
Tell
TxDOT
Customer Satisfaction Program

Foreword

In recent years, organizations of all sizes and types have increasingly come to understand the importance of customer satisfaction. Historically, the private sector has accepted that there is a strong link between customer satisfaction, customer retention, and profitability. Likewise, for the public sector, customer satisfaction should be the measure of success. It is the key to establishing a reputation for service quality among its customers, the general public.

Unfortunately, problems such as confusing forms/websites, long response times, lost/misplaced paperwork, and poor performance are very often the perception of many government agencies. But even if you invest heavily in improving performance, quality, and customer service, how do you know if you are succeeding? If you cannot measure it, you cannot manage it.

A customer satisfaction program can lead to improvements in efficiency and effectiveness as well as increase Texans' trust in government. How does it do this? By supporting and promoting the accomplishment of an agency's mission and goals and aligning team and individual performance elements with those goals. Tools such as surveys and focus groups can help an agency better understand its customers' needs, provide specific and actionable data to guide service improvement, and introduce fresh ideas into government processes.

The Texas Department of Transportation (TxDOT) Customer Satisfaction Program Guidebook will help those who are committed to improving the department. It will discuss the need to collect customer information and feedback, describe the customer service tools available, and help employees to determine the tools that will accurately measure customers' satisfaction and provide reliable data on which to base important management decisions and monitor improvements in performance.

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Introduction
Guidebook Purpose

Why?, How?, When?, What? and How often? you ask is important.

At its core, customer service is why a public sector agency is "in business." Satisfying customers is essential to TxDOT. A genuine understanding of customers' needs and expectations is the key to finding out whether TxDOT is meeting its customers' expectations and delivering quality service. And the best way to find this out is to ask them.

Organizations with strong customer-satisfaction reputations pursue this level of understanding through focus groups, customer-feedback forms, and systematic surveys among key customer groups. To improve performance, managers must apply what they learn from these activities to the decisions they make about a particular program. Furthermore, it is critical to communicate this information throughout the organization to help front-line employees make smart decisions when dealing with customers.

Implementing a customer satisfaction program can improve:

Efficiency

- **Resource management** – in a time of budget cuts and tax limitations, an agency can identify its most crucial programs and redirect its resources.
- **Resolving complaints** – customer complaints highlight problems and help agencies quickly address the cause.

Effectiveness

- **Reliable data** – clear plans lead to clear vision for how information is used.

Public trust

- **Commitment to customer service** – a customer-centered approach tells people what they can expect from government and how the agency measures success. Moreover, incorporating customer satisfaction into published performance measures shows a commitment to meeting customers' needs.

Introduction
How to Use this Guidebook

The Guidebook is designed to support customer satisfaction efforts at TxDOT; help those who create information-gathering tools; and facilitate the use of satisfaction information that is collected.

Surveying is only one method. There are various ways to collect customer satisfaction data, but since not everyone is familiar with the basic principles, this brief manual highlights when surveying may be appropriate, identifies some of the alternate data-gathering approaches, and outlines the steps to follow when deciding when to use each one.

The intent is to prepare agency staff to collect customer satisfaction data using a well-reasoned approach, but it is not meant to be the complete source for all issues.

The intent is to prepare agency staff to collect customer satisfaction data using a well-reasoned approach, but it is not meant to be the complete source for all issues. It is designed to familiarize staff with the steps involved in the process of asking questions, receiving the answers, and compiling useful data to make them more effective users of customer information.

You will find suggestions for timelines, logistics, effort required, as well as the number and composition of participants that best suit each method and each question. But, to yield the most valuable results, consulting experts in data collection methodology is strongly recommended.

Step 1 Assessment

Step 1: Assessment

Know Your Project

1. WHY ARE WE DOING THIS?

Customer satisfaction is not an opportunity to ask everything the agency ever wanted to know about its customers. Before you even start thinking about what you want to ask your customers, the first step in any project should address the question: "Why are we doing this?" Related to this are "What am I trying to learn?" and "What am I going to do with that information?"

Yet the tendency for many organizations is to immediately start writing customer questions and having others submit questions that they want you to ask. The result is a survey/questionnaire/focus group that was designed by a committee that takes more time to prepare and produces an end product that is unfocused and cannot be acted upon.

You should put into writing: a clear, concise statement of the problem you are studying and the information you seek. It should define and integrate:

a. The project's objectives,
b. The agency's mission,
c. The agency's overall goals and objectives,
d. The agency's key functions, and
e. The project's budget constraints.

