scores are not always easy to collect, compile, and interpret. As a result, they might not be the most actionable in the short term. Many of the metrics discussed earlier in this section provide more immediate feedback to contact centers and correspond easily with methods for mitigating or improving them. Care must be taken, however, to correlate them to customer satisfaction.

Example: 95% of users report satisfaction with products and services[19]

[19] *Cancer Information Service Performance Requirements*, Cancer Information Service, 2004.

5.3.3 Best Practices

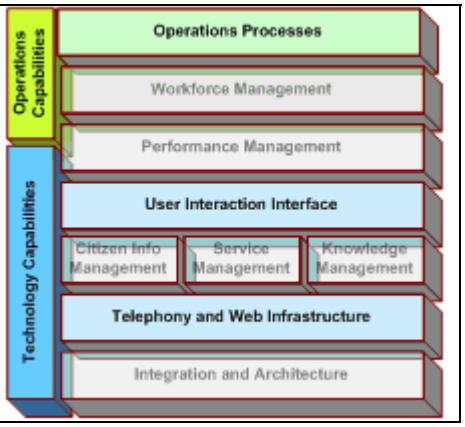
5.3.3.1 IVR Best Practices

Expectation Category: All

Interaction Channel: Phone

Capability: Operations Processes, User Interaction Interface, and Telephony and Web Infrastructure

Description: IVR best practices can help citizens get critical information and reach the right resource, improving first impressions and overall satisfaction. They can also help agencies control the cost of citizen services.



Analysis

IVRs have become a universal fact of life for customers and citizens when dealing with call centers. IVRs can help callers with information they may be seeking, advise them on the requirements of specific services, and direct them to faster and better channels and help them get to the appropriate CSR. Poorly designed and executed IVRs, however, can just as easily be a source of frustration and confusion, leaving a lasting impact on the impressions of citizens of their experience.

The challenge citizens face with IVRs lies in the fact that they are not readily and intuitively familiar with the structure of the prompt tree and the taxonomy that drives it. Also, given the sensitivity of most callers to responsiveness, the time spent in the IVR can easily become an annoyance.

Most organizations approach IVRs primarily as a way to reduce support cost. In a call center of 100 CSRs, reducing the average talk time of 250 seconds by 10 seconds through an IVR can result in a $160,000 annual savings if the annual salary of a CSR is $40,000.

Projected cost savings, however, can quickly disappear if callers resort to opting out of an IVR that is confusing and poorly designed. Savings also can be elusive in smaller centers with longer handle times.

More important, approaching IVRs solely as a necessary evil aimed at reducing costs can have a negative impact on citizen satisfaction. Citizens may find it difficult to visualize the flow of IVR menus and abandon their calls or opt out of the IVR, believing that “there is no light at the end of the tunnel.” The same type of reaction can be caused by long-winded menu options and prompts. Finally, the overuse of IVR capabilities can be construed by citizens as an indication that the agency values cost savings more than it does citizen satisfaction.

Table 5-3 captures how the benefits realized by citizens and agencies for each common IVR systems objective and function can be aligned.

Table 5-3. IVR Benefits Matrix

Objective	Citizen	Agency
Provide information on service requirements and alternative channels	• Saves time by avoiding unnecessary calls	• Reduces cost by avoiding unnecessary calls
Direct calls to CSRs with appropriate skills and authority (based on caller segmentation, service type, etc.)	• Saves time • Has a better experience	• Reduces CSR cost • Improves citizen satisfaction
Provide self-service capabilities	• Saves time	• Reduces CSR cost

To be successful with IVRs, agencies must be able to align citizen and agency benefits if possible or balance them if not. The following best practices can alleviate the problem.

Target IVR at Improved Citizen Experience

A 2003 study of companies that implemented IVR systems indicates that 90% of these companies consider cost savings a benefit of IVR. Interestingly, however, almost 70% of the companies considered improved customer satisfaction a potential benefit. IVRs can provide citizens with convenience and time savings. To improve customer satisfaction, agencies must consider the following:

- Keep the IVR tree flat. Menu options should be limited to five if possible.
- Offer new users an introduction but inform experienced users of the option to skip the introduction. The introduction should include information on how to navigate the system and how to opt out and reach a CSR. Give experienced users the ability to make selections without listening to the entire prompt.
- Present the most commonly used features first, and keep prompts short.
- Citizens commonly perceive the IVR experience to be unidirectional. Provide citizens with the capability to navigate up through the IVR tree.
- Use silence judiciously. Short pauses can convey structure (e.g., separating menu options). Long silences, however, will confuse users.
- Announce a menu function first and then provide the number to activate it.
- Acknowledge responses and receipt of information.
- Use sequence (progress) markers to inform citizens of where they are in the process and show them the light at the end of the tunnel. The added advantage of sequence markers is that they enable the contact center to better analyze IVR completions and abandons (see previous section on benchmarks).
- Maintain a “persona” throughout the IVR tree. Use the same voice if possible and a consistent personality if not. The vocabulary used in the prompts must be familiar to citizens and nonambiguous. Finally, using a welcoming and engaging voice (instead of a monotonous one) can make the experience much more satisfying to citizens.

Some of these best practices apply to circumstances when IVR is used not only for prompts and selection but also for performing self-service functions. For example, progress markers are particularly important when citizens are conducting a multi-step self-service transaction. Also,

speech (voice) technologies can play an important role in facilitating many of these best practices.

Design the IVR for Success

Implementing and maintaining a well-designed IVR is critical to realizing the cost savings associated with these systems and sustaining or even improving citizen satisfaction.

Most organizations agree that engaging users (customers and citizens) in the design and review process is essential. Inherent in this principal is an attempt in segmenting users based on their needs, preferences, or levels of proficiency in using the system.

It is also important to properly "flowchart" the IVR tree. A state transition diagram, as illustrated in Figure 5-14, can ensure that the IVR tree is properly designed and the branches are balanced and consistent. They also can be used to analyze completion rates and abandons.

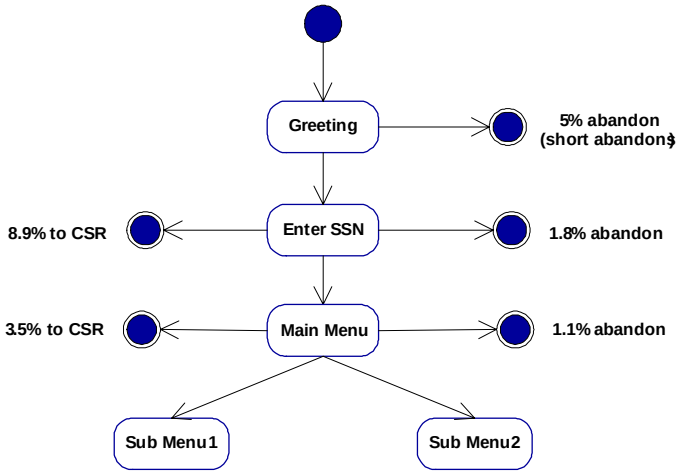


Figure 5-14. IVR State Transition Diagram

As noted earlier, using **sequence (progress)** or **success markers** (see Table 5-4) not only can help citizens navigate the IVR tree but also help contact centers uncover problem areas. These markers inform the caller about where they are in the process of achieving a specific goal when multiple steps are involved.

Table 5-4. IVR Progress Marker Examples

Don't Say	Do Say
Enter your social security number.	To start your request, we need your Social Security Number. Please enter your Social Security Number now.
Enter your PIN [personal identification number].	Next, please enter your PIN.
Enter the year of the record.	Finally, please enter the year of the record.

Adding the words "next" and "finally" conveys a sense of progress to the uninitiated caller and indicates when the process will be complete. An IVR interaction can be considered abandoned or incomplete if a caller enters a branch but does not go past all progress markers.

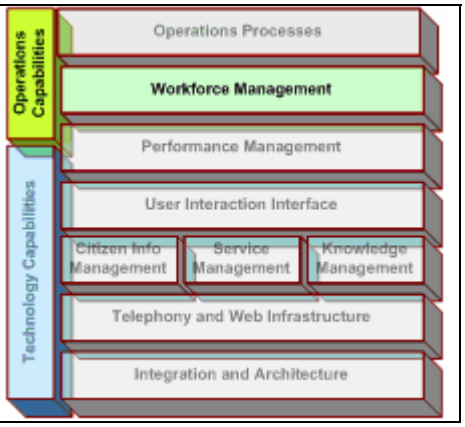
5.3.3.2 Monitor Quality of Customer Service Representative Performance

Expectation Category: Courtesy, Competence, and Outcome

Interaction Channel: Phone, Email, and Web (Collaboration)

Capability: Workforce Management

Description: Most call centers have a process for recording and monitoring calls for quality purposes. Calls can be monitored in real time by a supervisor or peer. Alternatively, recorded calls can be reviewed randomly or in response to a complaint.



Analysis

Recording every call in a call center might be cost prohibitive, but listening to calls in real time is easy for most call centers. As a result, monitoring calls have become an accepted practice by CSRs and citizens. Call centers monitor calls to accomplish one of the following:

- Examine the performance of the entire call center on an ongoing basis and identify areas that need improvement. In this case, calls are monitored on a random basis across several or all CSRs.
- Evaluate the performance of specific CSRs in response to issues identified through performance metrics (e.g., long handle times, frequent callbacks).
- Evaluate performance of a specific CSR in response to a citizen complaint (particularly as part of an escalation or elevation process).

Contact centers can use direct feedback as well as training and refresher courses to mitigate issues uncovered through quality monitoring. Feedback must be immediate and constructive to be effective.

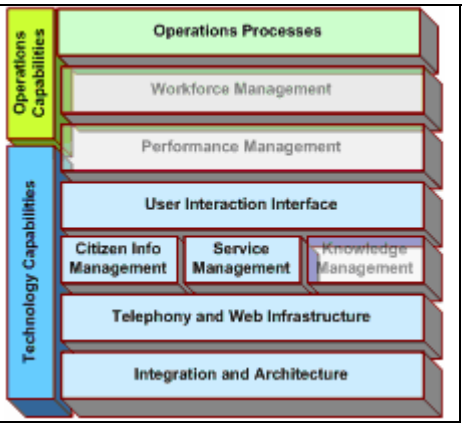
5.3.3.3 Ask for Information Once

Expectation Category: Courtesy and Competence

Interaction Channel: Phone, Email, and Web

Capability: Operations Processes, User Interaction Interface, Citizen Information Management, Service Management, Telephony and Web Infrastructure, and Integration and Architecture

Description: Citizens who have to repeat information they provided during previous interactions usually interpret this as a lack of competence and courtesy on the part of agencies.



Analysis

Having to provide a CSR with identifying information the caller previously entered into an IVR system is a common scenario and a source of irritation for citizens. Experts in contact center operations and technologies recognize the problem as a lack of integration between IVR systems and citizen relationship management or CTI platforms. IVR systems often predate these platforms, and integrating them with newer applications, if possible, can be costly. To most citizens, however, this explanation is unknown and irrelevant.

The same is true for interactions in which citizens are forced to repeat their requests when making a repeat or follow-up call. The ability to provide a CSR (and by extension, a citizen) with a complete citizen interaction history is a function of having a system based on service management (a functional component of a citizen relationship management system). Deploying such systems in a government agency often can be legitimately constrained by privacy or security concerns or regulations. In most circumstances, however, citizens understand where these constraints do and should exist. Otherwise, agencies should strive to build or deploy operational processes and systems that provide a CSR with quick access to a citizen's interaction history.

Finally, this concept applies when a particular request or inquiry requires multiple contacts across communication channels. Consider, for example, the case of a citizen who has sent an email request and then calls the agency with a follow-up question. Having a CSR manually track down the email request online or offline is costly, both in terms of agency operational costs and citizen satisfaction. In this case, the cause is often a lack of integration in processes and technologies across channels.

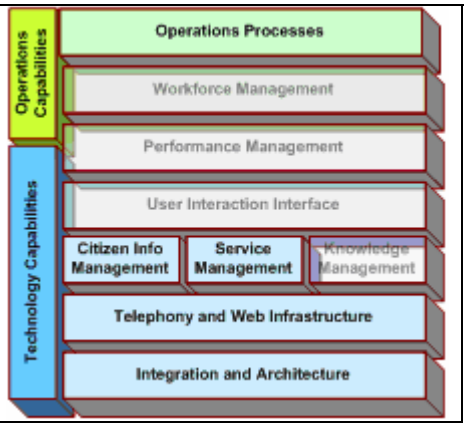
5.3.3.4 Route Citizen Interactions Properly

Expectation Category: Courtesy, Responsiveness, and Competence

Interaction Channel: Phone, Email, and Web (Collaboration)

Capability: Operations Processes, Citizen Information Management, Service Management, Telephony and Web Infrastructure, and Integration and Architecture

Description: Citizens' calls need to be routed to the proper CSR based on their needs and profiles.



Analysis

Few service experiences are as frustrating to citizens as reaching the wrong CSR after navigating the IVR system and waiting in a queue. In most organizations, this could be the consequence of a poorly designed IVR. In the case of the federal government, it could also be the result of a citizen misunderstanding the proper function of a specific agency. This could be a particular problem when a citizen is not familiar with the functional delineation of various bureaus within a department.

Depending on the specific circumstance, agencies could pursue the following mitigation approaches:

- Consolidating multiple contact centers across an agency or department. The organization can then have greater control on how and where calls are routed.
- Providing better and clearer contact information on the agency Web site.
- Strengthening business rules underlying routing processes. These business rules need to take the following into account:
  - ***Who* is calling:** Calls may need to be directed to specific centers or CSR groups based on the profile of the caller. The profiling might take into account language needs or whether a citizen is calling in reference to a previous request.
  - ***What* a caller is calling about:** The goal of the citizen determines to which agency, contact center, or CSR his or her call will be routed.
  - ***Where* and *when* a call was initiated:** This may have a significance in a multi-center environment in which multiple time zones are a factor.
- Improving IVR processes and prompts. For example, it is not uncommon for citizens' calls to be misrouted through an IVR system because the prompts use vernacular internal to the agency as opposed to language understandable to the citizen.

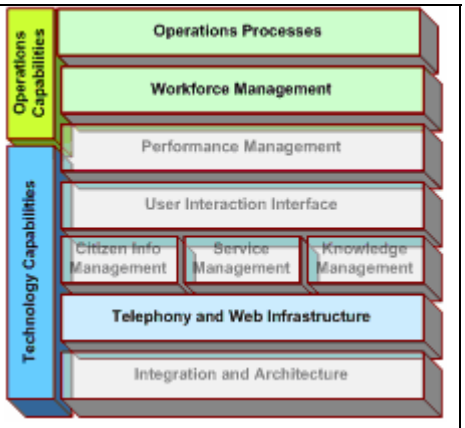
5.3.3.5 Provide an Escalation Path

Expectation Category: Courtesy, Outcome, and Competence

Interaction Channel: Phone, Email, and Web (Collaboration)

Capability: Operations Processes and Workforce Management

Description: Citizens need to be able to escalate their requests and, particularly, their complaints up the decision-making chain within an agency. Note that this concept is sometimes referred to as elevation while escalation is considered an increase in the priority of a request. In this document, the two terms are used interchangeably.



