Study Report

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(Formerly 2.21)

Internet-Based Customer Service:
Organizational Experiences

Customer Research Group 1

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EXECUTIVE SUMMARY

This research project is part of an overall plan to study how the IRS can better deliver Tax Assistance to taxpayers using the Internet. In 1995, the IRS created the "Ask the IRS" system. The system, which started as a prototype, has been in operation since then. "Ask the IRS" is an Electronic Tax Law Assistance (ETLA) system that allows taxpayers to use email to send tax law questions to the Service. In the current configuration, taxpayers access the system through the IRS.gov website. Several Customer Service sites process the emails containing the taxpayers' questions, and responses are then sent back to the taxpayer's email address. The IRS has never advertised this service.[1]

Several complex questions about ETLA were split into a series of research projects. One important question was to identify benefits of the ETLA system. Research Project 2.07, 'Benefits of "Ask the IRS" Electronic Tax Law Assistance,' identified a specific list of benefits and possible enhancements to the system based on detailed analyses of the feedback received from taxpayers who had used it, as well as on a survey of the assistors who work with the system on a routine basis.

The conclusion of Research Project 2.07 was that email and the Internet have great potential as channels to service taxpayers, but that there is also a need to better understand and manage their organizational impacts, growth, and technological evolution.

The research project presented here (2.21) is the logical continuation of the previous work. The project's goal is to strengthen our understanding of how to deliver quality taxpayer service through a study of the practices of leading organizations in the private and public sectors that have implemented Internet-based customer-service systems.

Specifically, the objectives of this research project are: (1) to identify leading-edge organizational and technological practices for providing and managing Internet-based customer service in comparable private and public organizations, and (2) to identify potential organizational impacts based on the experiences of the surveyed organizations.

This research summarizes the views of over thirty managers from eight Fortune 100 and Fortune e-50 companies and two public organizations. We selected these companies and individuals through a fairly elaborate process designed to ensure the selection of a sample of organizations comparable to the IRS (e.g., large organizations, serving the general public, service-oriented, and operating in a knowledge and information intensive environment).

Tightly structured, theory-based interviews were used to construct a series of business cases, which were then analyzed to identify common technological and organizational trends, best practices and organizational impacts of the systems, and technologies implemented by the organizations.

This research has resulted in the identification of several technological trends, best practices, and organizational impacts from the new technologies. These practices and their impacts, organized by theme, are described in the "findings" section of this report. A reader interested only in one particular theme may jump directly to the corresponding page.

Technology trends page 9

[1] The number of inquiries steadily increased from less than 13,000 in FY 1996 to over 334,000 FY 2000. The volume decreased slightly in FY 2001 to 328,631 and dropped to 220,631 in FY 2002. A separate research project is under consideration to study this decrease in usage.

Conclusions and Recommendations

The conclusion that stems from this study is that the next step in increasing efficiency of the customer support function comes from the electronic channels. This is the direction that many leading organizations in the nation have taken. We offer here an up-to-date panorama of current best practices in the delivery of customer support via the Internet.

It is important to keep in mind that the findings of this study are descriptive in nature, not prescriptive. Because these best practices summarize the beliefs and the experiences of the managers of some of the leading companies in the nation, we believe and recommend that these practices should be considered with an open mind. At the same time, the differences in mission, operations, markets and products between these organizations and the IRS require that adoption of these best practices be done on a carefully considered, case-by-case basis.

INTRODUCTION

As more Americans gain Internet access, future demand for tax help delivered through the Internet is expected to increase. The management of a large-scale Internet-based customer support service is largely uncharted territory for the IRS. This study investigates the experiences that leading-edge public and private organizations have accumulated in delivering similar forms of customer support -- not only where these organizations are currently but also where they envision the *future of customer service* to be.

BACKGROUND

The focus of the research described in this document is the delivery of customer (i.e., Taxpayer) service via the Internet.

The motivation for this research stems from a series of previous investigations of the ETLA system. ETLA stands for Electronic Tax Law Assistance (ETLA), a computerized system that allows taxpayers to use email to send tax law questions to the Service and receive email responses from assistors at customer service sites scattered throughout the nation. In the current configuration, taxpayers access the ETLA system through the IRS "Digital Daily" World Wide Website.

The relative novelty of the ETLA technology prompted a series of questions on its use and proper place within the IRS. These questions were split into a series of research projects that were completed under the umbrella of the "Improving Customer Service and Satisfaction" Research Strategy.[2] The predecessor of this project was Research Project 2.07, 'Benefits of "Ask the IRS" Electronic Tax Law Assistance,' which identified specific benefits and possible enhancements to the ETLA system based on detailed analyses of the feedback received from taxpayers who had used the service, as well as on a survey of the IRS assistors and managers who work with the system on a routine basis.

The previous research project also raised some new issues, especially with respect to the need to better understand the organizational impacts of the system (e.g., impact on resources, channel competition, new clienteles, etc.) and the likely evolution of the technology (e.g., technological advancements, scalability, security, etc.).

This research study is the logical continuation of the previous work, and aims at addressing these new issues. It is designed to address the problem of delivering quality taxpayer service to an expanding population of Internet users. Customer Accounts Services (CAS) commissioned the research.

The market segment for this project is private and public organizations that have implemented systems to deliver customer support using Internet technology, and are comparable to the IRS.

[2] Project 2.04 focused on why taxpayers used the ETLA system rather than using other means of contacting the Service and Project 2.09 focused on the cost of operating the system. Project 2.04 was completed but Project 2.09 was terminated due to lack of data.

RESEARCH QUESTIONS

The specific research questions identified by Customer Accounts Services are:

1. "What are leading-edge organizational and technological practices for providing and managing Internet-based customer service in comparable private and public organizations?" and
2. "What are potential organizational impacts based on the experiences of the surveyed organizations?"

IMPORTANCE OF RESEARCH

The research described in this document is important because its results will help the Service to make more informed managerial choices. The delivery of customer service via electronic means is a dynamic arena of innovation and technological and organizational change. Arguably, being informed of the best practices adopted by some of the leading companies in the nation is a good source of empirically-tested practices and ideas, as well as an antidote against repeating errors already made by others.

As more and more Americans gain familiarity with and access to the Internet, it seems likely that the Internet will become an important channel to deliver tax help. The number of ETLA inquiries steadily increased from less than 13,000 in FY 1996 to more than 334,000 in FY 2000.[3] The volume decreased slightly in FY 2001 to 328,631 and dropped to 220,631 in FY 2002.[4] A separate research project is under consideration to study this unexpected decrease in usage. The decrease was unexpected because commonly published news articles consistently show that Internet usage is increasing.

In sum, it seems reasonable to assume that investigating the experiences of private and public organizations that pioneered the area of customer service through the Internet can help us learn much about how to deliver better-quality customer service.

OBJECTIVES

This project has two objectives:

1. Determine leading-edge organizational and technological practices for providing and managing Internet-based customer service in comparable private and public organizations.
2. Determine potential organizational impacts based on the experiences of the surveyed organizations.

[3] http://mm3.aus.swr.irs.gov
[4] Ibid.

PURPOSE AND SCOPE

This report describes a study of private and public organizations that have implemented and currently operate systems to deliver customer service using Internet technology. Our customer (ETLA/CAS) requested that we look for trends, lessons learned, and best practices by studying large business organizations that have established Internet-based customer service centers. The report identifies trends and best practices in the areas of technology, information content, polices and organizational structure, and internal and external users' management. It also identifies the effect that these trends have on customer services operations, and their organizational impacts.

This report provides the IRS with an understanding of how comparable public and private organizations are currently delivering customer service and, possibly more importantly, what they envision as the future technology for delivering customer service. Understanding the lessons that these organizations have learned will allow the IRS to enjoy a second-comer advantage, reaping the benefits discovered by early innovators while avoiding their errors. Our findings will summarize the accumulated experiences of the surveyed organizations in their delivery of customer support through the Internet. Lessons will be learned about what works and what does not work in the private and public sectors. The lessons learned from these experiences will form a basis from which to extrapolate potential organizational impacts to the IRS.

More broadly, investigating experiences that leading-edge organizations have accumulated in delivering similar forms of customer support will be beneficial to the IRS because it will make possible more informed managerial decisions about the ETLA system. This information will assist the Deputy Chief, Customer Service Field Operations in meeting the strategic goal of improving service to taxpayers.

RESEARCH METHODS

MARKET SEGMENT

The population of interest is composed of private and public organizations that (1) have implemented systems to deliver customer support using Internet technology, and (2) are comparable to the IRS.

"Comparable" organizations are U.S. corporations and government agencies that (a) are large, (b) provide information-intensive products and services to a general public, (c) offer information-intensive customer service, and (d) are sensitive to security issues. The "sampling" section will describe the selection process by which we identified organizations that have these characteristics.

DATA NEEDS

The study consists of a set of scripted interviews with managers in private and public organizations that have implemented and operate systems to deliver customer service using Internet technology. The main data employed in the study are the notes taken by the investigators during the

scripted interviews.[5] A glossary of terms used in this report is provided in Appendix A. A copy of the interview script is provided in Appendix B. Further elaboration is provided in the methodology section (next).

All interviews were pre-arranged. We collected data by traveling to the interview locations and conducting three (or more) interviews per site with relevant personnel.[6] Our project did not require Office of Management and Budget (OMB) approval. We interviewed a total of eight organizations, and OMB approval is required for more than nine. The data standards certification is provided in Appendix C.

METHODOLOGY

The two objectives of the proposed research were achieved by means of a series of theory-based structured interviews with managers in selected comparable firms and organizations. The interviews focused on the identification of leading-edge organizational and technological practices for providing and managing Internet-based customer service and on potential organizational impacts based on the experiences of the surveyed organizations.

Since the questions investigated in this research are highly exploratory in nature, a flexible methodology such as scripted interviewing was appropriate. In particular, we did not have explicit hypotheses to test, since we were looking for trends, lessons learned and best practices. At the same time, the presence of a significant exploratory component does not mean that the methodology we employed was unprincipled or ad hoc.

RESEARCH MODEL

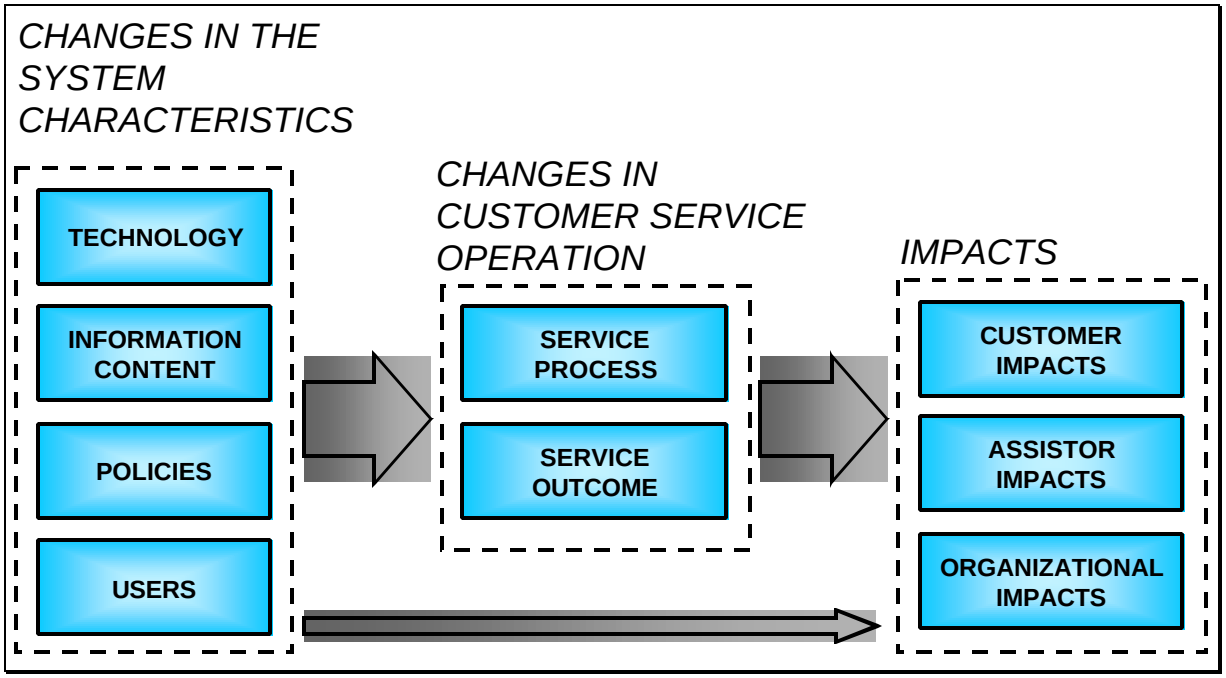
A *Model of the Organizational Impacts of Customer Service Operations*, based on the reviewed scientific literature, our previous work (Project 2.07), and Customer input was used to generate the interview scripts and to organize the results. For simplicity and brevity, the basic model is shown in Figure 1. For further information and a more detailed model refer to Appendix D.