Without this, the project won't be able to measure how well the agency is serving its customers. Do not write any questions until this is done.

Social scientists have two terms related to doing this:

a. **Research concept** — a statement that conveys a general idea about what you are trying to measure; where more information is needed.
   - *Example: We want to know how satisfied our customers are with road conditions on State Highway 6 (SH6) between Bryan and Navasota.*

b. **Research questions** — relate to the concept that you want to measure. Can be broad or narrow in scope. The basic idea behind this is to identify what specific aspects of a concept need to be known. This also increases your depth of understanding of the concept.
   - *Example: How satisfied are Brazos County citizens when riding on SH6 at night during the rain?*

Step 1: Assessment

Know Your Project

Examples of TxDOT-specific research concepts and questions:

Research concept: Who are TxDOT's customers?

- Research question: *What are customer demographic characteristics?*
- Research question: *How do customers use the roads?*

Research concept: How much do TxDOT's customers know about TxDOT?

- Research question: *How much do customers know about funding, responsibilities, operations, and future plans?*
- Research question: *How much does that matter?*
- Research question: *Why does it matter?*

Research concept: Are TxDOT customers satisfied with the experience of using state facilities and services?

- Research question: *What attitudes do customers hold toward the roads in Texas?*
- Research question: *What attitudes do customers hold about obtaining permits to transport goods in Texas?*
- Research question: *What attitudes do customers hold about safety awareness programs in Texas?*

Research concept: What expectations do customers have regarding road maintenance?

- Research question: *Do customer assessments of road conditions align with engineering assessments of road conditions?*

Step 1: Assessment

Know Your Project

2. WHAT RESOURCES WILL BE REQUIRED?

Because these projects can be costly, it also helps to ask certain questions to avoid unnecessary work and expenses:

a. Can the information be determined by other means? Do you even need a survey, focus group, etc.?

b. Is a coworker in another district/division studying this topic or researching this issue?

c. What is the population to be studied?

d. Who will be on the team doing the study?

e. Will it use internal resources only? Are external resources needed?

3. WHAT TYPE OF DATA DO WE NEED?

As your plan progresses, you must also ask yourself the following questions to ensure that the plan you are creating will ultimately answer your research question and provide the information needed to do the analysis:

a. What types of data need to be collected?

b. How are you going to analyze the data?

c. What method(s) should I consider to best answer the question?

d. How frequently should the data be collected?

e. Can you answer your research questions if you collect a specific type of data?

Step 1: Assessment

Know your Audience

Understanding the customers' needs and expectations is important to delivering a product or service that will satisfy them. Organizations with strong customer-satisfaction reputations pursue this understanding by regularly doing internal reviews of their programs and using some of the methods that will be discussed later including focus groups and systematic surveys among key customer groups.

Understanding the customers' needs and expectations is important to delivering a product or service that will satisfy them.

As stated early on, to improve performance, decision makers will use the insights generated from activities like these when they make decisions about their programs. It is critical that this information be communicated throughout the organization to help front-line personnel make smart decisions when dealing with customers.

Remember, customers may understand certain issues differently than people inside the organization, so you get the most accurate and useful customer feedback when your data collection methods reflect customers' experiences. You must determine who the customers are, learn how they understand and acquire knowledge about the agency, and incorporate their perspective and language into your data collection.

But while the private sector "customer" can usually be defined as an individual who buys their goods or services, this concept does not necessarily translate to the public sector. In state government, the citizens of Texas are the intended beneficiaries of government services, but there are some questions you must ask to identify the customers you most want to reach.

1. Identify your Customers

a. Consider the common customer attributes that set up a context in which you can produce reliable performance measures of customer service. There are a number of groupings that you can use to loosely identify a target population:

- **Demographics** — age, income level, education, gender, occupation, family size
- **Geography** — urban, suburban, rural, regional distribution, city size
- **Personality** — lifestyle, attitude, values
- **Behavior** — benefits that they seek from the agency; how many times they use a particular product or service during a specific time period
- **Business** — if your customers are organizations then you would need to know the industry, size of the company, location, specific department

2. Create a market segment

Group similar customers together from which you can select a representative sample.

Step 2 Getting Started

This section focuses on what happens after you decide to move forward with a customer research project and determine who your customers are. It can be helpful here to engage qualified researchers for help to ensure reliability and validity of the information.

Step 2: Getting Started

Key Terms and Collecting Meaningful and Reliable Information

For those who are doing this for the first time or have limited experience with this subject, there are some basic concepts and common terminology that should prove useful.