Analysis

There are three specific circumstances under which citizens may wish to escalate their inquiries or requests:

- They are unsatisfied with the personnel handling the interaction.
- They are unsatisfied with the process of the interaction.
- They are unsatisfied with the outcome of the interaction.

The last circumstance can pose a challenge in terms of how an agency (or any organization, even those in the private sector) responds to a complaint or escalation request. Responding to these types of issues requires clear business rules and processes.

Handling of the first two circumstances, however, should be straightforward. Doing so requires the existence of proper organizational structure. It also presupposes that the design of service processes includes business rules that trigger escalation.

Although providing citizens with the opportunity to escalate their interactions is largely a matter organizational and process design, doing so effectively in a call center environment might require specific technology capabilities. Through these technologies, a CSR can determine the correct escalation path and the availability of the escalation resource. The same technologies can provide a seamless "warm" transfer of a call.

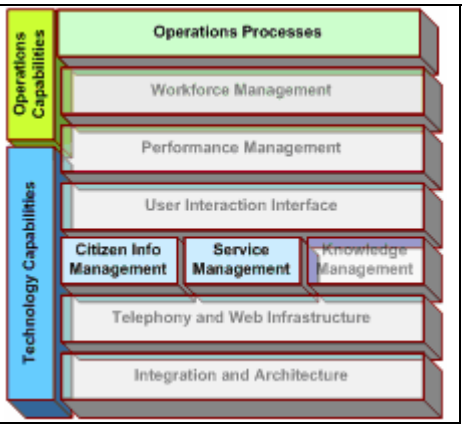
5.3.3.6 Keep Promises

Expectation Category: Courtesy, Outcome, and Competence

Interaction Channel: Phone, Email, and Web (Collaboration)

Capability: Operations Processes, Citizen Information Management, and Service Management

Description: Agencies should ensure that follow-up calls are made as promised.



Analysis

Citizens may expect follow-up calls from agencies after they leave a voice message in an agency in box or when they were promised a call in a previous contact. Living up to these promises not only will increase citizen satisfaction but also control costs by preventing status inquiry calls from citizens.

The same principle applies to proactive status calls to citizens when the status of an in-process request changes unexpectedly.

Agencies can live up to their follow-up call promises by having the operational processes that handle the business rules that trigger the follow-ups in place. In most cases, these processes may rely on an underlying citizen relationship management and service management application that capture citizens' information and the history of their contacts. Again, this applies to circumstances in which capturing such information is not prohibited by privacy and security regulations and laws.

Finally, many citizen relationship management applications provide the capability to automate operational workflows.

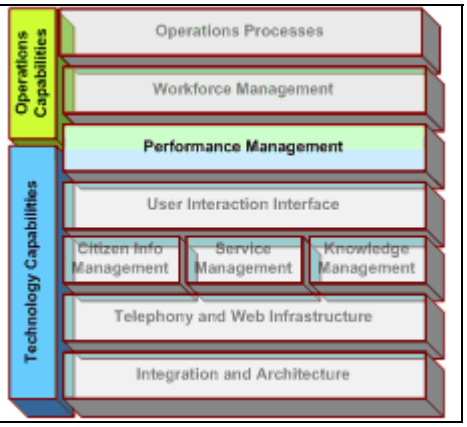
5.3.3.7 Track Metrics and Manage Performance

Expectation Category: All

Interaction Channel: All

Capability: Performance Management

Description: Although following best practices can have a significant impact on improving citizen services and increasing citizen satisfaction, the greatest benefit always comes from tracking and analyzing the performance metrics discussed in the previous section.



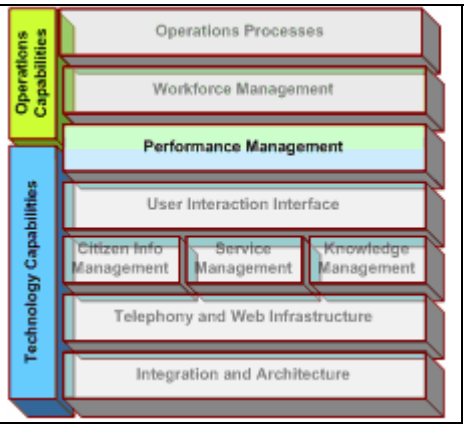
5.3.3.8 Track Citizen Satisfaction

Expectation Category: All

Interaction Channel: All

Capability: Performance Management

Description: Meeting citizen expectations and increasing citizen satisfaction are the fundamental goals of a contact or service center. Asking citizens about their satisfaction with a contact is the most effective way to determine a center's success toward achieving these goals.



Analysis

Although agencies can use the metrics discussed previously to monitor their performance and establish best practices to improve performance, there is no substitute for asking citizens about their satisfaction with a contact.

Satisfaction surveys can be conducted in real time, usually at the end of an interaction. These surveys usually include a random sample of citizens who reach an agency with an inquiry or service request. The goal is to capture one or more quantitative measures of satisfaction (satisfaction scores) or obtain qualitative information about the contact experience. Quantitative scores may be based on an industry-standard measure or an internally defined scale.

Regardless of the approach, measuring and monitoring citizen satisfaction can help agencies achieve one or more of the following objectives:

- **Track improvements in citizen satisfaction:** The quantitative scores seldom provide an absolute measure of satisfaction. They are very powerful, however, as relative metrics that can be used to monitor trends.
- **Establish a correlation between internally defined metrics and citizen satisfaction:** Tracking an internal or proxy performance metric may only make sense if the metric has

an impact on citizen satisfaction. For example, there is no point in tracking AHT if decreases or increases in AHT do not translate into improved citizen satisfaction scores.

- **Investigate citizen expectations:** When an agency's citizen satisfaction scores decline, the obvious questions are "Why?" and "Which citizen expectations is the agency not meeting?" There are several ways of exploring this issue. Potential approaches include adding qualitative questions to satisfaction surveys or conducting surveys or focus groups specific to exploring citizen expectations.

5.3.4 Technology Trends

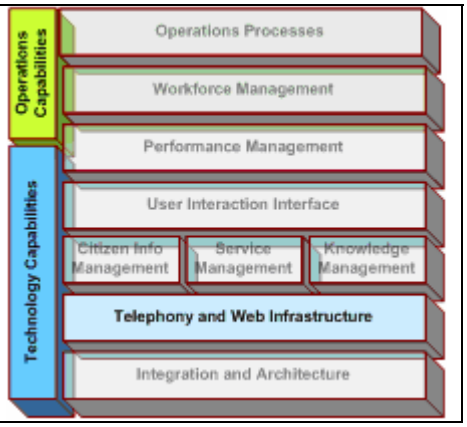
5.3.4.1 Computer Telephony Integration (CTI)

Expectation Category: Responsiveness

Interaction Channel: Phone

Capability: Telephony and Web Infrastructure

Description: CTI provides integration of telephony infrastructure, including ACD and IVR, with other citizen information management and service management systems. CTI facilitates faster access to citizen information, better routing, and enhanced automated services.



Analysis

CTI is a widely used technology in call center environments. A 2004 survey of call centers indicated that more than 50% of call centers have deployed CTI technologies.[20] More important, the same survey reported that the respondents believed that CTI has the largest impact on their customers. Figure 5-15 includes reported reductions in talk time.

[20] *Call Center Best Practices Report – Special Technology Edition*, Call Center Learning Center, 2004.

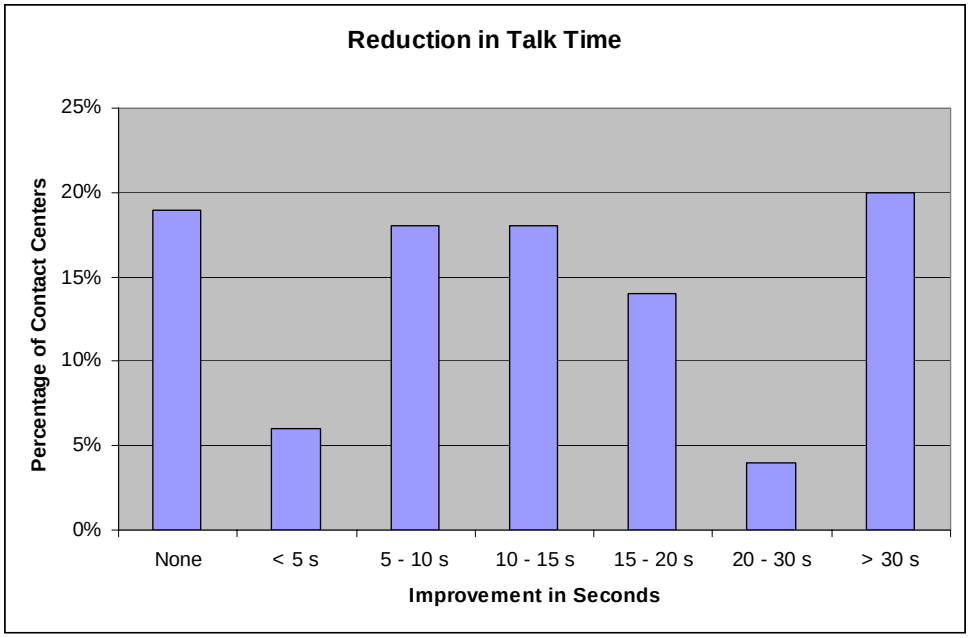


Figure 5-15. CTI Reduction in Talk Time[21]

CTI systems can increase efficiency and improve customer experience through intelligent routing, immediate access to customer information, and screen pops.

5.3.4.2 Universal Queue Management (UQM)

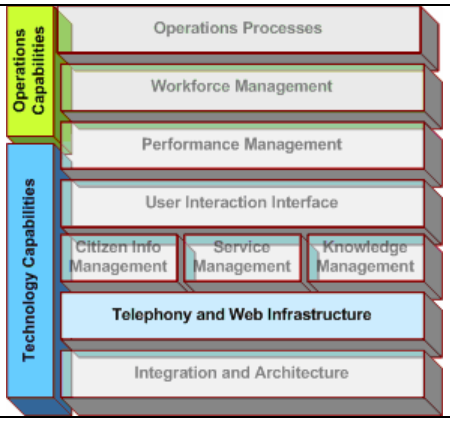
Customer Segment: All

Interaction Type: All

Interaction Channel: Phone, Email, and Web (Collaboration and Chat)

Capability: Telephony and Web Infrastructure

Description: Universal queue management (UQM) routes contacts across multiple channels to CSRs based on skills, availability, and workload. UQM enables contact centers to effectively use the same CSR pool across all channels.



Analysis

UQM is a natural extension of the well-established ACD and workforce scheduling capabilities used in traditional call centers. According to Gartner, market penetration of this technology will remain at about 5% and its widespread adoption is two to five years away.[22] The challenge, however, lies not in the technology but in the adoption of Web collaboration and chat and the slow evolution of multi-channel contact centers.

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21 *Call Center Best Practices Report – Special Technology Edition*, Call Center Learning Center, 2004.

22 *Hype Cycle for Contact Center Technologies*, Gartner Research, 2004.

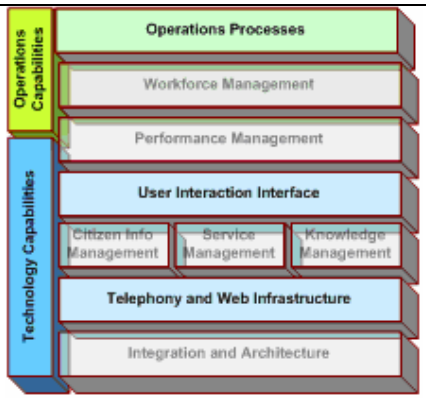
5.3.4.3 Speech (Voice) Technologies

Expectation Category: Accessibility and Availability

Interaction Channel: Phone

Capability: Telephony and Web Infrastructure, User Interaction Interface, and Operations Processes

Description: Speech recognition and speech synthesis technologies allow citizens to interact with automated voice systems and self-service phone applications through voice commands and responses. These capabilities are often categorized as automatic speech recognition (ASR) or text to speech (TTS) systems. They usually replace or augment IVR functions traditionally achieved through dial tone multi-frequency (DTMF) capabilities, in which caller responses are captured through the dial pad.



Analysis

Speech technologies are the latest trend in phone-based self-service citizen interaction. These technologies include two categories of capabilities:

- **Speech Recognition:** This capability allows citizen services systems to understand the caller's spoken words, avoiding dial pad entries common to IVRs. This technology can speed up certain interaction categories. For example, a caller can use speech recognition to transfer funds across accounts in one command. In a traditional IVR, the same transaction involves multiple steps, including selecting the source account, the target account, and the amount.
- **Speech Synthesis:** This capability allows the same systems to synthesize voice responses to requests and commands from structured data.

A challenge to effective and successful implementation of speech technologies is the difficulty in the multi-platform integration required by these systems. They often require interactions between IVR, voice "engine," citizen relationship management, and back-end applications that are complex and costly. To address this issue, telephony vendors have begun to develop systems that combine IVR and speech technologies. Agencies that do not want to or cannot afford to replace part of their telephony infrastructures might be able to use emerging open standards that can simplify integration. Examples of these open standards follow:

- **VXML:** Voice XML (VXML) uses the Internet standard Extensible Markup Language (XML) to create a standard communication interface between telephony equipment and computers. As a result, voice applications become portable and independent of the underlying hardware and software. VXML features "tags" to instruct a "voice browser" (similar to a Web browser) to provide speech synthesis, automatic speech recognition, basic menuing, and sound file playback. VXML was developed by the World Wide Web Consortium (W3C), which is responsible for most Web standards (e.g., HTML, HTTP, XML). AT&T, IBM, Lucent, and Motorola were the founding members of the working group responsible for developing VXML.

- **CCXML:** Similar to VXML and developed by the same group, Call Control XML is an XML standard designed to provide telephony support to VXML. CCXML complements VXML by providing control and flow instructions to the voice browser. Although the two standards are related, they are not inter-reliant, and implementing VXML does not necessitate the implementation of CCXML.
- **SALT:** Speech Application Language Tags (SALT) is a more recent standard developed by the SALT Forum, which includes Microsoft, Intel, and Cisco. Similar to VXML, SALT uses Web standards, including XML. Its primary purpose is to support multi-modal communications from personal digital assistants (PDA), smart phones, cell phones, and PCs. Although SALT is not positioned as a competing standard to VXML, the scope of the two standards overlaps significantly. Still, VXML remains the de facto standard in contact center applications, partially because it has been in place longer.