The model shows that changes in the characteristics of the system (e.g., a change in technology) may induce changes in the system operations (e.g., the way assistors do their job; the quality of the answers), which in turn result in changes in variables of organizational interest (such as costs of producing the service, or the productivity per assistor). These latter changes are often called "organizational impacts."

[5] Whenever feasible, other documents volunteered by the interviewees, were collected.

[6] As required by the February 1999 memo issued by Bob Wenzel, Deputy Chief Operations, on External Benchmarking, we contacted the Quality Office regarding our intent to make external contacts. The Quality Office responded that our project's efforts were outside the scope of the Modernization Design Team and that we could proceed.

Figure 1 - Model of the Organizational Impacts of Customer Service Operations



The model was designed to achieve our project objectives. The first two sections of the model (changes in the system characteristics and changes in customer service operation) provide the framework to achieve our first objective (trends and best practices) and the last section (impacts) provides the framework for our second objective.

SAMPLING

The population to which we sent invitations to participate in the study is described previously, under the heading "market segment." Invitations took the form of a letter. A sample of the letter is provided in Appendix E. To identify private organizations in the set of interest we used the Fortune 500 list[7] and the Fortune e-50[8] list as published in October 2001. This guaranteed that large and presumably technologically sophisticated organizations would be included. Detailed information on the sampling selection process is provided in the Sampling section of Appendix D (page D-4).

SUMMARY OF SAMPLING METHODOLOGY

We worked with local Governmental Liaisons, Communications and Liaison Division, to obtain contacts with potential *public* organizations. After completing our identification of potential *private*

[7] The Fortune 500 list includes the largest U.S. companies according to revenue. We selected our sample from the top 100 companies, this part of the Fortune 500 list is known as the Fortune 100.

[8] The Fortune e-50 list includes the largest U.S. companies in the following sectors: ECompanies, Internet Communications Companies, Internet Hardware Companies, and Internet Software and Services Companies.

organizations we made contact with them through their tax department.[9] We followed up the letter with a phone conversation, advising them that our contact had nothing to do with any tax matter.

Participation in the study was voluntary. We requested access to two or three key personnel from each organization. By key personnel we mean managers responsible for the development, operations, and maintenance of the system from both a technical and business (customer support) point of view. We targeted seasoned individuals and managers in higher-ranking positions, although not so high that they would not have direct knowledge of the system.

Our initial list consisted of sixteen organizations. Our goal was to obtain a sample of five to nine participating organizations. Of the sixteen original organizations, eight accepted, six refused, and we were unsuccessful in getting past the "gatekeepers" at the other two. The organizations were promised that at their choosing their participation would be either explicitly mentioned or kept rigorously anonymous. At this point we are treating all organizations as anonymous and we will refer to them numerically, following the order of the interviews. Table 1 provides a list of our participating organizations.

Table 1: Participating Organizations

Organization	Public	Sector	Fortune e-50
1		Software and Financial Services	√
2		Brokerage	√
3	√	State Taxation Agency	
4	√	Federal Agency	
5		Mortgage	
6		Banking	
7		Computer Hardware	
8		Software	√

Source: Interviews

The Principal Investigator and a Research Program Analyst conducted the on-site interviews. The interviews were conducted individually or as a group, at the organizations' discretion. The interviews were conducted from mid-July through the first week of October 2002. We interviewed a total of 34 individuals across the eight sites: 12 Vice President and Director level personnel, 15 Senior Managers and Managers, and 7 Information Technology Administrators and Assistors.

[9] From past experience we anticipated that *any* correspondence from the IRS would undoubtedly be referred to the tax department so we sent our initial letter to them. By choosing a proactive approach we circumvented a potential routing delay and turned it into an opportunity.

RESEARCH FINDINGS

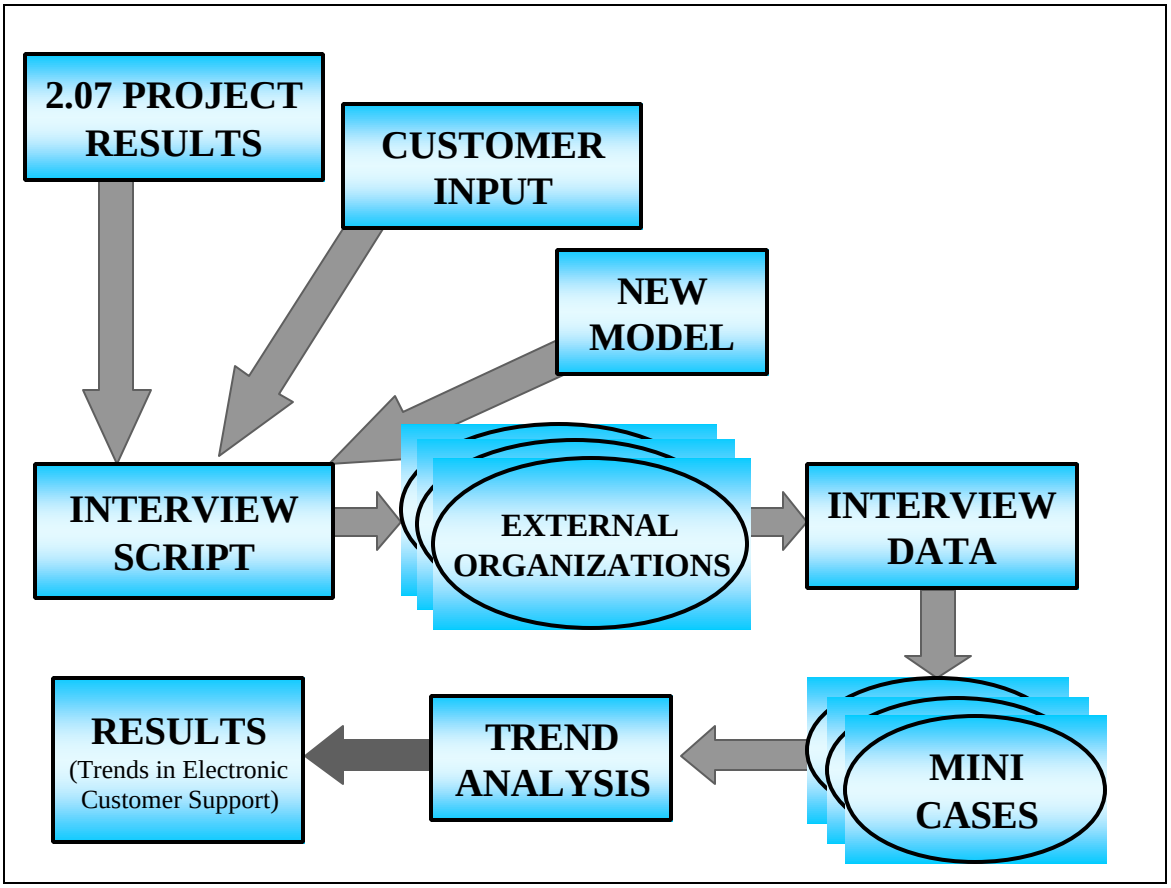
Data analysis consisted of the examination of field notes taken during the interviews. From the notes we compiled one business case per site. The business cases were then compared along the dimensions outlined in the model described previously (e.g., technology, policies, customer impacts, etc.). Given the qualitative nature of the methodology and the small sample size, the data analysis did not include formal hypothesis testing, or validity/reliability analysis.

We looked for commonalities and differences among the cases. Analysis of the responses included:

1. Aggregating the responses based on the categories that are referred to in the model (Figure 1) as "changes in the system characteristics" and "changes in customer service operation." This allows us to achieve Objective #1, i.e. the identification of leading-edge organizational and technological practices. This report is rich in information and covers a lot of ground. To assist the reader we will use banners to identify and display the leading edge organizational and technological best practices as we cover them in the report.
2. Aggregating the responses based on the categories in the model referred as "impacts." This allows us to achieve Objective #2, i.e. the identification of organizational impacts (e.g., cost, productivity, employee satisfaction).

Figure 2 provides a graphical picture of our research method.

Figure 2 - Research Method



Next we discuss our findings. As a roadmap for the reader, our findings follow the same order they are shown in the model (Figure 1). First we cover the "Changes in the System Characteristics", then "Changes in Customer Service Operations", and last we cover "Impacts".

CHANGES IN THE SYSTEM CHARACTERISTICS

This section addresses issues related to the management of the service from the perspective of system characteristics or system resources. Within the Changes in System Characteristics section, we begin with "technology trends", followed by a section on information content, policies, and so on.

TECHNOLOGY TRENDS

As a starting point, we asked the organizations which channels they currently use to provide customer service, i.e., the composition of their channel portfolio. We found that phone, web and email are broadly adopted. We also found that there is a high degree of variability, not only in the number of channels offered by individual organizations, but also in the specific channels organizations made available to their customers.

Table 2: Channel Portfolio

Organization	Phone	Email	Web	Chat	Fax	Mail	Field
1			√	√			
2	√	√	√	√	√	√	
3	√	√	√		√	√	√
4	√	√	√		√	√	√
5	√	√	√	√			
6	√	√	√		√	√	
7	√	√	√	√			
8	√	√	√	√			

Source: Interviews

The number of channels offered varied from a low of two channels [1] to a high of six channels [2, 3, 4], with the remaining organizations falling somewhere in between. Table 2 presents the data. This can be interpreted as an indication that it is still unclear what the optimal channel portfolio looks like, and what the optimal channel mix is.

CURRENT INNOVATION: CUSTOMER SUPPORT DELIVERED THROUGH "CHAT"

Perhaps the most unexpected finding was the diffusion of "chats" (i.e., instant messaging systems) as a means to deliver customer service. "Chat" is an industry term and *does not* refer to a "chat room," i.e., an electronic forum where several individuals converse electronically. In this context, a "chat" is a form of electronic communication between a customer and an assistor. The communication

is generally initiated by the customer (a request for help of some sort), and is written, virtually instantaneous, and typically characterized by frequent and rapid back-and-forth communication.