- **Bias** — error, or distorted and unreliable results. Although research methods contain some bias, the chances of it increase when the persons being questioned are not representative of the population being questioned, when questions are poorly written, or when the researcher uses inappropriate techniques to analyze the data.
- **Confidence level** — the likelihood that the true population parameter lies within the range specified by the **confidence interval**. The confidence level is usually expressed as a percentage.
- **Data** — collection of observations and information resulting from the survey process.
- **Population** (also called "target population") — the collection of all elements (persons, businesses, entities) being described or from whom information is gathered or opinions are sought.
- **Probability** — measure of the likelihood that the event will occur
- **Respondent** — an element or member of the population selected to be sampled; the one who provides the desired information.
- **Sample** — a subgroup of the population; any portion of the population, but less than the total.
- **Sampling** — act, process, or technique of selecting an appropriate sample.
- **Sampling Frame** — the source of the sample.
- **Statistics** — the science of the collection, organization, and interpretation of data; descriptive measures based on a probability sample.

Researchers use statistics to measure the attitudes and values of a group of people. Statistics are useful because it is impractical to measure every single person in very large groups. For example, measuring the opinion of every Texan would be both cost- and time-prohibitive. Therefore, a smaller, randomly selected group of people from that population (a sample) is selected.

Step 2: Getting Started

Key Terms and Collecting Meaningful and Reliable Information

A statistical expert can help you set up your data collection so you balance appropriate methods efficiently and affordably to achieve meaningful and reliable information.

But the problem with this method is that the attitudes and values of the sample may not match those of the whole population. While random selection does help, it is still possible that the sample group's measured attitudes will not represent the population as a whole.

Statistics helps by telling us both the attitudes of the sample AND the likelihood or probability that those measures are not in error. Typically, a greater than 95 percent probability that the sample represents the population is considered good enough.

The advantage of this approach is that if this probability is too low, then there is an easy solution – increase the number of people surveyed which also increases the probability that the attitudes expressed in the survey match those of the whole population.

- **Example:** You are measuring the attitudes of people living along a street about the speed limit of that street. The population is the whole group of people living on the street, and let's say that there are 1000 people living there. You randomly choose 10 of those people to survey, and find out their attitudes toward a new speed limit. Of the 10, six are for a lower speed limit and four are for keeping it the same.
    - Do these 10 people's attitudes accurately represent the attitude of the whole 1000? The answer depends upon a number of factors, but increasing the size of the sample from 10 to 25 would generally improve the probability that the sample represents the population. This increase in size, of course, costs more in time and effort.
    - So, the trick is to find a size that can be sampled which is small enough to reduce costs, but large enough to ensure statistical validity.

Overall, statistics can provide a mechanism to measure the characteristics of a large group for the costs of a small group. This is an effective tool for government to understand the attitudes of its citizens, while reducing costs at the same time. A statistical expert can help you set up your data collection so you balance appropriate methods efficiently and affordably to achieve meaningful and reliable information.

Step 2: Getting Started

When Should You Collect Customer Satisfaction Information?

Customer surveys connect TxDOT's technical measures with public perceptions.

The short answer: Whenever you need to answer a question, want to make the best decision possible, and that need justifies the expense involved in getting an answer.

If TxDOT is adopting new strategies and goals, for example, it makes sense to find out customer opinions about how they will ultimately affect them as end users. It may be useful to get customer input about topics that are important to TxDOT and are being debated publicly or at the Legislature.

Moreover, if you are testing new ideas, it is a good idea to gather information when the details about the experience are fresh in the participant's mind. Delays too often lead to inaccuracy. When TxDOT is considering a new product or procedure, it would help to get customer input before launching a large-scale implementation.

Step 2: Getting Started

How Often Should You Collect Customer Satisfaction Information?

The frequency of customer satisfaction assessments depends on:

- How long it's been between significant changes in the factors you are measuring,
- How regularly you need customer input/comments,
- Type of research design required, and
- Available budget.

While some data collection projects are one-shot efforts, others should be ongoing, especially when information about clients can be best understood by contrasting it with something similar taken in a different place or at a different time.

Customer surveys can be one-time efforts, periodic or based on project analysis.