Development of these open standards can help organizations implement voice applications not only by leveraging existing hardware and software but also by using their Web development resources. Still, the emergence of competing standards should always be a cause for caution.

Speech technologies have matured significantly over the past decades. At the same time, these technologies can improve the citizen experience considerably when deployed in the correct circumstances. Still, the adoption rate for voice applications has remained relatively low. As mentioned earlier, cost has been the most significant barrier to the wider acceptance of these systems. The costs result not only from the complexity and expense of the initial implementation but also from ongoing maintenance requirements. The cost involved in implementing a successful voice system highlights the need for a strong financial analysis as part of the decision-making process, a factor common to all technology decisions. In addition, adhering to the following principles can improve the likelihood of success:

- Evaluate whether your IVR and self-service applications are appropriate for speech recognition and synthesis. In general, speech technologies are more suitable for low complexity interactions (e.g., account information retrieval, password resetting).
- Break speech applications into modules and start with a small effort. Nothing is more detrimental to the citizen experience and satisfaction than a voice system that crashes in the middle of an important transaction. Avoid including high-visibility, mission-critical applications in the first phase of implementation.
- Determine whether speech applications are appropriate for all citizen interactions. In many circumstances, only a specific segment of the citizenry might be a good candidate for speech technologies.
- Consider operational impact, including escalation, support, and maintenance requirements.
- Leverage existing Web development resources in implementing the technology.

Voice implementation of IVR and self-service phone service requires greater monetary and resource investment in funds and resources than traditional dual tone multi-frequency (DTMF) applications. Consequently, agencies need to evaluate the benefits of the approach before undertaking an implementation.

Finally, applications of speech recognition technologies to biometrics and voice authentication are emerging trends. Once they mature, these applications will have a significant impact on the justification for adopting speech technologies.

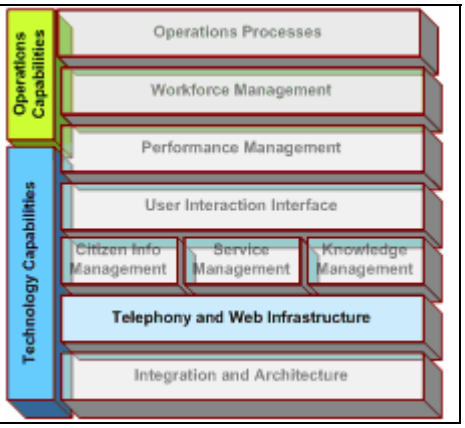
5.3.4.4 Voice over Internet Protocol (VoIP)

Expectation Category: Availability

Interaction Channel: Phone

Capability: Telephony and Web Infrastructure

Description: This technology uses packetized voice data transported over an IP network to manage phone connections. Depending on the technologies at the two ends of the phone connection, this technology can be used to completely bypass the Public Switch Telephony Network (PSTN).



Analysis

VoIP provides call centers with a significant cost savings opportunity. It also allows them to take advantage of a distributed workforce. Under this scenario, a CSR could work from home with the same set of capabilities available in a central call center.

Although VoIP could result in significant cost savings, the impact of VoIP on citizen satisfaction is unclear.

5.4 Email Contact

Email provides an asynchronous means through which citizens can contact government agencies. Email capabilities range from individual mailboxes on common email servers (e.g., Microsoft Exchange, Lotus Notes) to Web forms to specialized contact center email applications that distribute emails, manage interactions, and integrate with other citizen relationship management capabilities.

Email is a simple and quick way for citizens to contact agencies for their non-urgent requests. At the same time, agencies and their contact centers can reduce inbound call volume and contact center costs by using email. Studies show that the cost of email contacts can be as low as 45% of the cost of phone contacts. Furthermore, email enables agencies to distribute CSR workload for greater efficiency and CSR satisfaction.

The value realization chain in Figure 5-16 demonstrates how citizens experience a typical email support interaction.

Figure 5-16. Email Value Realization Chain

5.4.1 Basic Observations

Email has become a ubiquitous tool for personal and business communications but its use as an effective tool for support is still evolving. Table 5-5 consolidates information from multiple sources regarding how well organizations across multiple industries have adapted email as a service channel.

Table 5-5. How Well Are Organizations Responding to Email?

Metric	How Organizations Are Performing With Email
Emails with no response	Up to 41% of emails receive no response
Response in one day	46% of organizations respond to emails in one day
Respond to all emails	67% of organizations respond to all emails
Automatic acknowledgement	31% of organizations generate automatic acknowledgments
Respond as promised	71% of organizations that acknowledge emails respond as promised

Considering that email is used by more than 50% of U.S. consumers to contact organizations for help, the data in Table 5-5 show that significant work needs to be done on managing and improving performance. Agencies can gauge the performance of their email support with metrics similar to the ones used for phone interactions (and in fact many do). There are, however, a number of fundamental differences between the two channels:

- As noted earlier, the benchmark metrics for email are not as well established as those available for phone contacts.
- Although phone interactions are largely synchronous, email is an exclusively asynchronous medium. As a result, citizen expectations regarding email response and resolution times are not as stringent. At the same time, email involves longer wait times at several stages. To maintain citizen satisfaction, these wait times need to be actively monitored and managed.
- Managing an email support center is fundamentally different from managing a call center. For example, an unusually high call volume can result in unsatisfactory service levels but the problem is transitory and affects a limited number of customers. A large volume of email, on the other hand, can create a significant backlog that will persist and will have a negative impact on many citizens.

In a recent study of email customer service, Forrester Research used a number of channel-specific criteria that are helpful in evaluating channel-specific metrics and best practices.[23] These criteria are as follows:

- Does the email dialog deliver essential content?
- Does the organization respond quickly?
- Is the email dialog efficient?
- Does email maintain the context of the customer's question?
- Does emails use language that's easily understood by target users?

[23] *Best and Worst of Email Customer Service*, Forrester Research, 2004.

- Do email layouts support easy reading?
- Do email message headers communicate value?
- Is it easy to respond by email?
- Is the organization's privacy policy clearly presented?

The Forrester study calls the overall performance of the surveyed organizations "dismal." For example, only 45% of email requests received an adequate response. Response was considered inadequate when none was received or when it did not address the question in the inquiry.

The following sections address how agencies can measure and improve their performance.

5.4.2 Benchmark Metrics

Figure 5-17 captures the relationship among citizen satisfaction, citizen expectations, and performance metrics in the context of an email interaction. Although it is important for agencies to gauge and track satisfaction and expectations regularly, it is more practical to monitor internal metrics on an ongoing basis. It is imperative, however, to examine and establish a relationship and correlation among these internal metrics and the citizen expectation areas important to the agency.

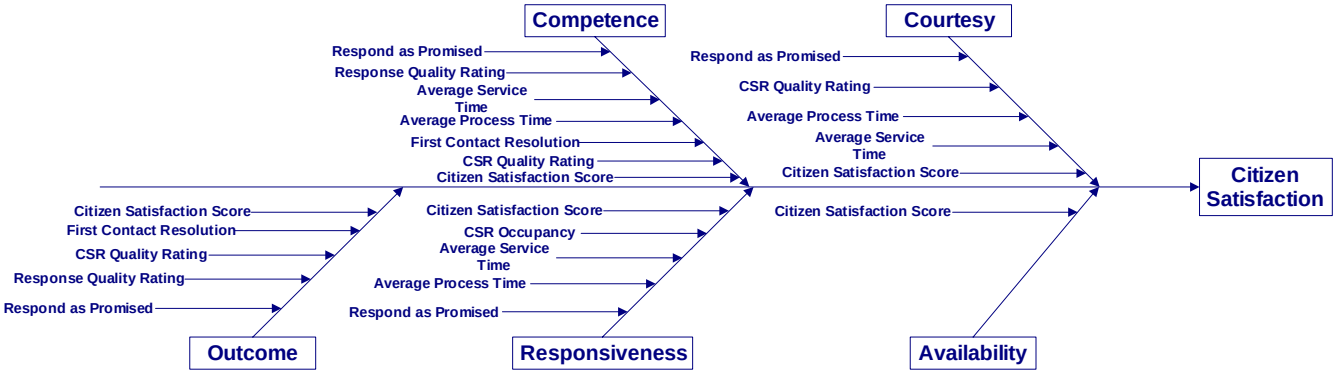


Figure 5-17. Email Citizen Satisfaction Cause and Effect

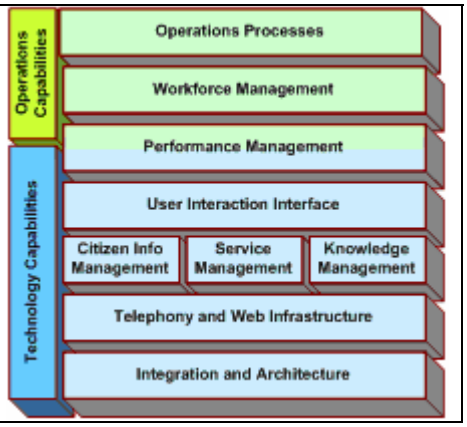
5.4.2.1 Average Service Time

Expectation Category: Courtesy, Competence and Responsiveness

Interaction Channel: Email

Capability: All

Description: Average service time encompasses the time required to receive, process, and resolve an email request and inform the citizen of the results. As such, it includes many of the elements of AHT and ASA discussed in the telephone section of this document.



Benchmark

As noted earlier, benchmarks for email metrics are not as well established as those for the telephone channel. When they are available, the values can vary significantly across studies. This is a reflection of the nuances of the definition as well as the quality of the data captured and tracked by respondents. As a reference, a recent survey indicates that 90% of contact centers try to respond to emails within 24 hours, and 60% strive to respond within the same shift (eight hours).[24]

Table 5-6 and Figure 5-18 capture values reported by a number of sources for average response time.

Table 5-6. Email 24 Hour Response Percentage

Source	Brown University	Customer Respect	Benchmark Portal	ICMI
Response in 1 Day	52%	46%	39%	85%

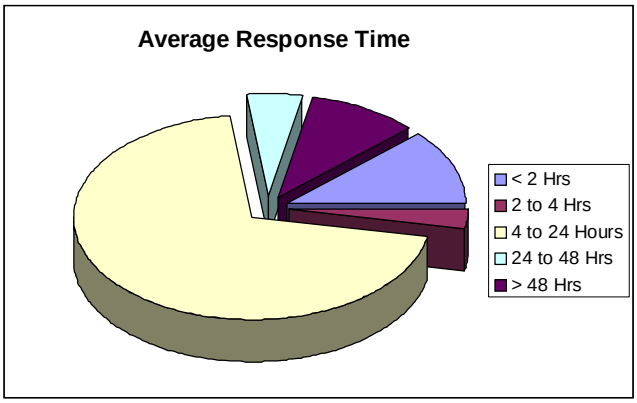


Figure 5-18. Email Average Service Time [25]

Analysis

The discrepancy in the aforementioned numbers results from several factors. These factors include the fact that the figures are the results of surveys conducted in different years targeting different industries. For example, the Brown University study is from a survey of state governments conducted in 2001.

There are more important factors, however, that account for the differences. Most important is the fact that, in most cases, the studies focus on the concept of a "response" time. As indicated in Figure 5-16, however, a citizen can expect several emails in response to an inquiry. The first response could acknowledge the receipt of the inquiry. The second response could indicate that the request has been assigned, work on it will commence within a certain timeframe, and the request will be assigned within a specific period. This type of response informs citizens of the resolution process and sets their expectations about how long it could take to resolve the matter.

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24 *Call Center Best Practices Report – Special Technology Edition*, Call Center Learning Center, 2004.

25 *Multi-Channel Call Center*, Incoming Calls Management Institute, 2001.

Finally, citizens could be contacted through another email to inform them of the resolution of their request. It is a common practice to combine the first two emails. This approach makes sense if the categorization and assignment of email requests are managed by an automated email service system or manually in near real time. Regardless, all emails are considered responses in email vernacular, but not in service terminology.

Variation in target values notwithstanding, when using this metric, agencies should note that statistical means can often hide significant variations in the underlying data that need to be explored. This issue was discussed earlier in the sections on phone ASA and service levels. In the case of the phone channel, these two complementary metrics provide an insight into the central tendency of the distribution curve as well as its variation. In the case of email contacts, the single metric average service time can be reported as the mean of the service time for all requests and the percentage of requests fulfilled in a specific timeframe, commonly 24 hours (the latter being analogous to telephone service levels).

Finally, average service time provides critical, broad insight into the performance of an email support center. A number of metrics that follow complement this metric with additional granularity.

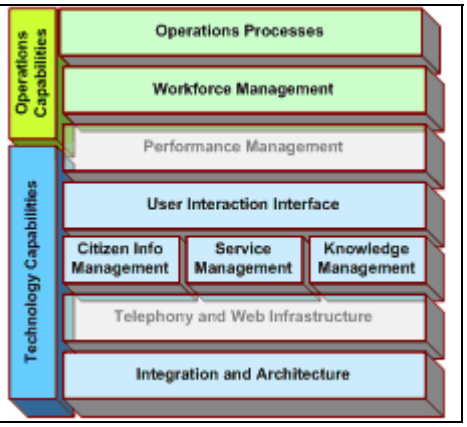
5.4.2.2 First Contact Resolution

Expectation Category: Competence and Outcome

Interaction Channel: Phone, Email, and Web

Capability: Operations Processes, Workforce Management, Citizen Information Management, Service Management, Knowledge Management, and Integration and Architecture

Description: First contact resolution refers to the ratio of the number of citizen requests resolved at first contact to the total number of citizen requests. A traditional metric in the call center environment, the metric applies to email interactions as well.



Benchmark(s)

The first contact resolution rate for email requests across all industries is reported to be around 80%. This is very close to the 81% first call resolution for phone requests. The value for first call resolution of phone requests increases to about 90% with the addition of self-service IVR.

Analysis

First contact resolution is a clear measure of contact center effectiveness. Studies show that the outcome of an interaction not only is a driver of satisfaction but also has a significant impact on other drivers. At the same time, avoiding repeat contacts by resolving citizens' requests at first contact can have a measurable impact on the efficiency and cost of a contact center by reducing the number of contacts, required capacity, and the need for Tier 2 and 3 CSRs.