Five out of the six private organizations offer support via chat. Neither of the public organizations does. The organizations that deploy chat believe that it offers all the benefits of email (e.g., written communication), plus some additional benefits that are not available through email. Table 3 compares chat benefits to email.

Table 3: Chat Benefits vs. Email Benefits

Benefit	Chat	Email
Immediacy	√	
Interactivity / Social Presence	√	
Written	√	√
Encryption	√	√
Multitasking (both ways)[1]	√	√
Push Technology[2]	√	√
Co-browsing[3]	√	
Source: Interviews		

[1] Both the assistor and the customer have the capability to perform multiple tasks simultaneously.
[2] Push technology allows the assistor to send something to the customer, i.e., a document or a link.
[3] Co-browsing is technology that allows the assistor to temporarily control the customer's computer. For example the assistor could control and move the mouse on the customer's monitor to show the customer how to perform a specific function or task.

The organizations offering chat mentioned additional features that make it attractive to them:

- The chat button availability can be controlled, and made to appear or disappear on customers' computers.
- Assistors can run concurrent sessions. The norm is probably two or three, but the number can be increased as needed. Organization 1 reports that it is serving three times as many customers with the same resources through its use of chat. (We will further explore this in the section on "Organizational Impacts.")
- Chat can be PIN activated, providing additional security.

It is interesting to note that as recently as two years ago company 1's main channel for delivering customer support was a 1-800 phone service. They have since discontinued their phone service and

currently use the web as their primary service. Organization 1 now believes that "chat is king" because its interactivity facilitates first contact resolution.

However, not all of the interviewed companies are ready to embrace chat technology. Organizations 3, 4, and 6 believe that "chat is not yet ready". Concerns raised include informality, potential for errors, and lack of supervision. Chat may be too verbose and interactive, leading to increased time and cost per interaction. We provide data about average interaction times in Table 4. Cost comparisons are provided in the "impacts" section of this study.

Not all organizations were willing to share data. Tables in this study are filled to the extent to which data was provided. It should be noted that average interaction times vary with the types of questions, which are different across industries. Therefore, comparisons should be made with prudence. Moreover, even within a single organization, transactions do not distribute homogenously across different channels. Customers choose different media for different types of queries, and one characteristic that influences the customer's choice of channel is the difficulty of the query. As a result, different channels get different mixes of queries.

Table 4: Average Time Per Transaction (minutes)

Organization	Phone	Email	Chat [1]
2	2.5	1-2 (Structured) [2] 5-7 (Unstructured) [3]	5-7
3	5.0	2-5	
6		6	
8	4.5	4.5	8-10
Source: Interviews			

[1] The figures shown are per chat. Assistors normally conduct more than one chat concurrently.

[2] Structured emails are essentially 'ready to go' emails. They are properly categorized and routed to the assistor with a potential canned response. The assistor chooses the most appropriate response, edits (as necessary) and sends.

[3] Unstructured emails are when the assistor is composing the entire email.

Despite all these caveats, the data collected suggest that, when looked at on a time-per-customer basis, chat may be competitive with telephone and email. For example, Organization 8's average time per chat is 9 minutes, but since a single assistor can do two chats simultaneously, within that organization the average transaction time per chat session is equivalent to the average time to respond to a phone or email inquiry.

TRANSACTION VOLUMES

Information on annual transaction volumes is provided in a table in Appendix F. Of note is the fact that, with a single exception [4, a public organization], web inquiries far outstrip all other channels in

terms of volume. Phone is the second most common means of inquiry across all organizations but one. By comparison, all other channel volumes are much smaller. In spite of the fact that five out of eight of the organizations have added chat to their channel portfolios, the percentages of inquiries answered via this method are (again with a single exception) still very small. These numbers reflect the relative maturity of the various channels, and suggest that, while companies are exploring newer, less-tested means of Internet-based customer support (in particular, chat), they have yet to aggressively funnel customer inquiries in this direction. This topic is further explored in the next section.

CHANNEL DYNAMICS FORECASTS

Of obvious interest is the question of how the interviewed organizations forecast channel dynamics. Do they expect phone volumes to go up or down? What will be the role of chat? etc. We therefore asked each organization to share with us its forecast of channel dynamics for the next three to five years.

The results are presented in Table 5. Everyone agreed that web use will continue to grow. They also generally agree that phone volumes will either decrease or remain stable. One organization – the chat champion – sees the phone as "the dragon we are in the process of slaying." The remainder of organizations view the phone as a "fully mature technology," whose efficiency is "hard to improve" significantly, and of "decreasing relative importance" although most feel that the phone as a channel to deliver customer service will not "go away."

Table 5: Forecast Channel Dynamics

Organization	Phone	Email	Web	Chat	Other
1	↓	⊘	↑	↑	⊘
2	↓	limited	↑	↓	↓
3	↓	↑	↑	n.a.	↓
4	↓	↑	↑	?	?
5	↓	↑	↑	?	n.a.
6	↓	↑	↑	n.a.	↓
7	↓	?	↑	↑	n.a.
8	↓	?	↑	↑	n.a.

Source: Interviews

The forecast is less clear for email. Four of the eight organizations believe email use will increase, two are noncommittal, one believes its use will be limited, and one has eliminated email from its channel portfolio. A major drawback of email is its inherent lack of interactivity, which may hinder its ability to systematically provide first contact resolutions. Email is also seen as "non-strategic" because

its cost structure is comparable to the phone, while the web has the potential to be significantly more efficient.

The forecast for chat is also unclear, perhaps reflecting the relative novelty of this technology in customer support. Three organizations see it increasing, one thinks it will decrease, two do not know, and two do not plan to offer it.

The "Other" column is a combination of fax, field, and mail. Half of the organizations have eliminated or do not offer these channels as options. Three of the organizations that do have this type of customer contact expect it to decrease. The remaining organization is unclear on the future of these channels.

TECHNOLOGICAL HORIZON

Customer support is perceived as a technological laggard. Most of the interviewed managers made comments such as "we want to be on the leading edge, not the bleeding edge," and "there is a three to five year gap between market availability of a technology and its large-scale implementation." Some organizations look at email as the next step, others look at it as a project in the far past.

While implementation of new technology is perceived as slow, the interviewed organizations seem to conduct a fair amount of experimentation "at the margin" with small and pilot projects. While describing each of these ventures is a research project in itself, we thought that it would be of interest to insert a list of these technologies, to provide a quick sketch of the current landscape of technological innovation. This list is presented in Table 6.

Table 6: Technological Horizon

- "Enhanced instant messaging" [7]: smart web pages able to diagnose user problems and report back to the organization
- "Push" technologies [4, 7]
- Interactive Voice Response-based routing (IVR) [7]
- "Conversational" (vs. "directed") voice recognition [7, 8]
- Co-browsing [6, 7, 8]
- Self-repair software [7]
- "Smart" search engines that route customers to assistors [7]
- Voice over Internet (VoIP) (seen however as "not ready") [1, 2, 3, 4, 5, 6, 7]
- Automatic suggested responses to assistors / scripts / expert systems [4, 6]
- "Click to talk" [6]
- Customer Relationship Management Systems - CRMs [4, 5]
- Streaming video, "Webinars" [3, 4, 5]
- Natural language search engines [2]
- Voiceprints [2]
- Voice portal for the visually impaired (section 508)

Source: Interviews

Almost everyone said that voice over the Internet (VoIP) has potential, but "is not ready." A number of other potential areas for expansion (discussed next) were also mentioned. It is difficult at this point to determine which of these technologies may become widespread in the coming years.

INFORMATION CONTENT AND KNOWLEDGE MANAGEMENT

This section discusses the next theme in the Model of the organizational impacts of customer service operations (see Figure 1 to understand how the theme fits in the overall study). Under the label "Information Content" we group initiatives designed to better manage the information resources of the organization. This includes initiatives designed to facilitate the reuse of existing knowledge (e.g., "canned answers") and initiatives designed to facilitate the automation of functions currently performed by assistors.

In the following sections we will identify trends or best practices that were described by the managers at the interviewed organizations.

BEST PRACTICE: "REUSE KNOWLEDGE"

The most important trend and best practice in information content is the reuse of knowledge. This may take many forms. One interesting recommendation is that assistors and customers access the same document database (i.e. post the assistor's information resources on the web where customers can access it directly). There is no benefit to creating and maintaining two separate databases, and efficiency is increased with a single one. For the same reason, it is also important to standardize assistor tools across channels.

Reusing knowledge is also seen as a major key to making email cost-effective. Its payoff is in improving the assistor's productivity. Canned answers (some organizations call them "scripts") can be utilized in both the email and chat channels. We asked each organization for data on use of canned answers.[10] Our findings are shown in Table 7.

[10] In this and future tables we show data that we were able to accumulate. Sometimes organizations did not have the data or they may not have been willing to share it with us.

Table 7: Canned Answer Usage

Organization	Email		Chat	
	% answers that contain canned text	% text that is canned	% answers that contain canned text	% text that is canned
3	85%			
4	85%	75%		
6	80%			
7	80%	75%		35%
8	60%			
Source: Interviews				

Several organizations acknowledged that canned answers can result in negative customer feedback. Organization 2 conducted two separate experiments. Both experiments had two conditions (groups). Individuals in group one received canned answers and individuals in group two received original responses. The results were the same in both experiments. The group receiving canned responses was *less satisfied* with the response but perceived it as *more professional*. The group receiving original responses was *more satisfied* with the response but perceived it as *less professional*. Their conclusion was that there is not a clearly superior way to deliver quality customer help across all dimensions. They suggest using canned answers but encourage assistors to personalize the answers with greetings, segues, and removal of irrelevant information.

Additional techniques to keep canned answers fresh, effective and usable are:

- Mandate a maximum length (helps with conciseness and speed).
- Conduct reviews of content (organization 2 conducts quarterly reviews of their whole database of answers).
- Limit the number of canned answers by culling out obsolete / rarely used ones and by replacing rather than continually adding.

The general philosophy is to keep the overall number of such answers small. If a canned answer is used too frequently, it might warrant being transferred into a FAQ (Frequently Asked Question), thereby reducing customers' need to actively contact the organization, and fulfilling the general objective of providing passive help.

Assistors have access to 'hot keys' - frequently used phrases, greetings, segues, closings, etc. - which help them to respond quickly. Some systems help assistors in selecting the correct canned answer by presenting them with a choice of likely candidates or a best guess by the system.

BEST PRACTICE: "USE WEB TEMPLATES. IN TIME TRANSFORM WEB TEMPLATES-BASED TRANSACTIONS INTO 'AUTOMATED SOLUTIONS'"

Web templates are structured web pages (e.g., html forms) that discipline the interaction between the consumer and the organization. A simple example is the use of a "drop-down" box with fixed choices as opposed to a field to fill with free text.

The interviewed organizations are actively attempting (in some cases requesting) to induce their customers to use web templates rather than free-form email, which is the email generated by a client email program such as Outlook.

From the customer's perspective, web templates are very similar to email, since they have a look and feel similar to email, but from the organization's perspective they are structured documents that reduce errors and facilitate routing and processing.

The functionality built into the fields in a web template allows for better categorization of the transaction (via menus of choices), error reduction (e.g., via prepared spellings and field content validators), and improved completeness of the transaction (via mandatory fields).

In addition, web templates can be set up to incorporate security (password schemes and encryption). If desired, space limitations may be set up to increase the conciseness of the interaction.