- **Example:** If you measure customer responses in multiple TxDOT districts, you can understand customer attitudes relative to each other. If you measure customer responses in the same district over time, then you can understand how attitudes are changing.
- **The before and after study** is a type of research design where the impact of a change can be measured by isolating the change at a specific point.
    - In a public policy study, the first step is to measure customer attitudes before the policy change. Once the policy change is implemented, you measure customer attitudes again. When analyzing the data, the results from the first measurement are subtracted from the results following the policy implementation. The difference between the two is the impact of the policy on the attitudes being measured.
- **Time series analysis** is another type of research design that can be useful when collecting customer satisfaction data. It examines the same data for several time periods.
    - To measure customer attitudes about TxDOT overall, you would likely be interested in knowing this information at some regular interval (such as quarterly or annually). Once you have enough of the data in a series, you can analyze general trends such as an increase or decrease in the satisfaction of TxDOT among its customers over time.

During the beta test of the new *Ride The Road with TxDOT* program (in 2010), the test took place in two locations with two groups of participants—one group of citizens and one group of the state legislative staff. Ultimately, this program can be conducted in eight to 12 districts per year on a rotating basis, giving each district a chance to conduct a *Ride The Road with TxDOT* survey once every two to three years. This provides TxDOT frequent contact with local customers as well as a view of statewide trends, satisfying two needs with one effort.

Step 3 Selecting a Research Method

Step 3: Selecting a Research Method

Public opinion data collection methods can take a wide variety of forms. But one size does not fit all. You might use a multiple-choice question on a survey or you might use an open-ended question posed during a face-to-face interview. Other types of methods do not involve survey-style questions at all. For example, you could record how frequently a customer smiles while on the road by recording his or her facial expression. The same concept, customer satisfaction with road conditions, could be measured using multiple methods.

Measuring the same concept multiple times using different types of methods assures that the truth about the underlying concept is being measured completely and accurately.

In fact, measuring the same concept multiple times using different types of methods assures that the truth about the underlying concept is being measured completely and accurately. So, if you know that the customer responded positively on a survey question and this customer also told an interviewer afterward that she had a positive experience, and she smiled frequently while on the road, then you can be confident about her overall level of satisfaction with the road conditions.

It is important to find the right combination of methods and measures that will provide enough information to gain useful insight about the concepts you have defined. But there is a point at which an additional measure of the same concept provides little to no added value. Additional measures take up the customer's time and study participants can become weary during long surveys or interviews.

So now let's review the most commonly used measurement tools and feedback methods.

Step 3: Selecting a Research Method

Face to Face:

In-depth information with chance for follow-ups.

FACE-TO-FACE INTERVIEWS

Description

Interviews are used to get in-depth, detailed information about the attitudes, experiences and opinions of each person being interviewed. Interviews are typically conducted with individuals that may have a special interest in the topic being explored or who have a unique status. Both of these conditions justify the expense of spending the time to conduct an in-depth exploration with one interviewee at a time.

- **Special interest:** someone who experienced an accident on a particular road.
- **Unique status**: local officials or other experts.

Interviews are useful for identifying areas that are of special interest, points of misunderstanding and areas of opposition. They provide the story of the individual on some matter that needs to be measured. Interview questions are good at measuring concepts that require nuance.

Typical Time to Complete

The time to complete an individual interview can vary widely. Some interviews can last for several hours and others just a couple of minutes. However, there is a limit on the patience of the interviewee. The whole process of collecting data from interviews can be extensive.

Usually, the time spent writing the questions for the interviews is not as extensive as it is with other research methods. But, the processing of the questions following the interviews can be a time-consuming task. This is especially the case when transcription of the interview needs to take place or if coding of the responses needs to occur. Coding responses means categorizing particular types of responses to questions. Coding is helpful when you need to develop quantitative data from open-ended questions.

Anticipated Effort Involved in Data Collection

An interviewer prepares an interview guide so that each person interviewed is asked the same questions. This helps to preserve the integrity of the interview process. Interviews do not provide quantitative measures of public opinion (unless they are coded). But, because an interviewee may represent a group of people with a publicly stated opinion or position, the interviewer can gather information about the position of a large group with minimal effort.

Recommended Schedule and Frequency of Data Collection

Interviews are normally one-shot efforts. It is unusual to repeat interviews with the same individuals on a regular schedule. However, interviews can be used on an ongoing basis if continuous qualitative feedback on a particular issue is needed.

Typical Number and Composition of Participants

Because they are in-depth, interviews usually involve small numbers of people. A person could interview less than five unique individuals and have it return meaningful results. Interviews are particularly useful for gathering information from unique individuals, as they are people for whom time is at a premium.

Step 3: Selecting a Research Method

Focus Groups:

In-depth information with group interaction.