There are a number of circumstances under which a contact fails to result in the resolution of a request. These failures can result from a lack of preparation by the citizen (e.g., not including the required information in the email), extreme complexity of the request (requiring additional

research), inadequate systems, or poor CSR training. Also, contact centers need to deal with citizens who follow up an email exchange with a phone call to verify the results. This practice can be reduced, if not eliminated, by ensuring that the email response includes all information requested and required by the citizen.

As noted in the section on phone contact resolution, contact centers can survey citizens or track requests through a citizen relationship management system to determine first contact resolution rates. The complexities regarding the citizen relationship management technology and related processes mentioned in that section hold true here as well. In addition, agencies need established business rules on how to determine whether two emails from the same address need to be managed as separate requests or as two interactions.

Achieving an acceptable first call resolution rate assumes that most components in the contact center capability model are in place and well tuned.

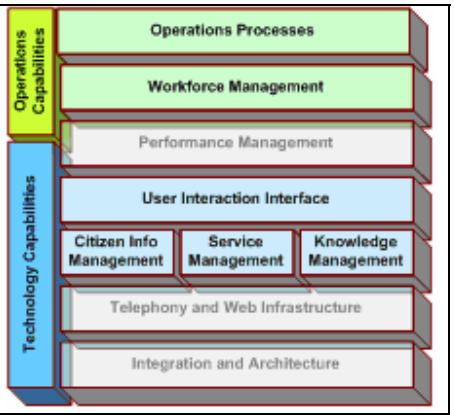
5.4.2.3 Average Process Time

Expectation Category: Courtesy, Competence and Responsiveness

Interaction Channel: Email

Capability: Operations Processes, Workforce Management, User Interaction Interface, Citizen Information Management, Service Management, and Knowledge Management

Description: The time a CSR spends reading an email, researching the resolution, creating a response, and managing administrative tasks related to a request are combined into one metric referred to as "process time."



Benchmark(s)

Studies of email process times are limited. Existing research indicates, however, that email process times are similar phone handle times, although slightly higher. The fact that, at about 400 seconds, email process times are higher than phone handle times makes sense given that people talk faster than they read or type.

Analysis

Even more so than telephone handle time, email process time is primarily a measure of the efficiency of the contact center and individual CSRs. The email processing performed internally at the contact center is largely transparent to the citizen and accounts for a fraction of the service time. Improvements in process times can in fact result from better training, quality monitoring, and technology.

A drive to reduce process times without the type of measures mentioned above, however, can result in increased error rates and incomplete responses, which not only have a negative impact on citizen satisfaction also can increase the cost of the contact center.

See the section on telephone AHT for further analysis and discussion that are directly applicable to email process times.

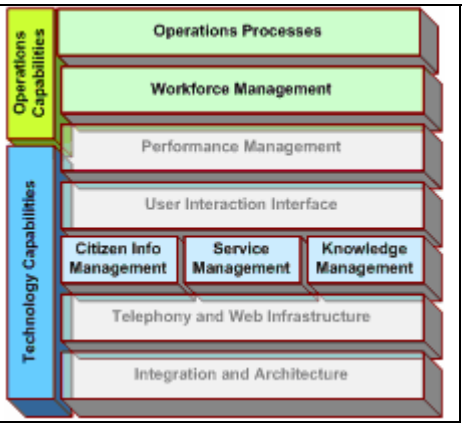
5.4.2.4 Response Quality Rating

Expectation Category: Competence and Outcome

Interaction Channel: Email

Capability: Operations Processes, Workforce Management, Citizen Information Management, Service Management, and Knowledge Management

Description: The quality of a response to an email request can be monitored through two measures: the error rate in the responses or a formal rating of quality based on internal reviews or citizen feedback.



Benchmark(s)

Recent surveys by Benchmark Portal and Forrester indicate that the performance of email support organizations is poor. For example, Benchmark Portal reports that 41% of emails go unanswered and, of those that are answered, only 29% are of good quality and 44% are considered fair. Only 43% of all email contacts, therefore, result in a good or fair response.

These numbers are not numbers to which government agencies should aspire. Target performance levels in this category need to be driven by business goals and achievable, but aggressive, improvements in current values.

Analysis

Most citizens are familiar with the fact that their call can be monitored and recorded when they call a service number. Unless prohibited by law or regulation or restricted by privacy or security concerns, agencies can use quality monitoring of calls to evaluate their overall performance as well as the quality of the work performed by individual CSRs.

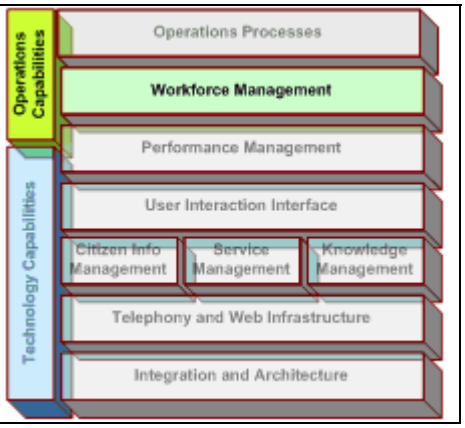
5.4.2.5 CSR Quality Rating

Expectation Category: Courtesy, Competence and Outcome

Interaction Channel: Phone, Email, and Web (Collaboration)

Capability: Workforce Management

Description: Most call centers have a process for recording and monitoring calls for quality purposes. The same approach can be adopted when CSRs respond to email inquiries.



Benchmark(s)

As is the case with the citizen satisfaction rating, the methods for monitoring and evaluating CSR quality vary widely across organizations; therefore, establishing useful benchmark values is extremely difficult.

Analysis

Rating CSRs for the quality of their responses to email inquiries is similar to doing the same for phone interactions. In most circumstances, quality reviews of emails might be simpler than monitoring phone calls. Giving supervisors access to copies of email correspondence is easier and less expensive than implementing call recording and retrieval. Also, emails often are not subject to same privacy and security limitations that apply to phone conversations.

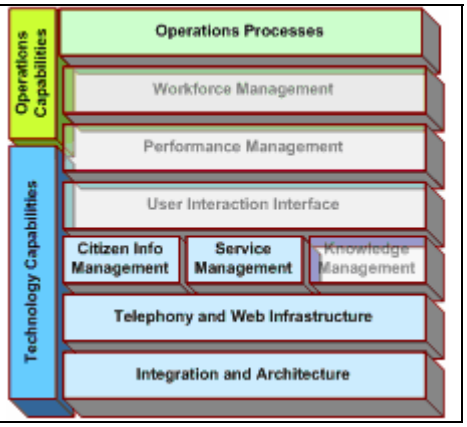
5.4.2.6 Respond as Promised

Expectation Category: Courtesy, Competence, Responsiveness and Outcome

Interaction Channel: Email

Capability: All

Description: When email acknowledgments include a time for resolution, it is important for agencies to follow up as promised. This metric captures the percentage of cases in which a contact center has been successful in meeting that promise.



Benchmark(s)

Recent surveys indicate that the average respond as promised measure across all industries is 71%.

Analysis

This metric presupposes that the agency has the technology and processes in place for including a response or resolution time in acknowledgment emails.

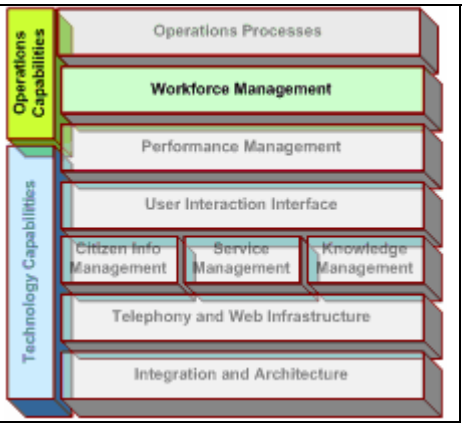
5.4.2.7 CSR Occupancy (Utilization)

Expectation Category: Responsiveness

Interaction Channel: Phone, Email, and Web (Collaboration)

Capability: Workforce Management

Description: CSR occupancy (also known as agent, or CSR, utilization) is the ratio of the sum of the time a CSR spends on calls and performing post-call activities to the time the CSR is available in the queue. It provides a measure of the efficiency of a contact center as well as an input to staffing levels.



Benchmark(s)

See the analysis under this heading in the phone contact best practices section.

Analysis

See the analysis under this heading in the phone contact best practices section.

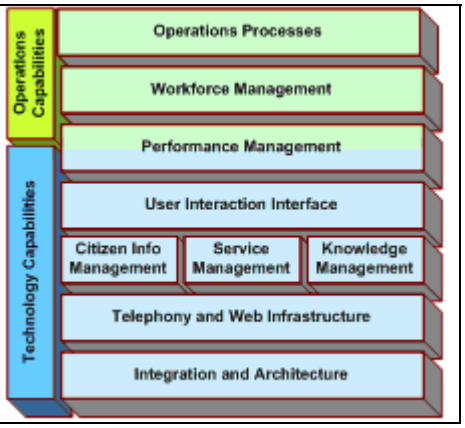
5.4.2.8 Citizen Satisfaction Score

Expectation Category: All

Interaction Channel: All

Capability: All

Description: The ultimate goal of agencies is to ensure that citizens are satisfied with their experiences when they contact the agencies. A citizen satisfaction score is generally the result of a survey in which citizens are asked about their contact experience and its outcome.



Benchmark(s)

See the analysis under this heading in the phone contact best practices section.

Analysis

See the analysis under this heading in the phone contact best practices section.

5.4.3 Best Practices

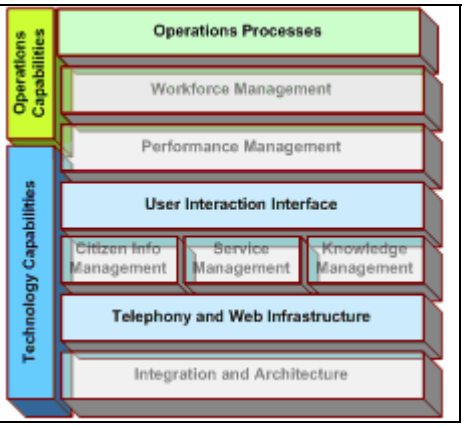
5.4.3.1 Acknowledge Emails

Expectation Category: Responsiveness

Interaction Channel: Email

Capability: Operations Processes, User Interaction Interface, and Telephony and Web Infrastructure

Description: Acknowledging email requests when they are received gives citizens visibility into the support process, sets their expectations, and reduces the cost of follow-up phone calls.



Analysis

With more than 41% of email service correspondence going unanswered, citizens are unclear about whether and when they will receive a response. This results in a drop in citizen satisfaction and an increase in citizen callbacks. There is a cost involved when citizens call back to follow up on their email correspondence.

Acknowledgments can take two forms:

1. 1Verifying that the correspondence has been received. This can be an automated process, regardless of the email platform being used (even when using Exchange or other common email applications).
2. Confirming that the task has been assigned and providing an estimate for the time to resolve the request.

These two components are sometimes combined into a single correspondence. Often, however, they are sent to the citizen in two emails. This is particularly true when the acknowledgment and assignment processes are manual or require human intervention.

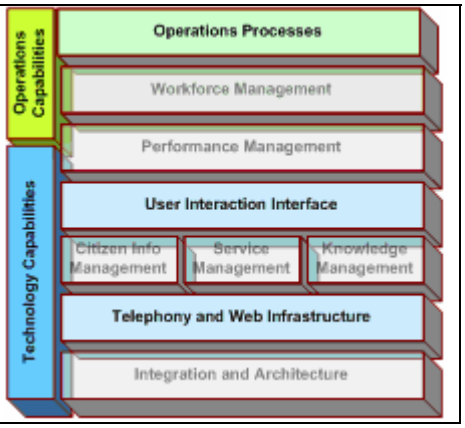
5.4.3.2 Web Forms

Expectation Category: Responsiveness, Competence, and Outcome

Interaction Channel: Email

Capability: Operations Processes, User Interaction Interface, and Telephony and Web Infrastructure

Description: Using Web forms for handling some or all email correspondence makes it easy for citizens to determine which email address they need to use to contact an agency and facilitates proper routing of emails.



Analysis

Web forms are cost-effective way to improve the citizens' email experience. Most citizens visit a Web site to find an agency's email contact information. Providing the Web form on the Web site reduces the amount of navigation citizens must do and speeds up the request or inquiry process. Citizens no longer need to decide which email address to use when contacting an agency.

When Web forms capture request type or the back-end system has the capability to parse the request, Web forms can be used to properly route emails. This reduces misdirected or dropped emails, increases turnaround time, and improves the efficiency of email support.

Web forms cannot require citizens to provide private or sensitive information whose collection is prohibited by laws or regulations. When asking citizens for private information, it is important that the interaction be handled in a secure site.

Also, if Web forms are unnecessarily complex or require citizens to enter too much information, they can drive citizens to the phone, defeating the purpose of having a Web form.

Finally, the pages containing email Web forms need to be clearly identified to discourage the use of mocked-up forms for purposes of phishing.

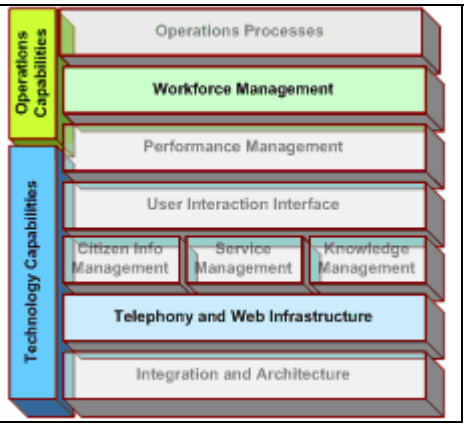
5.4.3.3 Use the Same CSR Pool across Channels

Expectation Category: Responsiveness, Competence, and Outcome

Interaction Channel: Email and Web

Capability: Workforce Management and Telephony and Web Infrastructure

Description: Using the same group of CSRs to handle phone, email, and Web interactions can provide citizens with consistent service across channels and reduce the cost of operating contact and service centers.



Analysis

Recent industry surveys show that 69% of CSRs handle telephone, email, and Web contacts.[26] CSRs can be manually assigned to handle a channel as necessary. Newer technologies enable agencies to automate the process of routing interactions across channels to the next available or most appropriate CSR.

[26] *Call Center Best Practices Report – Special Technology Edition*, Call Center Learning Center, 2004.