Several organizations recommended a system development strategy based on templates. In the beginning, form-based transactions are a means for customers to communicate information about a desired transaction. Information entered in this fashion still requires manual intervention. However, as the organization learns the relationship between input (the forms) and output (the answers to the customers), more and more of that interaction can be automated. In its ultimate incarnation, the customer's action sets off a chain of events (e.g., database entries) that take care of the request. One elementary example is when the customer changes his own mailing address from the web, without human intervention from organizational personnel. The customer action has consequences (new addresses will be printed by the organization when needed and the mail will be sent to the new address). When this happens, these forms are said to have evolved into "automated solutions."

POLICIES AND ORGANIZATION

This section discusses the next theme in the Model of the organizational impacts of customer service operations (see Figure 1 to understand how the theme fits in the overall study). Under the label "Policies" we group policies and organizational issues such as security and privacy, and personalization and privatization.

SECURITY AND PRIVACY

All the participating organizations are concerned with security and privacy issues and follow specific guidelines, often dictated by legal constraints. However, from the feedback that we received, we did not sense that these organizations believe that security is a major issue for their customers. Some stressed that there are trade-offs between security and convenience. For example, making a website more secure through the use of login and password screens also decreases customer convenience.

There are secure access methods available to provide account-specific information and answers. One method is to allow customers to submit inquiries through an insecure channel. The reply is then posted to a secure page (sort of a personal bulletin board) and an email notification is sent to the customer. The customer then accesses the secure page to retrieve the reply.

CHANNEL COMPETITION FOR RESOURCES

Channel competition is common among customer service organizations that offer a portfolio of channels. There are a finite number of assistors and channels compete for them. The organizations were split between dedicating assistors to a specific channel [1, 4, 6, 7, 8] or rotating them [3, 4, 5, 6, 8].[11]

It was noted by one organization that a policy of rotating email assistors from answering emails to answering the phones during peak times might be counterproductive for two reasons. First, delaying email responses might prompt customers to call the company, thereby creating duplicate queries, both of which would need to be answered. Secondly, the delay might discourage customers from using the electronic channel in the future.

PERSONALIZATION AND PRIORITIZATION

Personalization here refers to the practice of providing different help (e.g., at different levels of detail and/or technical sophistication) to different customers. Prioritization refers to differentiation of service levels to classes of customers. Table 8 shows the extent and the basis for personalization and prioritization within participating organizations.

The web affords the opportunity to personalize through use of "personae." A persona means a type of customer. A website can be programmed to present different information (pages) to each type of user. For example, a website could provide different and appropriate information to individuals vs. business, customers with or without a warranty, CPA vs. first time filer, and so on. The site could be designed to provide layered access either by content (novice vs. experienced user) or security (low level to high level). Persona assignment can be done by the organization or by the customer (self-classification).

Table 8: Personalization and Prioritization

Organization	Personalized	Prioritized
1	√ Planned	√ Fee
2	√ By segment	√ By segment
3	No	√ Content
4	No	No
5	√ By segment	√ By segment

[11] Some of the organizations are in both categories because they have some staff dedicated and some that rotates between channels.

6	√ All	No
7	√ Elite	√ Warranty & Segment
8	√ Considering	√ Warranty & Segment
Source: Interviews		

There is a trade-off between personalization and privacy. While personalization is a potentially useful idea, it must be carefully implemented. One organization noted that over-segmentation generated customer dissatisfaction because customers who were frustrated by their inability to find answers within the website built for their persona tried to change identity and become other personae, hoping to find the information they were looking for in the website fitted to those different personae. Needless to say, they often became more frustrated because the type and detail of the information provided by these other websites was not appropriate to them.

BEST PRACTICE: "PROVIDE INTEGRATED ESCALATION MECHANISMS"

A contact is considered "escalated" when the customer is not able to reach a solution with the first assistor and is referred (or demands to be transferred) to a second assistor who is usually more trained or has more experience. An effective escalation policy should be implemented both within and across channels. Improved training reduces the number of escalated interactions.

It is important that the second (or third) assistor be made aware of the case details before interacting with the customer, so that the customer does not have to repeat the whole problem description (resulting in less frustration and less wasted time). That can be achieved by systems that are integrated, both within and across channels. More will be said about integration under "Service Process" - specifically see Best Practice: "Manage the Customer, Not the Case."

INTERNAL AND EXTERNAL USERS (ASSISTORS AND CUSTOMERS)

This section discusses the users of systems designed to deliver Internet customer services (see Figure 1 to understand how the theme fits into the overall study). We discuss specific issues concerning personnel management first, and customers second.

ASSISTOR TRAINING AND CAREER

It is a common practice for the organizations to train assistors in more than one subject area (e.g., two products) to provide for flexibility. Some organizations provided the same training across channels [7] and some provided different training [5, 6]. Although most organizations conduct general content training, three conduct training specifically focusing on customers' inquires. Organization 1 conducts "Top Ten" training, which focuses on the top most asked queries in a given area, and Organizations 2 and 7 conduct "Top 200" training. Customer feedback is often systematically looped back to the training function.

BEST PRACTICE: "CREATE CAREER PATHS"

To reduce assistor turnover, several organizations [5, 8] have established career paths for their assistors. After completing eighteen months as successful assistors, employees have the opportunity to move to other parts of the organization. Organization 6 provides a career path from phone to e-support. These options allow accumulated knowledge to remain within the organization. They are win-win solutions that are good for both the assistors and the organization.

AVAILABILITY / STAFFING

We inquired as to availability of service for the various assisted channels and found some variability as shown in Table 9. While 24 X 7 availability across all channels is not yet a reality for most organizations, our interviews reflect a general intention to move in this direction.

Table 9: Channel Availability

Organization	24 X 7 Phone	20 X 7 Email	24 X 7 Chat	Less than 24 X 7 Phone	Less than 24 X 7 Chat
1			Ö		
2	Ö				Ö
3				Ö	
4				Ö	
5					
6	Ö				
7		Ö	Ö	Ö	
8	Ö		Ö		

Source: Interviews

"SUPER AGENT"

A "super agent" is an assistor that can perform equally well at all mediums (phone, email, chat). Does such an individual exist? Some organizations say the notion of the "super agent" is unrealistic [2]. Without exception the organizations believe that writing (email and chat) requires additional/different skills than communicating verbally. Some recognize this additional skill with higher pay for their e-support assistors [6].

Some organizations also evaluate new employees with various psychometric measures. Psychometrics is the measurement of psychological variables, such as intelligence, aptitude, and personality traits. There is disagreement, however, as to whether it is appropriate to hire based on personality profiles. While such a profile allows the employer to best fit a new hire to a particular

channel (spoken vs. written, for example), the benefits of specialization may be counterbalanced by lack of fit when personnel are rotated to other channels.

NEW CLIENTELES?

The issue of whether Internet-based customer support has created a new clientele is unclear [4, 7]. Some organizations believe it has created a new clientele by automating service [2] or by lowering the barriers to access [1, 3]. By "lowering the barriers" we mean that some customers who would not pick up the phone to call will use the Internet to get their inquiry answered because it is easier for them to access. Other organizations think a new Internet-based clientele is a possibility, but not relevant to them [8]. And finally, one organization believes there is no new clientele, only a diversion (i.e. existing customers are diverted from another channel to the Internet) [6].

CHANGES IN THE CUSTOMER SERVICE OPERATION

This section addresses issues related to the management of the service operation from the perspective of process (delivering the service) and outcome (the delivered service).

SERVICE PROCESS

This is perhaps the area where most of the organizational attention is currently focused. Developing an effective strategy for the process that delivers the service is seen as even more critical to customer service success than is technology. Many of the managers in our sample emphasized that it is important to decide the strategy first, and let the technology follow.

BEST PRACTICE: "FUNNEL INCOMING VOLUMES TO THE RIGHT CHANNEL"

While most organizations believe they should offer a portfolio of channels, they also believe it is appropriate to funnel (i.e., direct, encourage, or steer) incoming queries to the "right" channel. Which channel is "right" depends on the inquiry, the customer, and the organization.

The organization decides which channels to include in its portfolio based on customer strategies, costs, and feasibility from a resource standpoint. The customers, when made aware that there is a choice of channels, will choose based on both personal preferences and the nature of the specific interaction.

While most organizations were unwilling to restrict customers' channel choice, they were aiming at devising strategies to balance effectiveness and efficiency. In many cases this meant deflecting the most expensive interactions to where they could be solved satisfactorily for the customer but also at low cost (we will discuss costs under "Organizational Impacts").

From this perspective, email has less strategic value than the web. "Passive mode" help (i.e., self-help technology, such as a website) is cheaper to deliver than is "active mode" help (phone, email, chat). Organizations are striving to make passive mode help more compelling, attractive and easier to

use, so that customers will choose the passive mode as their *preferred* mode to get answers to their queries.

To encourage this preference, organizations are trying several tactics, based on mixes of incentives and disincentives. Usability labs are employed to make the websites more compelling and easier to use.[12] Advertisement campaigns educate customers on the existence and location of the new services. Discounts are offered to those that use the new services.

As discussed under New Clientele, the Internet has lowered the barriers to accessing information. Some organizations are now *raising the barrier* to phone contact by not providing 1-800 phone service [1, 3, 7], or by making it more expensive, for instance by turning it into a fee based service.

Web navigation can also be a means of funneling. With "funneling by segment," different customer segment (types) are steered along different paths on a website, making it easier for them to find what they need, and better controlling when they will be offered a chance to email or call the organization.

BEST PRACTICE: "MANAGE THE CUSTOMER, NOT THE CASE"

"Manage the customer, not the case" [7, 3] means to break away from the traditional case-in-case-out view of interaction, where the customer query is seen as a self-contained unit of work to be resolved as quickly as possible. The traditional view ignores the history of previous interaction(s) with that customer, both within and across channels. In the traditional view every query is effectively new, no matter how many attempts have been made to contact the organizations or solve the problem.

Performance measurement and reward systems based on the traditional view can lead to less than optimal behaviors. For instance, in a case-centered view, the number of *cases* processed may be an important managerial metric. In a customer-centered view, the number of *problems* solved is a better and more important metric.

In the customer-centered view, capturing the history of the interactions between a customer and the overall organization is important not only because it increases customer satisfaction (e.g., by avoiding asking the customer repeatedly for a description of the problem), but also because it saves valuable assistor time, by lessening the time spent to figure out the previous history, by routing customers with specific problems to the right problem solvers, and in some cases by proactively solving problems even before they arise.

Integrated channels enable all this. Channel integration means that assistors who work within one channel (i.e., phone) have access to a customer's prior inquiries through the same (within channel) and/or other channels (across channels i.e., email or chat). Table 10 shows the extent of channel integration both within and across channels.

[12] A usability lab is generally separated into two sections: the observer side and the participant side. The observer side is where observers view the study participants through a one-way mirror. The participant side is designed to simulate a normal user environment. Cameras and microphones are normally used to record the participants actions and comments. Usability labs are typically used for design and testing services to insure that sites work as intended.

Table 10: Channel Integration

Organization	Within Channel	Across Channels
1	Ö	Ö
2	Ö	Coming soon
3	Ö	Ö
4	Ö	No
5	Considering	Considering
6	Limited	Limited
7	Ö	No
8	By segment	By segment

Source: Interviews

One solution to the integration problem is the development of Customer Relationship Management (CRM) systems. Organization 3 has developed a CRM system and strongly considers it a success. All mail and faxes are scanned and integrated into a paperless workflow. This allows the organization to have a fully integrated system both within and across channels. In their experience, the CRM sometimes allows them to predict the reason for a query, alerting the assistor to the characteristics of the case even before the customer starts talking. In other cases, the CRM allows the assistor to be proactive and provide a customer who called for a different reason with information that the customer is likely to request in the near future, possibly avoiding future queries. On the other hand, some organizations question the usefulness of CRM systems and have concerns about the cost, amount and usefulness of the collected data, as well as possible negative impacts on productivity [2, 8].