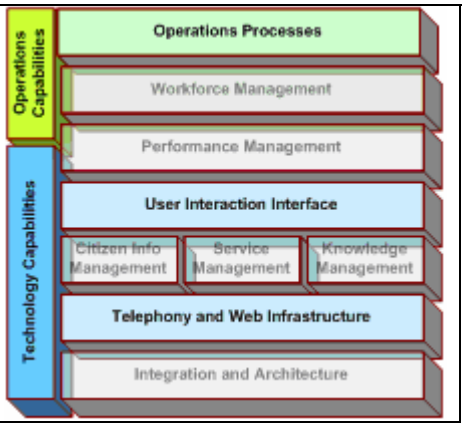
5.4.3.4 Improve Email Headers

Expectation Category: Responsiveness and Outcome

Interaction Channel: Email

Capability: Operations Processes, User Interaction Interface, and Telephony and Web Infrastructure

Description: The address of the sender and the subject line of an email, which together constitute the email header, play an important role in whether an email response is received and opened by a citizen.



Analysis

It comes at no surprise that most citizens receive an inordinate number of emails every day. Screening these emails, manually or automatically, to distinguish important correspondence from spam is a common practice, particularly considering that spam accounts for more than 60% of emails in an average inbox. Still, many contact centers respond to email inquiries with unrecognizable return addresses and subject lines, often generated by automated systems. It is not uncommon for the subject line of an email response to be a case number that is completely meaningless to the citizen. In deciding a protocol for email response headers, agencies should consider the following:

- In a recent survey, 52% of U.S. respondents cited a recognizable sender as the most important factor they use in deciding whether to open an email.[27]
- Many spam filters use a heuristic around the message header to block undesirable emails.

The header of an email response should be designed based on the objectives of the citizen, not those of the email system. The return address should clearly identify the agency. The subject should include the context of the transaction, potentially referencing the citizen's inquiry or its type.

[27] *The State of Email Marketing*, Forrester Research, 2004.

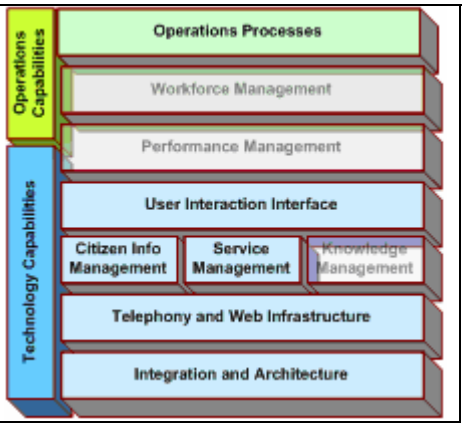
5.4.3.5 Ask for Information Once

Expectation Category: Courtesy and Competence

Interaction Channel: Phone, Email, and Web

Capability: Operations Processes, User Interaction Interface, Citizen Information Management, Service Management, Telephony and Web Infrastructure, and Integration and Architecture

Description: Citizens who have to repeat information they provided during previous interactions usually interpret this as a lack of competence and courtesy on the part of agencies.



Analysis

Consider, for example, the case of a citizen who sends an email request and then calls the agency with a follow-up question. Having a CSR manually track down the email request online or offline is costly both in terms of agency cost of operations as well as citizen satisfaction. The same is true when citizens have to repeat information in follow-up email interactions about a single request. Depending on the scenario, the following could remedy these problems:

- An email interaction management system that properly tracks and associates email contacts
- Business rules for identifying and routing emails to take advantage of the aforementioned system
- Integration of processes and technologies across channels

For further information, see the analysis under this heading in the phone contact best practices section.

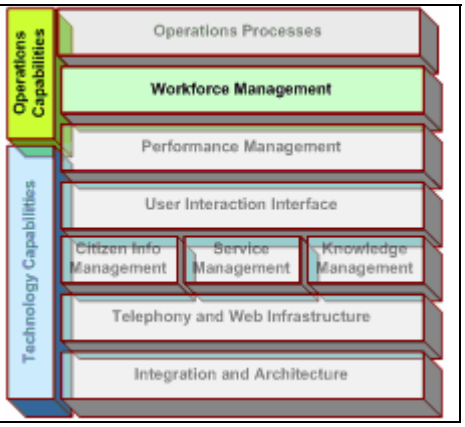
5.4.3.6 Monitor Quality of CSR Performance

Expectation Category: Courtesy, Competence, and Outcome

Interaction Channel: Phone, Email, and Web (Collaboration)

Capability: Workforce Management

Description: Contact centers can monitor the quality of CSR performance during email interactions the same way they do in telephone environments. Reviewing email interactions often is simpler and less problematic than monitoring calls.



Analysis

See the analysis under this heading in the phone contact best practices section.

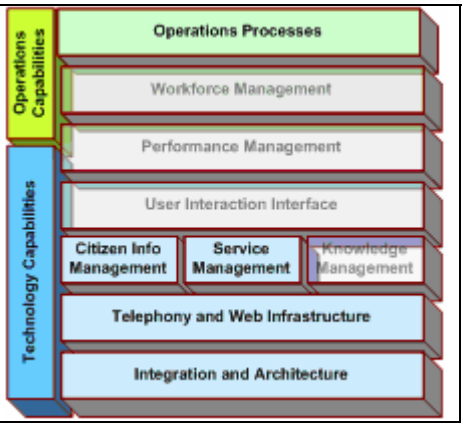
5.4.3.7 Route Citizens Interactions Properly

Expectation Category: Courtesy, Responsiveness, and Competence

Interaction Channel: Phone, Email, and Web (Collaboration)

Capability: Operations Processes, Citizen Information Management, Service Management, Telephony and Web Infrastructure, and Integration and Architecture

Description: Citizens' emails need to be routed to the proper CSR based on their needs and profiles.



Analysis

As indicated in the opening section of this discussion on email contacts, recent surveys show that as many as 41% of email requests and inquiries go unanswered. Among the reasons for this significant failure is the malady of misdirected email. This problem could be exaggerated in the case of federal agencies where citizens might have a difficulty identifying the correct resource for a particular request and where emails sent to the email listed in the contact section of the Web site often end up in the inbox of the Webmaster.

Federal agencies can take several steps to mitigate this problem:

- Use email contact applications designed for routing of service-related email.
- Establish business rules and processes for forwarding misdirected email across bureaus of the same department.
- Use Web forms for email contacts that are properly routed based on information captured in the form.
- Use a clearinghouse mechanism to route misdirected email across departments and unrelated agencies.

For further information, see the analysis under this heading in the phone contact best practices section.

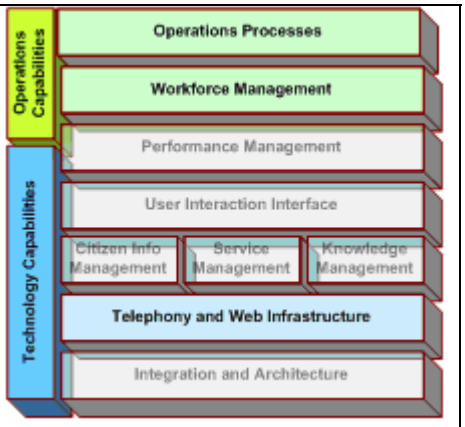
5.4.3.8 Provide an Escalation Path

Expectation Category: Courtesy, Outcome, and Competence

Interaction Channel: Phone, Email, and Web (Collaboration)

Capability: Operations Processes and Workforce Management

Description: Citizens need to be able to escalate their requests and, particularly, their complaints up the decision-making chain within an agency. Note that this concept is sometimes referred to as elevation while escalation is considered an increase in the priority of a request. In this document, the two terms are used interchangeably.



Analysis

See the analysis under this heading in the phone contact best practices section.

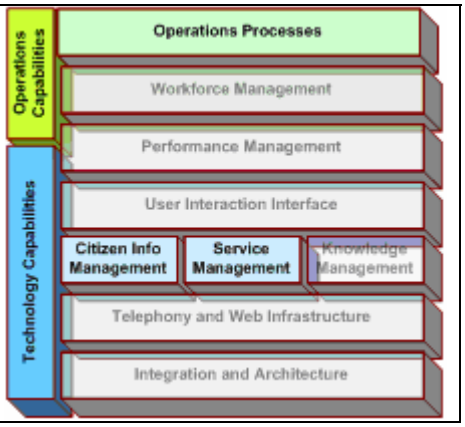
5.4.3.9 Keep Promises

Expectation Category: Courtesy, Outcome, and Competence

Interaction Channel: Phone, Email, and Web (Collaboration)

Capability: Operations Processes, Citizen Information Management, and Service Management

Description: Agencies should ensure that follow-up calls are made as promised.



Analysis

See the analysis under this heading in the phone contact best practices section.

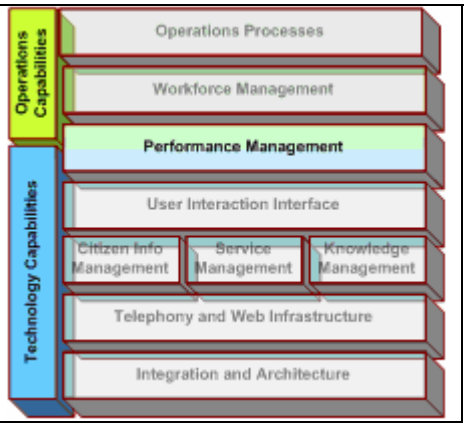
5.4.3.10 Track Metrics and Manage Performance

Expectation Category: All

Interaction Channel: All

Capability: Performance Management

Description: Although following best practices can have a significant impact on improving citizen services and increasing citizen satisfaction, the greatest benefit always comes from tracking and analyzing the performance metrics discussed in the previous section.



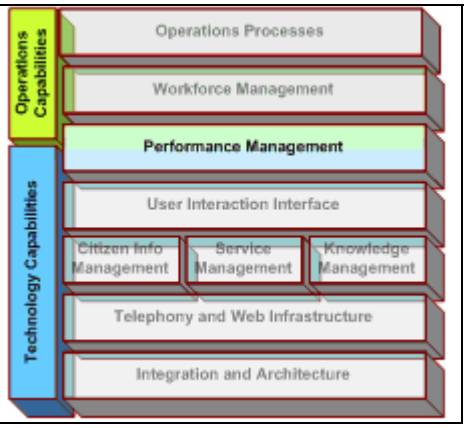
5.4.3.11 Track Citizen Satisfaction

Expectation Category: All

Interaction Channel: All

Capability: Performance Management

Description: Meeting citizen expectations and increasing citizen satisfaction are the fundamental goals of a contact or service center. Asking citizens about their satisfaction with a contact is the most effective way to determine a center's success toward achieving these goals.



Analysis

See the analysis under this heading in the phone contact best practices section.

5.4.4 Technology Trends

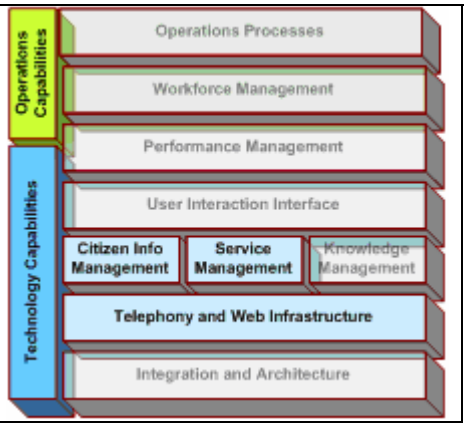
5.4.4.1 Automated Email System

Expectation Category: Responsiveness

Interaction Channel: Email

Capability: Citizen Information Management, Service Management, and Telephony and Web Infrastructure

Description: Automated email systems provide an automated confirmation, respond to frequently asked questions (FAQs), and parse emails for skill-based routing based on keywords.



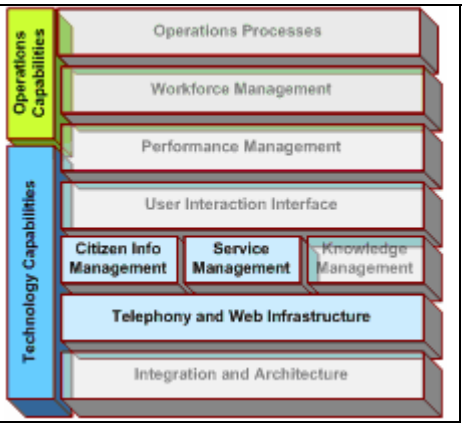
5.4.4.2 Integrating Email Applications

Expectation Category: Responsiveness

Interaction Channel: Email

Capability: Citizen Information Management, Service Management, and Telephony and Web Infrastructure

Description: Integrating email systems with other contact and service center technologies ensures that citizens experience consistent service across channels.



5.5 Internet Contact

Web sites are an effective and efficient way for agencies to provide citizens with information about their missions and services. Citizens often visit Web sites to find forms, publications, basic information, and points of contact in preparation for contacting the government. Agencies can take advantage of this fact to maximize the benefits citizens receive when visiting agency Web sites and minimize agencies' cost of service operations. These goals can be achieved in the following ways:

- Adding effective search capabilities that enable citizens to find forms, publications, and information
- Providing a knowledge base that answers citizens' questions (e.g., FAQs) using keywords or natural language queries
- Offering self-service capabilities through which citizens can enter new service requests or update existing ones
- Providing Web collaboration and chat capabilities so that citizens can interact with a CSR without using the phone

Recent studies of federal and state government Web sites indicate that many agencies are taking advantage of these capabilities. For example, according to a recent study, 98% of government publications provide access to publications.[28] Still, accessibility and usability challenges continue to exist.

The Web is the newest channel for providing citizen services; therefore, Web metrics, best practices, and technologies are still evolving. Still, sufficient information exists for agencies that want to increase and improve their Web capabilities.

Given the variety of ways Web sites can be used to provide service, capturing Web interactions in a single value realization chain is impossible. Figures 5-19 and 5-20, however, capture two typical scenarios. Although some steps in these diagrams may be unnecessary in particular circumstances, agencies should consider all steps to ensure that citizens' expectations are met.

[28] *State and Federal E-Government in the United States*, DM West, 2004.

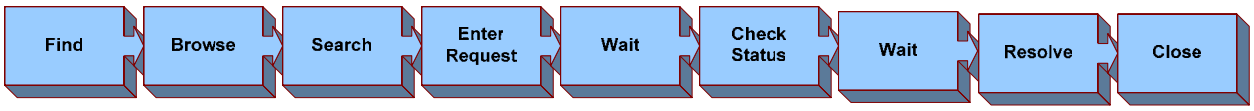


Figure 5-19. Web Self-Service Value Realization Chain

Figure 5-20. Web Collaboration Value Realization Chain

5.5.1 Basic Observations

Table 5-7 summarizes the results of a recent study of federal and state Web sites and provides a snapshot of areas of strength and opportunities for improvement.

Table 5-7. How Well Are Government Web Sites Doing?[29]

Metric	Value
Percentage of Federal Web sites that meet W3C disability guidelines	42%
Percentage of Government Web sites that provide at least one end-to-end service	56%
Percentage of Government Web sites that provide a privacy policy	63%
Percentage of Government Web sites that offer assistance in a second language	21%
Percentage of Government Web sites written at the 12th grade level	62%

The study also indicates that broken links, missing keywords (making search difficult), and numerous redirects are common problems in government Web sites.

5.5.2 Benchmark Metrics

Figure 5-21 captures the relationship among citizen satisfaction, citizen expectations, and performance metrics in the context of a Web interaction. Although it is important for agencies to gauge and track satisfaction and expectations regularly, it is more practical to monitor internal metrics on an ongoing basis. It is imperative, however, to examine and establish a relationship and correlation among these internal metrics and the citizen expectation areas important to the agency.

[29] *State and Federal E-Government in the United States*, DM West, 2004.

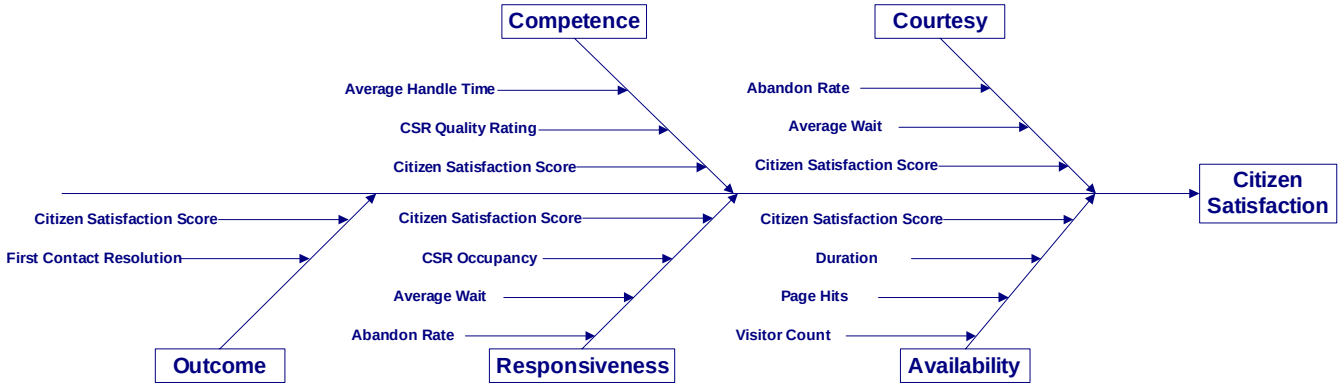


Figure 5-21. Web Citizen Satisfaction Cause and Effect

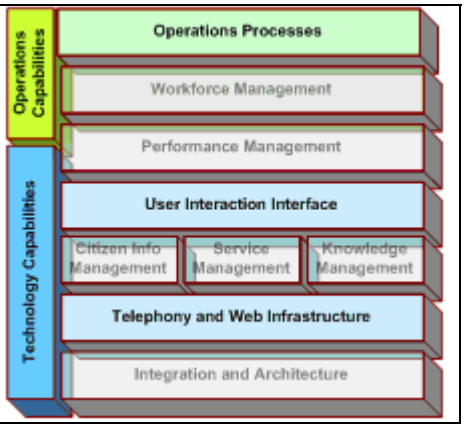
5.5.2.1 Visitor Count, Page Hits, and Duration

Expectation Category: Availability

Interaction Channel: Web

Capability: Operations Processes, User Interaction Interface and Telephony and Web Infrastructure

Description: Visitor count, page hits and (visit) duration are metrics commonly tracked for Web sites and reported by web servers. They provide insight into the design and usability of the Web site.



Benchmark(s)

Applying benchmarks and industry averages are not appropriate in the case of these three metrics.

Analysis

These metrics are often used and well understood measures of Web site traffic.

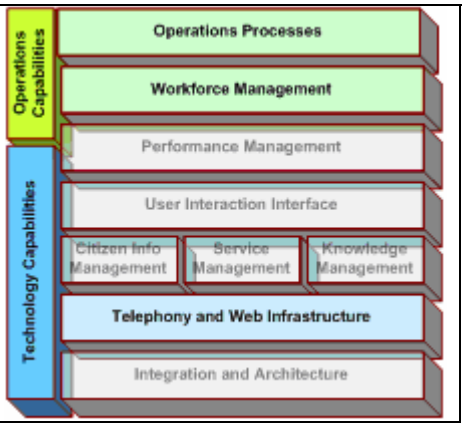
5.5.2.2 Abandon Rate

Expectation Category: Courtesy and Responsiveness

Interaction Channel: Phone and Web (Collaboration)

Capability: Operations Processes, Workforce Management, and Telephony and Web Infrastructure

Description: Web chat or collaboration sessions that are terminated by the citizen before reaching a CSR are considered abandoned. Abandon rate refers to the ratio of these abandons to the total number of initiated sessions.



Benchmark(s)

See the discussion under this heading in the phone contact benchmarks section.

Analysis

See the analysis under this heading in the phone contact benchmarks section.

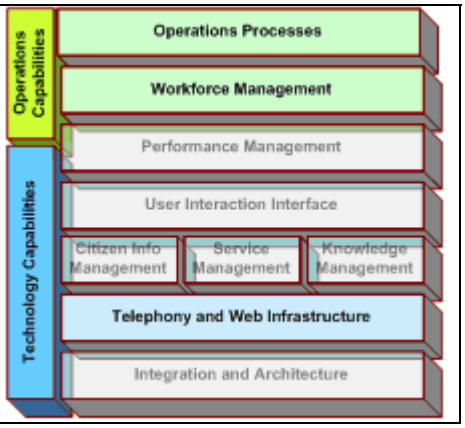
5.5.2.3 Average Wait

Expectation Category: Courtesy and Responsiveness

Interaction Channel: Phone and Web (Collaboration)

Capability: Operations Processes, Workforce Management, and Telephony and Web Infrastructure

Description: Average wait is a measure of how long a citizen waits before reaching a CSR for a Web collaboration or chat. This metric is has a direct impact on citizen satisfaction.



Benchmark(s)

See the discussion under this heading in the phone contact benchmarks section.

Analysis

See the analysis under this heading in the phone contact benchmarks section.

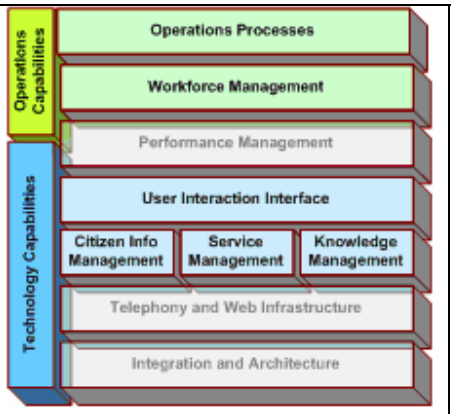
5.5.2.4 Average Handle Time (AHT)

Expectation Category: Responsiveness

Interaction Channel: Phone and Web (Collaboration)

Capability: Operations Processes, Workforce Management, User Interaction Interface, Citizen Information Management, Service Management, and Knowledge Management

Description: Similar to a phone interaction, the time a CSR spends collaborating or chatting with a citizen and the time the CSR spends after the call to complete a request or enter additional information are combined into one metric referred to as average handle time.



Benchmark(s)

See the discussion under this heading in the phone contact benchmarks section.

Analysis

See the analysis under this heading in the phone contact benchmarks section.

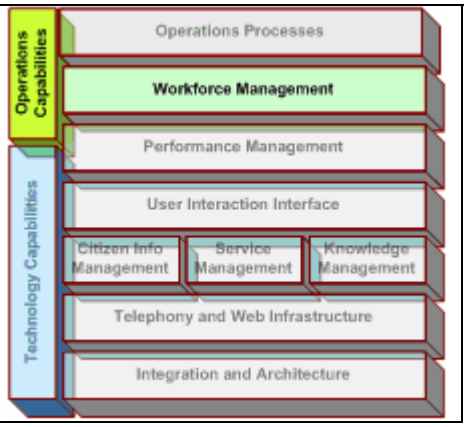
5.5.2.5 CSR Quality Rating

Expectation Category: Courtesy

Interaction Channel: Phone, Email, and Web (Collaboration)

Capability: Workforce Management

Description: Most call centers have a process for recording and monitoring calls for quality purposes. The same approach can be adopted when CSRs respond to email inquiries.



Benchmark(s)

See the discussion under this heading in the phone contact benchmarks section.

Analysis

See the analysis under this heading in the phone contact benchmarks section.

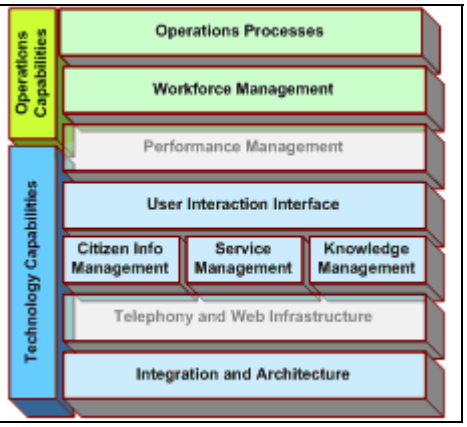
5.5.2.6 First Contact Resolution

Expectation Category: Outcome

Interaction Channel: Phone, Email, and Web

Capability: Operations Processes, Workforce Management, Citizen Information Management, Service Management, Knowledge Management, and Integration and Architecture

Description: First contact resolution refers to the ratio of the number of citizen requests resolved at first contact to the total number of citizen requests. A traditional metric in the call center environment, the metric applies to many web interactions as well.



Benchmark(s)

First contact resolution ratios for Web are not well-established. It is also safe to assume that these ratios would vary widely based on the function of the Web site. For their Web chat and collaboration interactions, agencies should strive to reach the 80% ratio common to email and phone contacts with their web chat and collaboration interactions. It is common, however, for citizens to call an agency or send an email after they searched for forms or information on the Web site. As a result, it is reasonable for the first contact resolution for those types of interactions to be significantly lower.

Analysis

See the analysis under this heading in the phone contact benchmarks section.

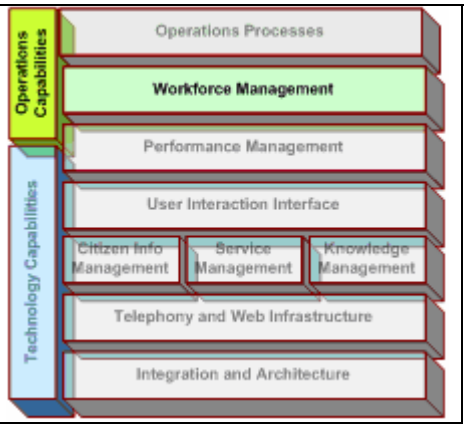
5.5.2.7 CSR Occupancy (Utilization)

Expectation Category: Responsiveness

Interaction Channel: Phone, Email, and Web (collaboration)

Capability: Workforce Management

Description: CSR occupancy (also known as agent, or CSR, utilization) is the ratio of the sum of the time a CSR spends on calls and performing post-call activities to the time the CSR is available in the queue. It provides a measure of the efficiency of a contact center as well as an input to staffing levels.



Benchmark(s)

See the discussion under this heading in the phone contact benchmarks section.

Analysis

See the analysis under this heading in the phone contact benchmarks section.

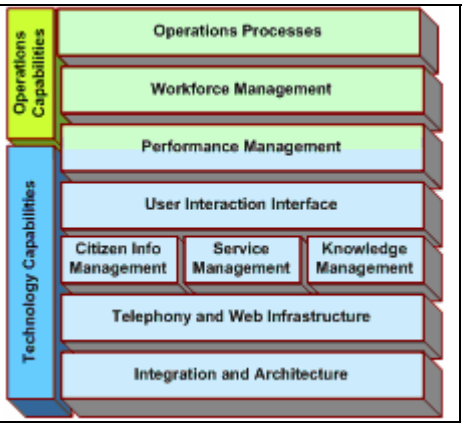
5.5.2.8 Citizen Satisfaction Score

Expectation Category: All

Interaction Channel: All

Capability: All

Description: The ultimate goal of agencies is to ensure that citizens are satisfied with their experiences when they contact the agencies. A citizen satisfaction score is generally the result of a survey in which citizens are asked about their contact experience and its outcome.



Benchmark(s)

See the discussion under this heading in the phone contact benchmarks section.

Analysis

See the analysis under this heading in the phone contact benchmarks section.

5.5.3 Best Practices

5.5.3.1 Provide Web Self-Service

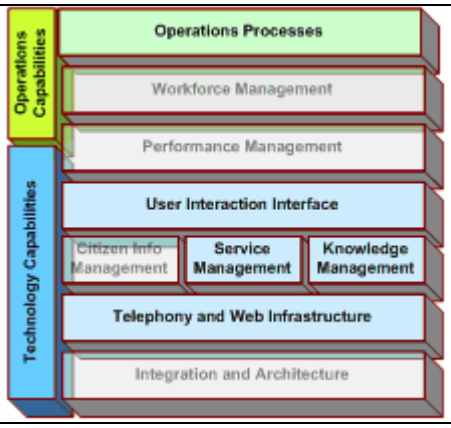
Customer Segment: All

Interaction Type: All

Interaction Channel: Web

Capability: Operations Processes, User Interaction Interface, Service Management, Knowledge Management, and Telephony and Web Infrastructure

Description: Web self-service enables citizens to find information or enter service requests directly through a Web site.



Analysis

"Web self-service" is a term that is applied to a range of capabilities. It can mean anything from offering an FAQ page on a Web site to providing citizens with the capability to enter, update, and track service requests through the Internet.

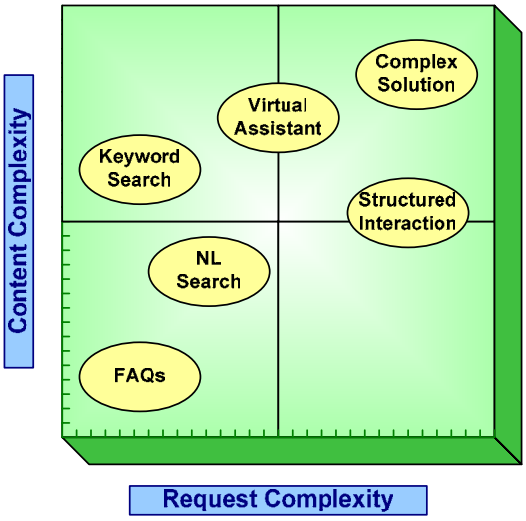


Figure 5-22. Web Self-Service Model

Figure 5-22 categorizes the types of interaction that can be automated on the Web. Although many of the principles applied to IVR (phone) self-service are relevant to Web self-service interactions, Web self-service is different in a number of ways:

- Web self-service can be used for functions well-suited to the phone, including entering account information and conducting transactions. It goes well beyond these types of interaction, however, and can be effectively used for information search and service request submissions.
- Web infrastructure (e.g., servers, software) is considerably less expensive than telephony equipment and software. As a result, Web self-service can be more cost effective than its phone counterpart.
- When interacting with a self-service IVR, citizens often have the option to opt out of the automated system and talk to a CSR. Unless a Web site provides a text chat or collaboration capability, citizens do not have the option of escalating their interaction to a CSR when contacting an agency through the Web.