BEST PRACTICE: "MAKE THE WEBSITE EASY TO FIND AND USE"

In a nutshell, "accessibility" and "ease of use" refer to the ease with which customers can find and operate a website. As organizations strive to encourage customers to rely more on Internet technology to have their queries answered, it becomes increasingly important that organizations' websites be accessible to a broad segment of their customer base.

Our participating organizations do not believe that Internet accessibility is a big concern or issue for their customer base. They know that most of their clientele are Internet users [6, 7, 8].

We discussed previously the tradeoff between security and ease of use. To an extent, requiring registration impedes use. One of the organizations believes providing Internet access is a social obligation [5] and several commented on the need for multilingual support [4, 7, 8].

BEST PRACTICE: "EMPLOY USABILITY LABS *THROUGHOUT* THE DEVELOPMENT PROCESS"

As part of the quest to ensure accessibility, the organizations we interviewed employ usability labs to ensure that their websites are easy to use. They suggest that better results are achieved when labs are used throughout the development process, rather than at the very end of it. This is because changes recommended during the process of development are more likely to be made than those suggested once the product is nearly complete and project deadlines would be affected.

Other successful techniques to obtain ease of use feedback include

- A goal of "Three Clicks" for a customer to get to the information sought [7].
- Use of third-party consultants and focus groups [2, 6].
- Lab approval required for publishing [5].
- Distribution of beta version of products to "Friends of the firm" – voluntary users who provide feedback in exchange for innovative products [3, 6].
- Routine modification of documents/pages found to be hard to use[13] [7].
- Systematic weeding out of least-used or old pages: e.g., "bottom ten" [2].
- "Personae" [8] (covered previously under Policies).

BEST PRACTICE: "MODEL YOUR WEBSITE ACCORDING TO CUSTOMER NEEDS, NOT ORGANIZATIONAL STRUCTURE"

For ease of use, participant organizations recommend to avoid modeling a website according to organizational structure. While doing so makes sense internally, it is confusing externally to the customers who see the organization as one unit, not as a set of relatively independent divisions and offices. Rather, the website should be modeled around the experience of customers [5, 8].

This means studying and designing the experience; avoiding inconsistencies in the web interface [5, 6, 8], and avoiding having multiple points of contact (e.g., multiple 1-800 phone numbers) [3, 4, 5, 8].

BEST PRACTICE: "MANAGE EXPECTATIONS ABOUT EMAIL TIMELINESS"

It is important to explicitly manage customers' expectations about the average length of response time to queries. The customer has a timeframe within which he *expects* or *needs* to receive a reply to his inquiry. It is important to let the customer know the expected turnaround time so he can use

[13] Based on customer feedback and/or measured abandon rate.

the channel that will meet his timeframe. For example, assume a fictional customer needs the information today. If he were informed that email responses take approximately 24 hours, he would choose to use the phone or chat rather than email to submit his query. If, on the other hand, he did not need the information today, he might be perfectly willing to submit his request by email and be satisfied with the reply time.

For some organizations "actual delivery" time is much faster than their "promised delivery," as shown in Table 11. These organizations find it necessary to manage the customer's expectations in order to maintain customer satisfaction. Some organizations use a continually updated on-screen message banner to advise customers of expected wait time.

Table 11: Email Timeliness

Organization	Promised delivery	Actual delivery
1	⊘	⊘
2	8 hours	4 hours
3		48 hours
4	24 hours	11 hours
5		48 hours
6		2 hours
7	24 hours	4.5 hours

Source: Interviews

Being unable to deliver within the promised delivery deadline is doubly damaging because it not only lowers customer satisfaction, but it may also induce the customer to use another channel to ask the same question. Since both queries need eventually to be answered, the cost may double.

SERVICE OUTCOME

This section discusses the next theme in the Model of the organizational impacts of customer service operations (see Figure 1). Under the label "Service Outcome" we group initiatives and issues related to the outcome of the service process (typically, the answer to a query).

BEST PRACTICE: "AIM AT FIRST-CONTACT RESOLUTION"

Many organizations emphasized that the quality of the answers provided to customers is (or should be) measured in terms of problem resolution. Resolution by itself is necessary but not sufficient. An important component of quality is the ability to resolve a customer's issue during the initial contact.

Two managers in different organizations colorfully highlighted this practice. The first emphatically told us "first time resolution is king." The second warned us of adopting a "whacking the

mole" problem solving style. This problem solving style focuses on resolving surface problems without taking the time to address deeper ones. If a call center's main emphasis is on a production standard such as the number of calls an assistor answers, assistors may tend to answer a lot of calls with easy, quick answers. The assistor focuses on the goal of trying to get the caller off the line quickly so they can get to the next call rather than providing quality customer service. When these solutions prove ineffective, the customer will just keep calling back to get his problem solved, increasing the overall cost for the organization.

Table 12: First Time Resolution – Channel Comparison

Channel	Phone	Chat	Web	Email
Percent Solved on First Try [7]	50%	42%	32%	30%
Source: Interviews				

Organization 7 maintains statistics on the percentage of first time resolutions by channel. They found that the more interactive channels have a higher percentage of first time resolution, with phone having the highest rate (50 percent) and email the lowest (30 percent). The data is provided in Table 12.

IMPACTS

This section of the report will discuss the impacts of Internet technologies: first the customer impacts (satisfaction), then assistor impacts (productivity), and last organizational impacts (costs). As in the prior sections, we will address these impacts by drawing on the experiences of the surveyed organizations.

CUSTOMER IMPACTS

Table 13 presents the responses we received when we asked each organization "What are your basic measures of performance in consumer care?" Since these were the items that initially came to mind, we believe they represent the metrics perceived as most important.

Table 13: Customer Impacts

Organization	Satisfaction	First time resolution	Resolution	Ease of use	Service level	Internet speed	Quality
1	Ö	Ö					
2	Ö	Ö			Ö		Ö
3	Ö						
4		Ö					
5		Ö					
6	Ö				Ö	Ö	
7	Ö	Ö	Ö	Ö			
8	Ö	Ö					

Source: Interviews

Customer satisfaction and first-time resolution are the two main metrics, followed by a widely variable field. Measurement of the two main metrics is difficult. Satisfaction is often sampled via random surveys. First time resolution is a powerful concept (as discussed above) but is rather hard to operationalize, because – among other things – it requires cross-channel integration. In addition, often

times the customer does not know whether a proposed solution does in fact solve his/her problem. It was suggested that metrics should be identical across channels.

When we asked the organizations to comment on their customers' comparative satisfaction between channels, we found that there was significant difference in opinions. This is additional evidence that there may not be an overall "best" channel, but that the "right" channel may well depend on the nature and distribution across channels of the customer's inquiry.

- Organization 5: Web is better than phone because of anonymity.
- Organization 6: Email is better than phone (for certain tasks – written, privacy at work).
- Organization 7: Phone is better than chat; chat is better than email; email is better than web.
- Organization 8: Phone is equal to chat; chat is better than email.

BEST PRACTICE: "INVEST IN SATISFACTION DRIVERS"

It was emphasized that managers should invest where they are most likely to obtain the largest impact in terms of customer satisfaction. Emphasis should be placed on those aspects of the interaction that – when changed from current levels – would increase customer satisfaction the most (e.g., the satisfaction drivers).

One method of obtaining customer feedback is through random surveys. It is important to use homogeneous methods across channels. The organizations told us that first time resolution and having a single point of contact are satisfaction drivers.

On the other hand, because wait time was *not* found to be a major driver of customer satisfaction, organization 8 looks at the tradeoff between customer satisfaction and the cost of providing service. For example, they currently strive to answer 80% of customer service calls within 90 seconds.[14] They could do it faster, but they believe that this metric achieves a reasonable balance between satisfaction and cost.

ASSISTOR IMPACTS

We focused on two key dimensions of the impacts of the Internet technology on the assistor: employee satisfaction and productivity.

EMPLOYEE SATISFACTION

Three of the organizations measure assistor satisfaction through employee satisfaction surveys [3, 6, 8]. The assistor satisfaction is superior with the written channels (email and chat) [1, 6, 7].

Telecommuting and flextime are options that seem to positively impact assistor satisfaction. In discussing channel rotation (covered previously under Policies) it was noted that creating realistic expectations regarding channel rotation goes a long way in keeping morale high. Forewarnings about

[14] They monitor factors such as abandon rate and measure customer satisfaction.

the peaks and valleys of call volumes and the likely need to move resources from one channel to the other also seem to help. One organization successfully manages the issue by scheduling a number of assistors to rotate each shift.[15]

PRODUCTIVITY

Most organizations feel that "pure" productivity numbers, based only on cost of resources (employee and assets) and average time per response, fail to capture effectively the long-term productivity of the channels.

Main issues are:

1. Average time per response does not capture whether the customer's problem has been solved, and may encourage undesirable behaviors.
2. The mix of questions received by each channel is not equivalent. Some channels may get a disproportionate number of easy queries, while others may get more of the harder, longer questions to answer.

Within these limitations, it is interesting to note that the chat channel allows for high productivity. While the average length per chat interaction is similar to or even longer than a phone call, assistors can operate several chats concurrently. The norm is for the assistor to conduct two to four [1, 8] simultaneous chats, with the ability to ramp up to six to ten [7].

Although the introduction of the CRM tool had many positive features (covered previously under "Channel Integration"), productivity is not one of them. One organization found that CRM reduced assistor productivity by 20 to 50 percent [3].

Time and motion studies are used to improve employee productivity, as are assistor support systems that automatically suggests answers [8]. Average times per transaction are closely monitored and used to determine the need for additional training or managerial intervention. If an employee is outside one standard deviation of the norm, he or she receives special attention. If the employee is outside two standard deviations, he or she gets even more managerial attention [8].

ORGANIZATIONAL IMPACTS

Cost is certainly the aspect of service delivery that is most actively monitored, and the one that most guides and constrains decisions. In this last section of the study, we focus on cost first, and then a series of broader strategic ideas.

[15] Even with planning and scheduling they still, of course, encounter the unexpected spikes.

COST

One obvious organizational impact of providing Internet-based customer service is reduced cost. There was consensus in the interviewed organizations that costs are minimized via customer self-help and Internet-based automated solutions.

Strategically, these are the areas where the greatest potential for improvement lies. For instance, for each one percent of customer service volume shifted to the web, organization 7 saves $35 million. Some organizations shared channel cost comparison data with us, which is provided in Table 14. The data should be viewed with a caveat not to assume that all transactions are the same. Customers choose different media for different types of queries. Also keep in mind that, although the 'Chat' column provides the cost per chat, normally more than one chat is conducted concurrently.

Table 14: Channel Cost Comparison – Average Costs Per Transaction

Organization	Phone	Email	Web	Chat [1] (per chat)
2	$6-7			
5	$5.50-14	$1.25-34		$6.50
7	$15	$9	$0.50	
8	$3-5	$1 [2] $3-5 [3]		$6-10

Source: Interviews

1 Although the cost is per chat, the reader is reminded that simultaneous chats are conducted. The more chats simultaneously conducted the lower the cost. For example in organization 5 the cost of one chat is $6.50. If the assistor is handling two simultaneous chats the cost is $3.25/chat, if the assistor is handling three simultaneous chats the cost is $2.16/chat and so forth.