In addition to building self-service applications that are well designed and appropriate to the application and citizens, agencies can take other measures to direct service traffic to Web self-service. A recent study by Forrester reports three ways in which organizations can promote the adoption of Web self-service:

- Having CSRs train callers on the use of Web self-service
- Promoting the Web option in IVR prompts and messages
- Using direct mail campaigns to educate customers about self-service

These measures have to do with two barriers agencies need to overcome when deploying self-service capabilities. First is creating awareness of the availability of the service. Second is overcoming any trepidation citizens may have in using the system. Awareness campaigns need not be limited to IVRs or direct mail and can include other means available to agencies. Also,

the same techniques can and should be used to help the adoption of phone-based self-service capabilities.

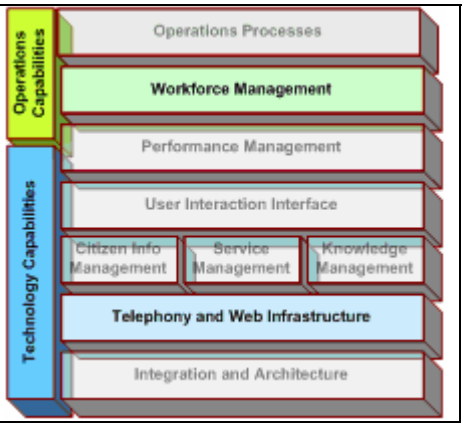
5.5.3.2 Use the Same CSR Pool across Channels

Expectation Category: Responsiveness, Competence, and Outcome

Interaction Channel: Email and Web

Capability: Workforce Management and Telephony and Web Infrastructure

Description: Using the same CSRs to handle phone, email, and Web interactions can provide citizens with consistent service across channels and reduce the cost of operating contact and service centers.



Analysis

Recent industry surveys show that a 69% of CSRs handle telephone, email, and Web contacts.[30] CSRs can be manually assigned to handle a channel as necessary. Newer technologies enable agencies to automate the process of routing interactions across channels to the next available or most appropriate CSR.

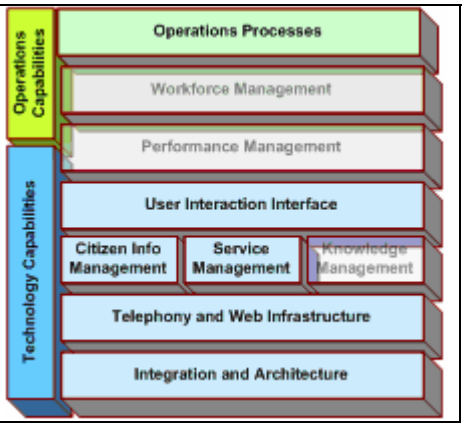
5.5.3.3 Ask for Information Once

Expectation Category: Courtesy and Competence

Interaction Channel: Phone, Email, and Web

Capability: Operations Processes, User Interaction Interface, Citizen Information Management, Service Management, Telephony and Web Infrastructure, and Integration and Architecture

Description: Citizens who have to repeat information they provided during previous interactions usually interpret this as a sign of lack of competence and courtesy on the part of agencies.



Analysis

Consider, for example, the case of a citizen who has entered a service request into a Web self-service application or has communicated a similar request to a CSR through a Web chat session. The citizen's confidence in the agency will suffer if a CSR reached on the phone for a follow-up question does not have access to the history of Web contacts.

[30] *Call Center Best Practices Report – Special Technology Edition*, Call Center Learning Center, 2004.

It is important for citizens to receive consistent information and responses across contact channels. This requires integration of deployed technologies to manage interactions across channels as well as processes for ensuring proper flow of information.

For further information, see the analysis under this heading in the phone contact best practices section.

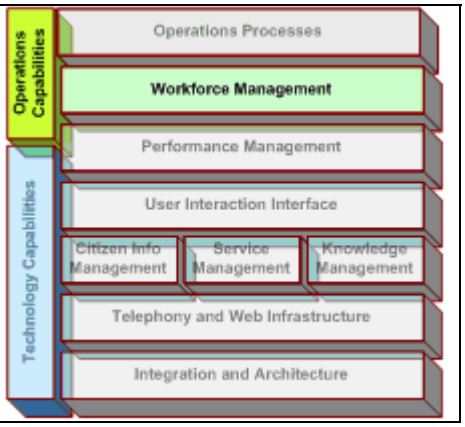
5.5.3.4 Monitor Quality of CSR Performance

Expectation Category: Courtesy, Competence, and Outcome

Interaction Channel: Phone, Email, and Web (Collaboration)

Capability: Workforce Management

Description: Contact centers can monitor the quality of CSR performance during Web interactions the same way they do in telephone and email environments. Reviewing Web interactions often is simpler and less problematic than monitoring Web contacts.



Analysis

See the analysis under this heading in the phone contact best practices section.

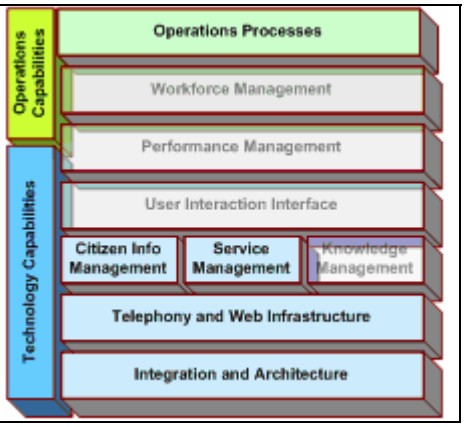
5.5.3.5 Route Citizens Interactions Properly

Expectation Category: Courtesy, Responsiveness, and Competence

Interaction Channel: Phone, Email, and Web (Collaboration)

Capability: Operations Processes, Citizen Information Management, Service Management, Telephony and Web Infrastructure, and Integration and Architecture

Description: Citizens' emails need to be routed to the proper CSR based on their needs and profiles.



Analysis

See the analysis under this heading in the phone contact best practices section.

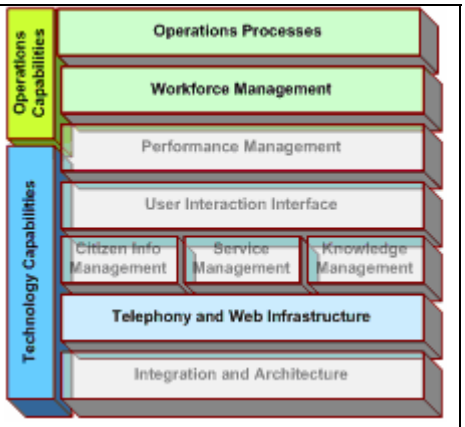
5.5.3.6 Provide an Escalation Path

Expectation Category: Courtesy, Outcome, and Competence

Interaction Channel: Phone, Email, and Web (Collaboration)

Capability: Operations Processes and Workforce Management

Description: Citizens need to be able to escalate their requests and, particularly, their complaints up the decision-making chain within an agency. Note that this concept is sometimes referred to as elevation while escalation is considered an increase in the priority of a request. In this document, the two terms are used interchangeably.



Analysis

See the analysis under this heading in the phone contact best practices section.

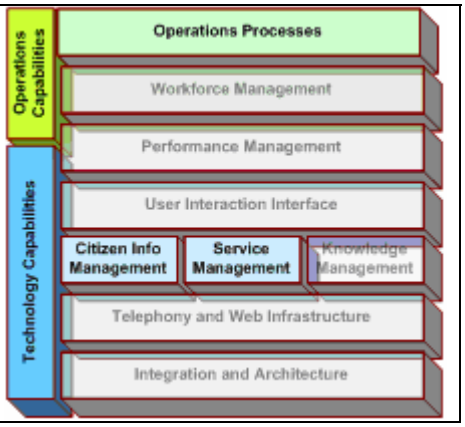
5.5.3.7 Keep Promises

Expectation Category: Courtesy, Outcome, and Competence

Interaction Channel: Phone, Email, and Web (Collaboration)

Capability: Operations Processes, Citizen Information Management, and Service Management

Description: Agencies should ensure that follow-up calls are made as promised.



Analysis

See the analysis under this heading in the phone contact best practices section.

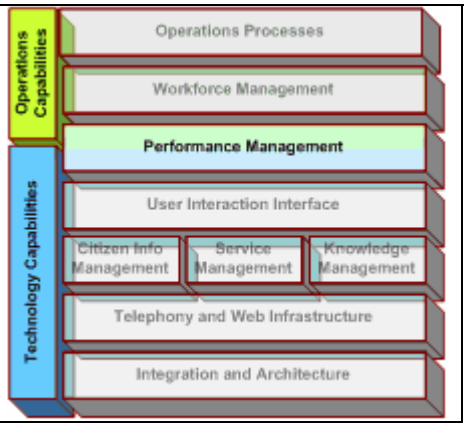
5.5.3.8 Track Metrics and Manage Performance

Expectation Category: All

Interaction Channel: All

Capability: Performance Management

Description: Although following best practices can have a significant impact on improving citizen services and increasing citizen satisfaction, the greatest benefit always comes from tracking and analyzing the performance metrics discussed in the previous section.



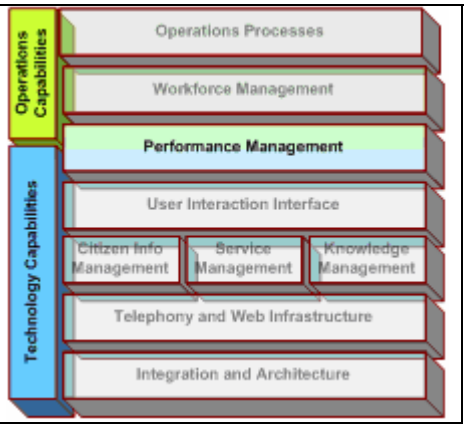
5.5.3.9 Track Citizen Satisfaction

Expectation Category: All

Interaction Channel: All

Capability: Performance Management

Description: Meeting citizen expectations and increasing citizen satisfaction are the fundamental goals of a contact or service center. Asking citizens about their satisfaction with a contact is the most effective way to determine a center's success toward achieving these goals.



Analysis

See the analysis under this heading in the phone contact best practices section.

5.5.4 Technology Trends

5.5.4.1 Web Collaboration

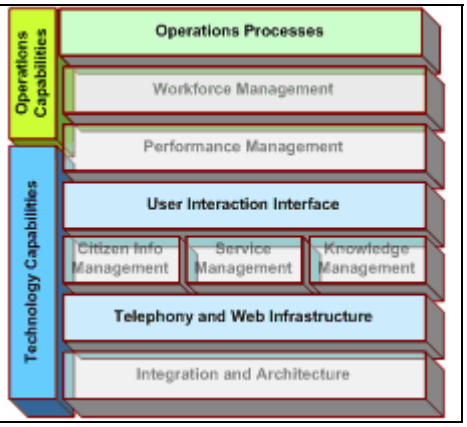
Customer Segment: All

Interaction Type: All

Interaction Channel: Web

Capability: Operations Processes, User Interaction Interface, and Telephony and Web Infrastructure

Description: Web collaboration between a citizen and a CSR can take multiple forms, including instant messaging, text chat, and co-browsing (in which the CSR takes control of the citizen's browser and manages the browsing process).



Analysis

Web collaboration can take the form of text chat or "co-browsing." Web chat interactions can be more cost effective than phone interactions because a single CSR can handle multiple "conversation" threads at the same time. By comparison, co-browsing is more costly because it results in longer handle times. Consequently, co-browsing should be used for more complex interactions.

5.6 Cross-Channel Trends and Best Practices

5.6.1 Self-Service

Any unmediated interaction a citizen can have with an agency can be considered self-service contact. More commonly, however, self-service refers to interaction initiated and completed on the phone or Web without the involvement of a CSR. Recent studies indicate that phone self-service applications account for twice as many interactions as those deployed on the Web.

Self-service applications offer contact centers an opportunity for significant cost savings. Table 5-8 presents average costs of interactions across various channels.

Table 5-8. Cost per Interaction across Channels

Channel	Average Cost
Web Collaboration	$15.00
Telephone	$9.00
Text Chat	$5.00
Email	$4.00
IVR Self-Service	$1.10
Web Self-Service	$0.50

Regardless of the medium (phone or Web), self-service capabilities are best suited and produce the maximum return for high volume, low complexity applications. Functions traditionally performed by call centers in which CSRs principally read information from a screen are good candidates for self-service. Recent studies show that up to 70% of calls to help desk numbers involve passwords, a function that can easily be automated through self-service.

When evaluating multi-channel self-service, agencies need to consider all the elements previously discussed for Web and IVR channels. Blending voice and Web, however, provides additional benefits. First, it enables agencies to offer consistent service across channels. Second, it increases citizen satisfaction by providing choices. Finally, it can generate a 30% to 40% savings in the total cost of ownership (TCO). The cost savings result from the following:

- Reducing software and hardware costs by purchasing a multi-channel system that handles both Web and telephony
- Leveraging technology resources and code by building Web and voice applications using compatible industry standards (e.g., XML, HTML, VXML)
- Maintaining a single set of processes and systems as opposed to multiple platforms

Finally, taking the multi-channel self-service path positions agencies to support multimodal contact on PDAs or smart phones in which voice and Web interactions are combined.

5.6.2 Knowledge Management

Using knowledge bases to capture structured and unstructured (e.g., forms, documents) information about agencies' services and capabilities has a significant impact on the effectiveness of services across all channels. Depending on whether knowledge bases are used by CSRs or citizens, their use can offer the following benefits:

- Reduce the need for CSR training
- Reduce AHT of interactions
- Reduce error rates and increase first contact resolution
- Increase citizen satisfaction by providing self-service capabilities
- Offer agencies the opportunity to outsource part or all of their service functions

As is the case with all "silver bullets," however, knowledge management is more complex than deploying a knowledge base technology. Knowledge management is a discipline that requires coordinated people, processes, and technology efforts. Making sure that knowledge is properly identified, captured, cataloged, and maintained requires a concerted effort in change management, process design, and technology implementation. The same is true about ensuring that the captured knowledge is properly and consistently used by CSRs.