2 Outsourced, canned

3 Average, fully burdened

Perhaps the most interesting finding in Table 14 is that email *can* be cost competitive with the phone.

BEST PRACTICE: "MEASURE PROBLEMS SOLVED, NOT INTERACTIONS"

The previous table provides data on a per transaction basis. A more meaningful measure of the cost of providing customer service is the cost of resolving a customer's problem. The next table provides average number of contacts with a customer to resolve a specific problem, and the average

costs per contact. Multiplying the number of contacts to resolve a problem by the cost per contact gives us the average cost to resolve a customer problem.

Table 15: Channel Cost Comparison – Average Resolution Cost

Channel	**Phone**		**Email**		**Web**	**Chat**	
Organization	**7**	**'X'**	**7**	**'X'**	**7**	**7**	**1**
Cost per contact	$15.00	$10.00	$9.00	$7.00	$0.50		$3.50
Avg. contacts to resolve	1.5	1.5	2.1	3	2.30	2.20	
Avg. costs to resolve	$22.50	$15.00	$18.90	$21.00	$1.30		
Source: Interviews							

Note: This table also includes data on organization 'X' which we acquired during the interviews. Organization 'X' was not part of our sample.

This last table (Table 15) summarized some of the considerations on email, chat and phone scattered throughout this study: (1) email can be competitive with phone, (2) the real cost savings come from using the web, and (3) chat is a contender as an additional active channel.

BEST PRACTICE: "MANAGE THE CHANNEL PORTFOLIO, NOT THE SINGLE CHANNEL"

It is important that organizations not look at channels in isolation, but that they consider the interaction of the various channels they have available for providing customer service. In particular, cost and productivity comparisons, even within the same organization, should take into account that queries are likely to distribute differently across channels. One channel attracting a disproportionately large number of difficult queries might improve productivity in another channel that is left with a proportionally lighter load. This channel portfolio perspective also facilitates investment decisions designed to maximize the impact in terms of customer satisfaction of each investment dollar.

BEST PRACTICE: "TO REDUCE INCOMING VOLUMES, REDUCE THE CUSTOMER'S NEED TO CONTACT YOU"

Another recommendation emerging from the interviews was to focus on the "big picture" of why an organization provides customer service. In many cases, customer service is required to fix situations that arise because of some type of flaw in the product or service offered by the organization.

Therefore, one important option is to pour investment money into improving the product or service, eliminating at the root the need for later maintenance, service, or support.

Methods of achieving this goal include better R&D (Research and Development), so that products that require less post-sale support can be offered to the customers [2, 7, 8]. This includes easier instructions and simpler forms and supporting materials.

Another tactic to achieve this goal is to include help capabilities directly in the products themselves. For instance, a form (in electronic format) might help the consumer filling it out, by explaining the meaning of fields and checking for validity of the entries (for example, sums). Part of this capability could be achieved by having the form connect to the Internet in a transparent, seamless way [7, 8].

The final tactic that was mentioned to reduce incoming volumes of queries was to improve web navigation, search, and coverage [1, 7, 8]. These latter topics were also covered in more detail above (under "Service Process").

BEST PRACTICE: "LOOK FOR OPPORTUNITIES BEYOND THE ANSWER"

Another practice that was mentioned during the interviews was to be alert to the existence of opportunities beyond delivering the service required by the customer. A customer satisfied by a solution to his/her problem and on the phone or looking at a web page is a very low cost opportunity to offer not only additional services such as cross selling [6], but also to perform proactive maintenance on his/her account, possibly avoiding future queries [4].

BEST PRACTICE: "MEASURE, MEASURE, MEASURE"

During the interviews it became obvious to us that some of the best-managed organizations excel at systematically measuring their operations. Measurement in customer service is a subtle art as much as it is a science. To operationalize powerful and intuitive concepts such as satisfaction and first-contact resolution is harder to do well than it may seem from a superficial analysis.

Most organizations employed a variety of methodologies, including third party surveys, sample based monitoring [7 - 10%; 8 - 1%; 6], and criteria-based monitoring [3]. Some organizations measured characteristics such as usefulness at the level of the single web page [2, 7, 8]. It was noted that the ability to control content is channel-dependent [7]: e.g., it is very high for email, low for phone.

Unfortunately, there is no silver bullet that can replace an intelligent, thoughtful analysis of the measurement system put in place. That analysis needs to recognize the power implications (rewards, resources allocation) of the measures, and carefully manage them. It is human nature to pay the most attention to the measures that make us look good, and to discredit and belittle measures that make us look less than good. Equally important is the interpretation of the obtained measures, finding appropriate terms of comparison, and then acting on the results of these measurements.

One large organization suggested employment of the COPC (Customer Operation Performance Center) methodology for setting up an effective measurement system.[16] COPC is an institution that

[16] Interested readers are referred to the COPC website: COPC.com

issues guidelines and measures for attaining certification. The certification is based on the Malcolm Baldrige National Quality Award criteria, tailored to the specific needs and characteristics of customer call centers.

CONCLUSIONS

Based on our interviews with many mid- and high-level executives at eight large public and private organizations, we have described a rich and up-to-date landscape of technological innovations, trends and best practices that collectively describe the state of the art in Internet-based customer service. We have also identified potential organizational impacts based on the experiences of the surveyed organizations from the new technologies.

The main conclusion that stems from this study is that the next step forward in increasing efficiency of the customer support function comes from the use of "passive" electronic channels. These are means of delivering customer support that do not require human intervention (e.g., self help, automated solutions). Many leading organizations in the nation have taken or are taking this direction.

In summary, we believe that the identification of these leading-edge organizational and technological practices and potential organizational impacts answers the research questions we were asked to investigate, and that the overall objectives of this investigation were successfully met.

RECOMMENDATIONS

Within the group of electronic channels that require the intervention of an assistor we found it interesting that many consider chat a technology with high potential. We recommend that the IRS should further explore the adoption of chat as a means to deliver cost-effective active customer support through the Internet, perhaps starting with pilot projects in limited areas.

While the seventeen best practices identified in this study are expressed as imperatives ("do this, avoid that"), it should be noted that the objectives of this study were *descriptive* in nature, not *prescriptive*. On the one hand, because the practices that we have identified summarize the beliefs and the experiences of the managers of some of the leading companies in the nation, we recommend that the IRS leadership consider them with an open mind. On the other hand, we recognize that the differences in mission, operations, markets and products between these organizations and the IRS require a reasoned adoption of these practices on a case-by-case basis.

In summary, appropriate best practices identified in this report should be selected and implemented by Customer Accounts Services based upon their strategic objectives.

APPROVAL (SIGNATURE PAGE)

The individuals listed below accept oversight and approval responsibilities for this study plan.

/s/ Wayne A. Berkbigler **February 27, 2003**

_____ _____

Wayne A. Berkbigler, Chief Customer Research Date
W&I Research Group 1

/s/ Jon Games January 23, 2003

_____ _____

Jon Games, Acting Customer Relationship Manager Date
Improving Customer Service and Satisfaction Research Strategy

/s/Patrick G. McCammon March 06, 2003

_____ _____

Patrick G. McCammon Date
Acting Director of Research, Wage and Investment Division

APPENDICES

APPENDIX A: GLOSSARY

The following is a definition of terms used in the plan.

CAS	Customer Accounts Services
COPC	Customer Operation Performance Center. COPC is an institution issuing guidelines and measures for attaining a standard certificate. The Malcolm Baldrige National Quality Award criteria and framework were used as the basis for the standard. The standard is tailored to call center services. More information can be obtained on their website at COPC.com.
CRI	Compliance Research Intranet
CTI	Computer Telephony Integration is a technology to integrate an IVR and other systems, such as a customer database.
ETLA	Electronic Tax Law Assistance
ETA	Electronic Tax Administration
IRS	Internal Revenue Service
FAQ	Frequently Asked Question
Fortune 500	The Fortune 500 list includes the largest U.S. companies according to revenue. Fortune 500 considers the set of all U.S.-based companies that file all or parts of their financial results with a U.S. government agency.
Fortune e-50	The Fortune e-50 list includes the largest U.S. companies in the following sectors: E-Companies, Internet Communications Companies, Internet Hardware Companies, and Internet Software and Services Companies.
IVR	Interactive Voice Response. IVRs are the systems that let a user key in information, such as account numbers, social security numbers, and many other options and then the IVR system can interact with a database for information input or information delivery. IVRs can deliver information that clients need such as account balances or input database information such as order changes – and are completely automated.

OMB	Office of Management and Budget
Psychometrics	The branch of psychology that deals with the design, administration, and interpretation of quantitative tests for the measurement of psychological variables such as intelligence, aptitude, and personality traits.
VoIP	Voice over Internet Protocol is commonly referred to as VoIP. VoIP is the ability to make telephone calls and send faxes over IP-based networks.
WWW	World Wide Web

APPENDIX B: INTERVIEW SCRIPT

- Introductions.
- Thank you for participating in the study.
- The IRS is improving a computer system designed to deliver tax law advice to the taxpayers via email. We are interested in understanding the benefits from such a system to the taxpayers – that is, the IRS's customers - and the likely future trends of this technology to deliver customer support. We are also interested in organizational benefits.
- We are now conducting interviews with key individuals at several sites in the private and public sector that have accumulated precious experience in delivering customer support through the Internet. The interviews are designed to collect information about the characteristics of these information systems. The questions below are in no way a test of your knowledge or skill: they help us create a picture of Internet-based customer support at your firm. It is not evaluative of you.
- At your discretion, your responses can be associated with your company name or be kept rigorously anonymous. We will identify (and share with you and the other participating organizations) trends and best practices by contrasting and comparing the projects ongoing at several large public and private organizations.
- The interview includes about 70 questions and will last about ninety minutes. We will start from relatively general issues and become gradually more specific.

Interview Script

Project 2.21
July 2, 2002

ORGANIZATION OF THE CUSTOMER SERVICE CENTER

1. Could you describe what kind of customer support you deliver via the Internet (channels / type of support)?
2. FOR EACH TYPE OF SUPPORT: How does the system work from the customer's point of view? (i.e., how do they learn about the service, how do they get your Internet address, where do they start, what happens next, etc.?)
3. How does the system work from your organization's point of view? (i.e., what happens to the queries that you receive?)
4. Percentage of use and number of queries for each channel / type?

Channel	Phone	Email	Web	Fax	Snail Mail	Field	Other
Percentage							
No of requests /year							

5. (if unable to answer the above) What is your most used touch point (i.e. what is your primary channel for customer support)?
6. What do you envision as your most used channel in two years? How about the other channels?
7. Are the various channels (Internet/phone/email) separated or integrated?
8. Which has priority?
9. How many sites process queries?
10. How many customer service reps (total/per site/per channel)?
11. Internet Customer care Budget? (people/sw/hw)
12. Customer care budget?
13. Trends in budgets?

HELPFULNESS OF THE ANSWERS TO THE CUSTOMER

14. What makes a good answer from a customer's point of view?
15. How do you make sure that the answer is helpful?
16. How do you make sure that you answer a question in a concise fashion and not provide a customer with too much information?
17. How does the general quality of the answer compare to the answers delivered via other channels?

CONSISTENCY AND CORRECTNESS OF THE ANSWER

18. Do you have quality control processes in place to monitor the correctness of the answers? How do they work? What are the results?

SERVICE PROCESS

19. How do you determine your customers' overall satisfaction?

ACCESSIBILITY (PHONE, WEBSITE)

20. Is accessibility an issue (people that do not have access to a computer)?
21. Are you trying to build a convenient "one stop," "one point of contact" interface with your customers?

EASE OF USE

22. While developing the customer care system(s) has ease of use for the customer been a major issue?
23. Do you have means to ask for customer feedback on the system's ease of use?
24. What changes have you made or are you planning to make in the near future in this respect?

TIMELINESS

25. In your line of business, what is the customer's expectation for timeliness?
26. How much time does it take to answer an average question? A difficult question? An easy question? (Receipt of query to sending the answer)
27. How does the time needed to answer a question via the Internet compare to other channels?
28. Have you taken or are you taking any initiatives to speed up cycle time? If so, what kind of initiatives?

COMMUNICATION QUALITY

29. Do you have means for capturing the history of previous interactions with a customer? Can they pass it on to the next level (email to follow-up email or email to phone)?
30. Do your customers have the option to reply to the same rep that answered them?
31. Are you taking steps to enrich the communication with the customer (e.g., by integrating different channels of communication and integrating channels with databases of customer data)?
32. Is the new technology creating a new clientele vs. diverting an existing clientele that previously used other channels?
33. Do you believe that customers who use the system miss human interaction?

SYSTEM/TECHNOLOGY

34. What is your perception of the telephone's importance in conducting business with your customers over the next 5 to 10 years?
35. Which trends towards integration across channels (phone, email, sites…) do you see?
36. Will email be eliminated in favor of alternative technologies (e.g., interactive pages, Internet telephony…)? Why?
37. What kind of measures are you taking for protecting confidential data from a technological standpoint?

38. What kind of measures are you taking for protecting against security threats?
39. Do you have a security plan?
40. Technological trends?

INFORMATION CONTENT

41. Electronic resources: What kinds of information do reps have to help them perform their job?
42. How is it kept up to date?
43. Do you have a means to ask for *internal* feedback on the system usefulness and ease of use?

KNOWLEDGE REUSE

44. Do you use "canned answers"?
45. What percentage of the time do you use 'canned' answers?
46. Who authors them?

POLICIES AND ORGANIZATION

47. Do you prioritize customers? On what basis?
48. Is privacy of the content of the customers' questions and answers an issue? How is it handled?

FOLLOW UP AND ESCALATION

49. Is there an escalation process when a rep cannot answer a question? How does it work? Who are the experts?
50. Do you have a cross-channel escalation strategy?

INTERNAL AND EXTERNAL USERS

TRAINING

51. Training: What kind of initial training is provided for reps?
52. What additional training do you give to the reps to keep them up to date with what they need to know?
53. Are there levels of training?

STAFFING

54. Are reps available 24x7?
55. Do reps rotate between Internet and phone?
56. If they rotate between mediums, how frequently (i.e., during the day, daily, weekly, etc.)?
57. Staff allocation across channels: How are selections made between channels (e.g., Internet/phone)?
58. Are Internet reps drafted from phones reps?

IMPACTS

CUSTOMER IMPACTS

59. What are your basic measures of performance in consumer care?
60. Have you measured customer satisfaction with your support? Trends?

ASSISTOR IMPACTS

61. Productivity across channels: is it an issue?
62. How does productivity in the Internet channel compare to other channels? (higher/lower)
63. Why is productivity lower/higher?
64. Do you measure employee satisfaction? How?

ORGANIZATIONAL IMPACTS

65. Have you done analysis comparing phone cost to email cost?
66. Cost per average answer per each channel?

BACKGROUND DEMOGRAPHICS

LOCATION

TITLE

YEARS AS <TITLE>

YEARS WITH <COMPANY>

YEARS WORKING WITH THE INTERNET CUSTOMER SUPPORT SYSTEM

PLEASE DESCRIBE THE NATURE OF YOUR INVOLVEMENT WITH THE SYSTEM.

APPENDIX C: SERVICE RESEARCH DATA STANDARDS CERTIFICATION

For the subject project, I certify:

- The use of taxpayer data is restricted to authorized personnel for approved research projects;
- Taxpayer privacy is safeguarded;
- The data used in a research project are validated;
- Any known or potential limitations in the data used in a research project are properly disclosed;
- Any data used in a research project are obtained, utilized, stored, disseminated, and transported in accordance with the Internal Revenue Manual;
- Related documentation (data dictionary, record layout, sampling plan, data validation documentation, syntax and other computer code) is made available to any research site requesting data;
- All data used in a research project and under the control of Research, whether stored on computer or archived on magnetic media, are destroyed in a timely manner in accordance with the Internal Revenue Manual.

This document covers all data used in any research activity from internal or external sources.

Project Title	Internet-Based Customer Service: Organizational Experiences
Project Number	1-02-04-3-001 (Formerly 2.21)
Research Unit and Location	W&I Research Group 1, Austin, Texas
Research Site Chief Signature	*/s/ Wayne A. Berkbigler*
Date	**February 27, 2003**

APPENDIX D: MODEL OF THE ORGANIZATIONAL IMPACTS OF CUSTOMER SERVICE OPERATIONS

To determine the impacts of organizational and technological practices for providing and managing Internet-based customer service in private and public organizations, we need a means to structure our investigation, as well as a framework to organize our findings. We propose to conceptualize Internet-based customer-service as a process. This process uses a system of resources (e.g., hardware, software, personnel, etc.) to produce a service (answers for the customers).

Figure 3 presents a Model of the Organizational Impacts of Customer Service Operations. The model shows that changes to the characteristics of the system (e.g., a change in policy) may induce changes in the system operations (e.g., the way assistors do their job; the quality of the answers), which in turn result in changes in variables of organizational interest (such as costs of producing the service, or the productivity per assistor). These latter changes are often called "organizational impacts" of the changes in system characteristics.

Figure 3 - Model of the Organizational Impacts of Customer Service Operations (overview)

Figure 4 elaborates on the basic idea described in Figure 3. It explicitly identifies the characteristics or resources that compose the system. They are:

a) Technology - hardware and software;

b) Information content, i.e., the stored information that supports the system operations;

c) Policies and organization practices; and

d) Internal (i.e., the assistor) and external (i.e., the customers) users.

The customer service operations are subdivided into two categories:

a) Service process; and

b) Service outcome.

Lastly, the organizational impacts are organized in three distinct categories:

a) Customer impacts (e.g., satisfaction);

b) Assistor impacts (e.g., productivity); and

c) Organizational impacts (e.g., cost per answer).

Figure 4 - Model of the Organizational Impacts of Customer Service Operations

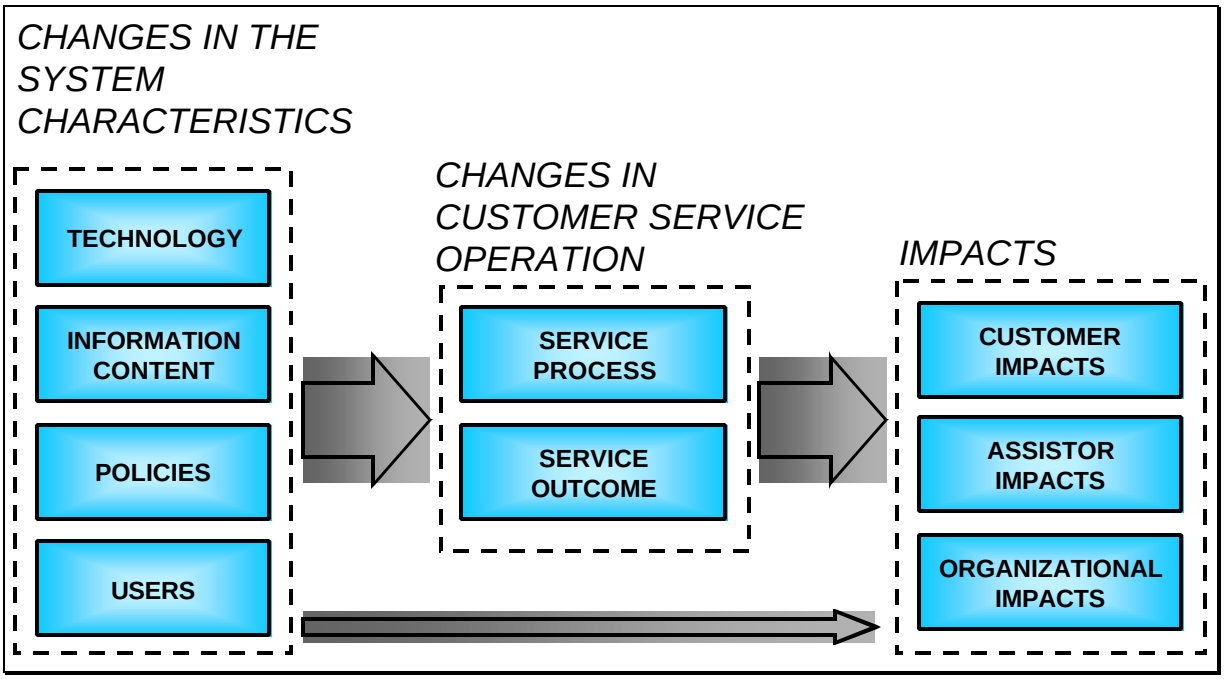


Figure 4 also emphasizes that certain changes might have direct effects on some of the variables of interest without affecting operations. For instance, a decrease in the cost of technology will affect the cost per answer even if no changes are made to operations. This is graphically depicted as the arrow that goes directly from changes in the system characteristics to impacts.

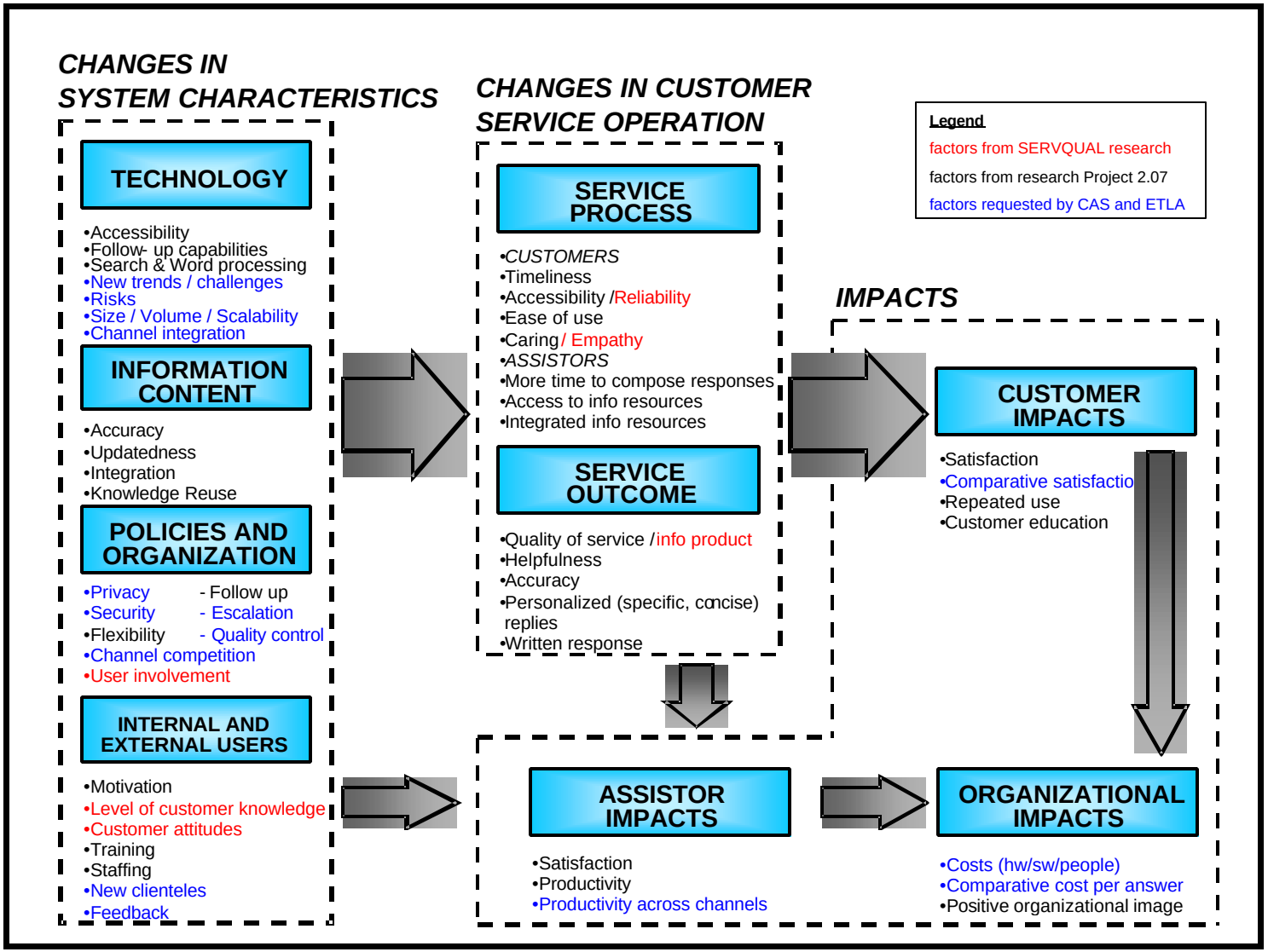
The model in figure 4 is the foundation for this study. The next step consists of populating it with specific issues. The resulting populated model will be the basis for the creation of the scripted interview to administer to the participants of this study.