In addition to ensuring that the organizational components of knowledge management are in place, agencies need to consider the following practices when implementing knowledge base technology:

- It must be possible to integrate the knowledge base system with other tools of citizen service. This has a significant impact on the adoption of the technology.
- The same knowledge base should be used across all interaction channels. Citizens' satisfaction will decrease if they receive different information on the same subject from different channels.
- The system should be designed and implemented to match the needs and profile of citizens. Providing the right search capability (e.g., keyword, natural language query) and using a taxonomy appropriate to citizens are just as important as capturing the right information.

Finally, when using knowledge bases, it is important for agencies to monitor knowledge base productivity to evaluate and improve the effectiveness of the platform.

6. Conclusions

6.1 Performance Targets

Section 5 of this document provides agency leaders and contact center managers with a detailed discussion of key performance metrics for a service organization. The details in that section were provided so that agencies can use each metric appropriately and effectively. Before its sets out to use these metrics as key performance indicators and establish target levels, an agency should examine the following:

- Identifying an industry or set of industries whose mission and functions is most compatible with that of the agency. The combination of what citizens expect from those industries and what they expect from the federal government should determine the agency's approach to improving performance levels and citizen satisfaction.
- Segmenting and profiling the constituent population for the agency in order to understand its specific expectations. The demographic and behavioral composition of this population determines the experiences, technology preferences and requirements with which they enter an interaction with the agency. These factors, in turn, should determine how the agency carries out its services.

Based on this approach, a single performance level for each metric might not be applicable to all agencies. As a result, this section presents three categories of metrics.

6.1.1 Standards

Standards are benchmarks based on well understood and established industry averages to which all agencies can adhere, regardless of their mission.

Table 6-1. Performance Standards

Metric	Channel	Limit	Optimal
Abandon Rate	Phone	8%	< 4%
Average Speed of Answer (ASA)	Phone	60 Seconds	< 40 Seconds
Service Level (80% of calls answered)	Phone	50 Seconds	< 30 Seconds
Blocked Calls	Phone	5%	< 2%
CSR Occupancy	Phone, Email & Web	> 65% < 80%	75%
Respond As Promised	Email	NA	> 70%

6.1.2 Guidelines

Guidelines are benchmarks with a demonstrated impact on citizen satisfaction for which significant variation exists.

Table 6-2. Performance Guidelines

Metric	Channel	Limit	Optimal
First Contact Resolution	Phone, Email, Web	70%	> 80%
Average Service Time (24 Hour Res.)	Email	50%	> 85%
Average Process Time	Email	NA	400 Seconds
Abandon Rate	Web	NA	< 8%
Average Wait	Web	NA	NA

6.1.3 Recommendations

Recommendations cover metrics for which target values depend on the mission of the agency and the types of interaction it has with citizens. Agencies should use these metrics to monitor contact center performance but have greater discretion in terms of their targets.

Table 6-3. Performance Recommendations

Metric	Channel
Average Handle Time	Phone & Web
CSR Quality Rating	Phone, Email & Web
IVR Completion Rate	Phone
Citizen Satisfaction Score	Phone, Email & Web
Response Quality Rating	Email
Visitor Count	Web
Page Hit	Web
Duration	Web

6.2 Citizen Satisfaction Survey

As its title indicates, the goal of this document is to help federal agencies improve citizen services. The metrics discussed at length in the document are valuable tools in identifying gaps in services and gauging improvements. Still, the ultimate measure of the effectiveness of these services is citizen satisfaction.

Clearly, defining, quantifying, and collecting citizen satisfaction information can pose a challenge. The importance and the implications of doing so, however, far outweigh the complexities. The following are practical guidelines for conducting and analyzing satisfaction survey:

- A quantitative “value” for citizen satisfaction can be used as a yardstick for trends. This value can be defined in various ways. Agencies can track the percentage of citizens who

expressed complete satisfaction with their contact or use a scoring system defined internally or by a third party.

- Qualitative satisfaction questions and information will help agencies analyze citizens' expectations and areas in which they are not meeting those expectations.
- Quantitative (and to some extent qualitative) satisfaction data should be used to examine the correlation between the performance metrics and benchmarks used in this document and citizen satisfaction. For example, if improving average handle times at an agency is not resulting in an increase in satisfaction scores, the agency's time and effort is better spent elsewhere in the service environment.
- Surveys can be conducted at the end of a contact or within a reasonable timeframe after the interaction.
- The privacy of citizens can be ensured by excluding identifying information from the collected data and by using independent third party survey companies.
- Under most circumstances, a small sample of citizens can yield statistically significant quantitative data.
- In addition to satisfaction surveys, agencies can conduct focus groups for qualitative examination of the usability of their service channels and the expectations of their constituencies.
- Expectations and satisfaction drivers for different segments of an agency's constituency might be different. Segmentation of this constituency for the purposes of the satisfaction analysis will add to the validity of the results.

6.3 Performance Monitoring and Management

Whether an agency is trying to improve the services of an in-house contact center or monitor the adherence of an outsourcer to service levels, performance metrics described in this document are only effective if they are captured, reported and analyzed in a timely manner and reach the right decision maker. Also, metrics should be used not in isolation but in the context of a strategy and methodology.

Enterprise Performance Management (EPM) is a concept that encapsulated the approach required in achieving the above objectives. The term is generally defined as disciplines and technologies that allow organizations to use information to define strategies and monitor and manage performance and progress. The common applications of EPM involve methodologies for defining goals, metrics to gauge success and progress towards those goals and business intelligence tools to monitor and react to the metrics. Strategy and metrics were discussed in detail in the earlier chapter of this document. This section provides practical recommendations on technical tools.

Most technologies used in contact center environments provide a level of performance reporting. The reports provided by these systems are certainly valuable but can be limited in a number of respects. First, they provide a narrow and disjointed view into the overall performance of the center. Second, they are often proprietary and are difficult to modify based on specific requirements. Third, they might be limited in terms of how they can be distributed and shared within and agency. Fourth, they might be difficult to adapt to specific performance management

strategy (balanced scorecards, six sigma, etc.) of an agency. Finally, they are often hard to read and interpret by non-technical managers.

Business Intelligence (BI) refers to a set of tools and technologies that address the above issues. These tools are designed for capture and consolidation of data, analysis of information and widespread dissemination of reports. Their functions include:

- **Data Integration** (also known as Extraction, Transformation and Loading [ETL]) capabilities allow for consolidation of data from multiple sources (telephony, web servers, CRM applications, etc.) into one source for analysis and reporting.
- **Enterprise Reporting** allows rapid development of reports that can be populated and distributed in a timely manner to a wide audience. It includes easy report development capabilities and facilitates viewing of reports over the web.
- **Query and Analysis** refers to capabilities that allow users (managers and analysts) to drill down into the data, examine "what if" scenarios and create custom reports and analyses. These capabilities may include data mining and forecasting.
- **Alerting** warns users proactively of performance issues based on predefined events or metric thresholds.

Acronyms

ACD	Automatic Call Distribution
AHT	Average Handle Time
ANI	Automatic Number Identification
ASA	Average Speed of Answer
ASR	Automatic Speech Recognition
BDR	Budget Data Request
BI	Business Intelligence
CBT	Computer-Based Training
CCXML	Call Control XML (Extensible Markup Language)
CRM	Customer Relationship Management
CSF	Critical Success Factor
C-SLIC	Citizen Service Level Interagency Committee
CSR	Customer Service Representative
CTI	Computer Telephony Integration
DNIS	Dialed Number Identification System
DTMF	Dual Tone Multi-Frequency
EPM	Enterprise Performance Management
ERP	Enterprise Resource Planning
FAQ	Frequently Asked Question
GSA	U.S. General Services Administration
HTML	Hyper Text Markup Language
HTTP	Hyper Text Transfer Protocol
ICMI	Incoming Calls Management Institute
IP	Internet Protocol
IVR	Interactive Voice Response
KPI	Key Performance Indicator
PBX	Private Branch Exchange
PDA	Personal Digital Assistant
PSTN	Public Switch Telephony Network
ROI	Return on Investment

SALT	Speech Application Language Tags
TCO	Total Cost of Ownership
TTS	Text to Speech
UQM	Universal Queue Management
VRU	Voice Response Unit
VoIP	Voice over Internet Protocol (IP)
VXML	Voice XML (Extensible Markup Language)
W3C	World Wide Web Consortium
XML	Extensible Markup Language

Glossary

Abandon	Contact that enter a phone, web chat or web collaboration queue and are then terminated by the citizen.
Automatic Call Distribution	A telephony system used for routing incoming calls to an automated system (IVR) or a CSR based on predefined business rules.
Adherence	Term used to describe how well a CSR executes planned work schedule.
Agent	A person who handles phone, email, or web contacts. Also known as Customer Service Representative (CSR) and Telephone Service Representative (TSR)
Agent Status	Indicates whether an agent is available, on a call (contact), performing post contact tasks or unavailable.
Average Handle Time	Refers the total time involved in managing a contact. It includes time on the phone or in a web chat session as well as post contact wrap up time.
Automatic Number Identification	Digits identifying the calling number provided by the phone company before the first ring
Average Speed of Answer	Refers to the time citizens wait to reach a CSR during a phone call or a web chat/collaboration session
Blocked Calls	Calls that cannot be connected because all lines on a trunk are busy.
Customer Relationship Management	Strategy, processes and technologies involved in capturing and processing customer information and customer needs, opportunities, requests and interactions.
Computer Telephony Integration	Technology used to integrate the telephony environment, particularly the ACD, with CRM applications and databases in order to make the service process more efficient and effective.
Customer Service Representative	See Agent
Data Mining	Tools and technologies used to identify patterns and trends in data.
Dialed Number Identification System	A feature of 800 and 900 numbers lines that provide the number the caller has dialed to the switch.
Dual Tone Multi Frequency	Also referred to as touch tone or dial tone, it refers to the method of sending numbers through tones.
Erlang	A measure of telecommunication traffic usage.
Integrated Voice Response	Tools and technologies used to automate processing of information over the phone through dial tone or voice recognition.
Key Performance Indicator	Key metrics monitored in order to manage performance.
Public Switched Telephone Network	The public network that provides the capability to connect two telephones.
Universal Agent	An agent who can handle multiple types of contacts.
Voice Response Unit	See Interactive Voice Response.

List of References

Angel.com. April 2005. *VUI Design*. http://www.angel.com.

Apropos Technology. 2004. *5 Strategies for Improving Customer Service Through Streamlined Business Process*. http://www.apropos.com.

Apropos Technology. 2004. *VoIP and Best Practices in Contact Centers*. http://www.apropos.com.

Apropos Technology. 2002. *A Simple Recipe for Increased Customer Satisfaction & Operational Efficiency*. http://www.apropos.com.

Apropos Technology. 2002. *All Media All the Time: Giving Customers a Choice*. http://www.apropos.com.

Apropos Technology. 2002. *Best Practices in Call Center Communication*. http://www.apropos.com.

Aspect. 2003. *Why Your Customers Hate Your IVR System*. http://www.aspect.com.

Benchmark Portal. 2003. *Government and Non-Profit Industry Benchmark Report*. http://www.benchmarkportal.com/newsite/index.tml.

Call Center Learning Center. 2004. *Call Center Best Practices Report – Special Operations Edition*. http://www.call-center.net.

Call Center Learning Center. 2004. *Call Center Best Practices Report – Special Technology Edition*. http://www.call-center.net.

Call Center Learning Center. 2004. *Call Center Measurement*. http://www.call-center.net.

Cancer Information Service, National Cancer Institute. 2004. *Cancer Information Service Performance Requirements*.

Chatham B. 2005. *Best and Worst of Email Customer Service*. http://forrester.com.

Crager J. 2004. *Developing Public Sector Metrics*. American Productivity Quality Center. http://www.apqc.org

Customerrespect.com. April 2005. *Fortune 100 Research*. http://www.customerrespect.com.

DoubleClick. 2004. *Consumer Email Study*. http://www.doubleclick.com.

eGain Communications. January 2004. *Mission-Critical Customer Service*. http://www.egain.com.

eGain Communications. 2003. *Doing More with Less – Next-Generation Strategies and Best Practices for Customer Service*. http://www.egain.com.

Forrester Research. 2004. *Trends – The State of Email Marketing*. http://www.forrester.com.

Forrester Research. 2003. *CRM Status: Customer Service Channels Benchmark*. http://www.forrester.com.

Gartner Research. 2004. *Hype Cycle for Government Technologies for Contact Center Technologies*. http://www.gartner.com.

Gartner Research. 2002. *Speech Recognition Self-Service: Playing to Win*. http://www.gartner.com.

Genesys Telecommunications. 2004. *Best Practices in Choosing the Right Voice Platform*. http://www.genesyslab.com.

Genesys Telecommunications. 2003. *Best Practices in Deployment of a Voice Platform*. http://www.genesyslab.com.

Genesys Telecommunications. 2003. *Industry Insider Guide – Self-Service*. http://www.genesyslab.com.

Gianforte G. 2005. *The New Government Agency Contact Center*. RightNow Technologies, http://www.rightnow.com.

Government of Canada, Institute for Citizen-Centered Service. 2003. *Common Measurement Tools Manual*. http://www.iccs-isac.org.

Incoming Calls Management Institute. 2001. *Multi-Channel Call Center Study*. http://www.incoming.com.

Kaplan RS, Norton DP. 1996. *The Balanced Scorecard*. Harvard Business School Publishing.

Kozminski A. 2004. *Speech – Ready for Mainstream*. http://www.pronexus.com/whitepapers/index.htm.

Kozminski A. 2003. *System Architectures for Speech – A Practical Guide to Lowering Costs*. http://www.pronexus.com/whitepapers/index.htm.

National Performance Review and Office of Federal Procurement Policy. 1998. *A Guide to Best Practices for Performance-Based Service Contracting*. http://www.acqnet.gov/Library/OFPP/BestPractices/pbsc/library/OFPP_best-prac-for-quality.pdf.

National Performance Review and Office of Federal Procurement Policy. 1997. *Performance Based Concepts for Telephone Call Center Contracting*. http://www.acqnet.gov/Library/OFPP/PolicyDocs/pbsctcco.html.

Schaffer E, Sorflaten J. 1999. *Interactive Voice Response (IVR) Case Study: Testing Your Telephone-Based E-Commerce Support*. Human Factors International.

Treasury Board of Canada Secretariat.. 2004. *Guidelines for Core Key Performance Indicators*. http://www.cio-dpi.gc.ca/si-as/kpi-icr/interim/interimtb_e.asp.

West DM. 2004. *State and Federal E-Government in the United States, 2004*. Center for Public Policy, Brown University.