To populate the model we considered three sources of information:

1) Our previous work;
2) The literature; and last but not least;
3) Input from the customer for this research (i.e., ETLA and CAS).

Figure 5 organizes graphically the issues identified from the cited sources. Added detail (i.e., the additional gray arrows) is provided to explicitly recognize that organizational impacts are often mediated by individual impacts (Weber 1999). In other words, in order to have an organizational impact it is often necessary to impact the customers or the assistors.

Figure 5 - Model of the Organizational Impacts of Customer Service Operations (detail)



The model in Figure 5 is the foundation for the structure of the interviews conducted with IT and Customer Support managers at the participating sites. Appendix B provides the script for the interviews.

SAMPLING

The population to which we sent invitations to participate in the study has been described, under the heading "market segment." Invitations took the form of a letter (a copy is provided in Appendix E). Available resources and likely rate of volunteer participation suggest that a sample of five to nine organizations can be considered sufficient for this project, which can be described as a comparative analysis of business cases. It is appropriate to note here that the possibility of an insufficient volunteer participation is perhaps the main risk of this study.

To identify private organizations in the set of interest we used the Fortune 500 list and the Fortune e-50 list as published in October 2001. The Fortune 500 list includes the largest U.S. companies according to revenue. Fortune 500 considers the set of all U.S.-based companies that file all or parts of their financial results with a government agency. The Fortune e-50 list includes the largest U.S. companies in the following sectors: E-Companies, Internet Communications Companies, Internet Hardware Companies, and Internet Software and Services Companies.

The selection was made according to the following steps:

1. We selected the top 100 organizations in the Fortune 500 list. This guarantees that large organizations are included.
2. We selected the top 50 organizations in the Fortune e-50 list. This was done to capture large organizations that are presumably technologically sophisticated.
3. We ranked these 150 organizations according to the following criteria: (a) Is the organization serving the general public? (b) Does the organization provide a significant amount of services, as opposed to physical products? (c) Is it in the financial industry? (d) Does the organization provide information-intensive help? (e) Is the organization likely to be sensitive to security? (f) Is the organization technologically sophisticated?

   These criteria are designed to guarantee that the organization is reasonably comparable to the IRS. Ranking was conducted by the researchers based on their perceptions of the organizations and information obtained through visits to their websites.
4. Organizations were sorted according to the sum of the scores assigned in the previous step (for simplicity all criteria were given equal weight). To avoid excessive concentration in any particular industry (e.g., financial) we selected the top three organizations per industry.
5. ETLA/CAS (our customer) had an opportunity to provide input and modify the selection resulting from steps (1)-(4). This step was designed to further ensure comparability of the sampled organizations with the IRS and relevance for this research.
6. In addition, a set of public organizations was identified by ETLA/CAS (our customer). It was appropriate for them to make the selection of those organizations that they considered most comparable to the IRS.

After completing our identification of potential *private* companies we made contact with them. Our initial contact was through the tax department. From past experience we anticipated that any correspondence from IRS would undoubtedly be referred to that department so we chose to work through them directly. We worked with local IRS Governmental Liaisons, within Communications and Liaison Division, to obtain contacts within the *public* organizations. Once we had a contact we followed up with a phone conversation, advising them that the contact had nothing whatsoever to do with any tax matter and that we were soliciting voluntary participation in a research study. We provided information about the research project and solicited the name of an appropriate contact within the organization. We explained that we were requesting access to managers that are involved with the day-to-day operations of the systems that deliver Internet-based customer support (e.g., director level officers), as well as managers that are responsible for their strategic direction (e.g., CIO/VP level officers). Once we reached the appropriate resource we requested voluntary participation in our study.

Our initial list consisted of twenty-seven private and three public organizations. Our acceptance response was excellent. We had a goal of obtaining a sample of five to nine participating organizations. We contacted sixteen organizations: eight accepted, six refused, and we were unsuccessful in getting past the 'gatekeepers'[17] in the other two. Because we had established an interview cut-off date of the first week in October 2002, we discontinued soliciting additional participants and did not make contact with the remaining 14 (of our initial list of 30) organizations.

The Principal Investigator and a Research Program Analyst conducted interviews of key personnel from each organization. By key personnel we mean managers responsible for the development, operations, and maintenance of the system from both a technical and business (customer support) point of view. Preference was given to seasoned individuals and higher-ranking positions, albeit not so high that they would not have direct knowledge of the system.

Our ability to recruit appropriate organizations and appropriate individuals within these organizations was a significant risk factor for the success of this research. One way to mitigate this risk factor was to offer to the organizations some inducement to participate. Participants were told that we would share the results of our study - a report containing the results of the omparative analysis of the collected business cases.

[17] We were unsuccessful in making any meaningful contact with the company. We received no response to our phone messages.

APPENDIX E: INITIAL CONTACT LETTER

NOTE: The letter was printed on official W&I letterhead stationery. Dr. Grazioli moved from University of Texas to University of Virginia May, 2002

MailStop 4050AUS
300 East Eighth Street
Austin, TX 78701
April 15, 2002

Name
Address Line 1
Address Line 2
City, State Zip Code

Attention: Name of Contact, Title

Dear Name:

The IRS is working with the University of Texas at Austin to conduct a study on the use of the Internet to provide excellent customer service.

We are interviewing *managers that are responsible for delivering Internet-based customer service* in a select group of public organizations that we have identified as leaders in this arena. The purpose of these interviews is to assess technological and business trends, as well as lessons learned.

These interviews will be used by University of Texas researchers to write a "best practices" report on how to improve the quality of Internet-based customer service. In exchange for your participation, we will be happy to share the report with you. You will have the choice of having your organization's name either explicitly mentioned or kept rigorously anonymous.

We will contact you soon to determine your organizations interest in participating and to set up a convenient time for the interviews. We look forward to collaborating with you in this exciting national project whose success is important to the IRS.

Sincerely,

Elaine Schultz
Research Group 1
Internal Revenue Service
Austin, Texas

Stefano Grazioli, Ph.D.
McCombs School of Business
University of Texas at Austin

APPENDIX F: OTHER INTERESTING FINDINGS

It is anticipated that the reader will want to know the approximate number of customer service transactions that are handled by the participating organizations. Table 16 provides estimates of the number of transactions per channel and Table 17 provides the same information in percentages. The gray row background separates out the public organizations [3 and 4].

Table 16: Annual Transaction Volumes ('000s – Approximate Estimates)

Organization	Phone	Email	Web	Chat	Other
1	72[1]		520	280	
2	15,400[2]	400		20	500
3	500	22	2,000		156
4	60,000	300	40,000		
5	1,500	6,300	11,500	18	
6	75,000	2,500	120,000		
7	12,000	2,500	78,000	480	6,000
8	18,000	5,000	1,000,000	1,500	

Source: Interviews

[1] Company 1 does not offer a 1-800 phone service. The phone contacts are follow-up or escalation phone contacts. The majority of the contacts are handled passively (without human assistance) on the web.

[2] Company 2 estimates that 15,000,000 are passive (IVR) and 400,000 are active phone calls. They are not able to estimate their annual web volume. Table 17 contains percentages based on their estimate of daily volume.

Notice the high percentage of web volume in Table 17 for organizations 2 and 8 (95.0 percent and 97.6 percent respectively) as compared to organization 4 (39.9 percent). Organization 8 has the lowest percentage of phone volume at 1.8 percent while organization 4 has the most phone volume at 59.8 percent.

The newest channel, chat, is a small percentage of all organizations' volumes except for organization 1 (32.0 percent).

Table 17: Annual Transaction Volumes (Percent of Total Volumes – Estimates)

Organization	Phone	Email	Web	Chat	Other
1	8.0%		60.0%	32.0%	
2	4.9%	0.1%	95.0%	0.1%	0.1%
3	19.0%	0.01%	75.0%		6.0%
4	59.8%	0.2%	39.9%		
5	7.8%	32.6%	59.5%	0.1%	
6	36.9%	1.2%	59.0%		2.9%
7	12.9%	2.7%	83.9%	0.5%	
8	1.8%	0.5%	97.6%	0.1%	
Source: Interviews					

Site logistics are provided in Table 18. The organizations ranged from organization 3, a state agency with one call center and 53 assistors to organization 8 which has over 200 call centers and 15,000 assistors. Three of the organizations outsource.

Table 18: Site Logistics

Organization	Outsourcing	Number of Call Centers	Assistors
1	Ö	6 centers	300
2		2 centers	600
3		1 center	53
4		1 center does email, 37 total	267
5		8 centers	300
6		12 centers	7,000
7	Ö	10 worldwide, 4 serving the U.S.	4,000
8	Ö	200 worldwide, 7 serving the U.S.	15,000
Source: Interviews			

APPENDIX G: REFERENCES

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APPENDIX H: ABSTRACT

This report provides research requested by Customer Accounts Services. Customer Accounts Services asked Wage and Investment Research to identify leading-edge organizational and technological practices for providing and managing Internet-based customer service in comparable private and public organizations, and to identify potential organizational impacts based on the experiences of the comparable private and public organizations.

Wage and Investment Customer Research Group 1, Austin, Texas with the assistance of an Assistant Professor of the McIntire School of Commerce, at The University of Virginia, completed the research assignment under the auspices of the Improving Customer Service and Satisfaction Research Strategy.

The study consisted of an analysis of data from a sample of private and public organizations 1) that have implemented and currently operate systems to deliver customer support using Internet technology and 2) are comparable to the Internal Revenue Service. The study data was obtained through interviewing key personnel (managers who are responsible for the delivery of customer service through the Internet) within each of the targeted organizations.

Keywords List: Customer Accounts Services, Wage and Investment Research Division, Customer Research Group 1, leading-edge organizational and technological practices, and Internet-based customer service.