FOCUS GROUPS

Description

A focus group gauges public opinion. Participants are brought together to have an in-depth discussion about a particular topic. The participants may be similar or dissimilar in any number of facets, such as age, drivers or non-drivers, transit users, etc.

Focus groups are a great way to delve into complicated issues and uncover what the public is thinking, why they think that and how they react to additional information. Focus groups also help to identify customer concerns, needs, wants, and expectations. They can also help development of policies, programs and services as well as the allocation of scarce resources.

Focus groups can identify the points on which participants agree and disagree. A focus group can also test whether participants understand a particular message and get their input on what messages may or may not resonate with a particular group.

Typical Time to Complete

An individual focus group typically lasts one and a half to two hours. Depending upon the concepts being measured, multiple different focus groups might be required. There is also time involved in developing the discussion guide and coordinating logistics prior to conducting the session. Focus group sessions with the general public are usually conducted in the evening and at locations convenient to participants. Afterward, the data collected are usually transcribed and sometimes coded.

Anticipated Effort Involved in Data Collection

Because focus groups only elicit opinions about a particular topic, they do not offer a quantitative sample of public opinion. Therefore, there is usually not a lot of explanation or background information given on the topic prior to the discussion. This allows participants to formulate their own opinions. A facilitator guides the discussion, keeps the participants on topic and ensures that no one dominates the conversation.

Recommended Schedule and Frequency of Data Collection

Like interviews, focus groups are usually one-shot events for the particular individuals involved. An ongoing routine for focus groups would be useful in order to measure customer responses across a wide variety of different locations.

Typical Number and Composition of Participants

Focus groups can be used with experts or special interest groups as well as the general public. They are very useful in capturing input from otherwise underrepresented individuals. Focus groups can be constructed to include participants from particular geographic areas, ethnicities and ages. They are usually small groups from about three people as a minimum to about 15 or 20 at the maximum.

Step 3: Selecting a Research Method

Surveys:

Statistical sample of a population.

SURVEYS

Description

A survey is a standard set of questions asked to a sample of the general public or a particular population of people. If a random sample of the population is selected, then you can infer that the characteristics measured about the sample are the same as those for the population as a whole. Surveys can be conducted through a variety of different communications media, each with its own advantages and disadvantages.

Regardless of the format, substantial effort is necessary to assure that the survey questions will accurately assess the concepts being measured and do not bias the responses.

- **Example**: the order of the questions matters a great deal to the outcome. Questions early in the survey can prime customers into thinking about certain topics that can affect their later answers.

One advantage of surveys is that they can be conducted relatively quickly on a large number of individuals. In fact, surveys can be done that can accurately assess the opinions of the whole population of the United States with only approximately 2,500 participants.

Random Sampling

Random sampling is a statistical technique where a researcher attempts to acquire a subset of a defined population. There are several steps involved in sampling:

- **First**, carefully define the population of the study and specify a sampling frame. For example, the population could be licensed drivers in Texas. In this example, the sampling frame includes all Texas licensed drivers who have a telephone number and who are willing to answer all survey questions.
- **Second**, specify a sampling method. A good choice is to engage in random sampling from within the sampling frame.
- **Third**, determine the sample size by ensuring that the confidence level and margin of error exceed the needs of the project. Because you are only drawing a sample from your whole population, there is a chance that this random sample may not adequately represent the characteristics of the population.
    - o **Confidence level** — the degree of uncertainty that you are willing to tolerate. This determines the range that represents the margin of error around the mean values of the characteristics of the sample. Increasing the size of the sample, usually reduces the margin of error (though not always).
- **Fourth**, survey the participants drawn from the sampling frame.

Step 3: Selecting a Research Method

Telephone:

Quick contact with chance for follow-up questions.

TELEPHONE SURVEYS

Description

A telephone survey is a common surveying format and is recommended when your desired sample consists of the general population of the state.

Typical Time to Complete

Depending on the goals, more substantial and in-depth survey questions can be asked in telephone surveys than in other formats. Telephone surveys will between five minutes to one hour. It is a good practice to design a telephone survey to be no longer than 20 minutes. The length of the whole project depends upon the number of customers being surveyed and the number of surveyors, but a typical project can be completed in approximately three to six months.

Anticipated Effort Involved in Data Collection

Ideally, a professional survey organization would be hired to conduct a telephone survey because of the specialized software and dialing equipment needed to conduct it. This reduces the TxDOT effort needed, but does increase the costs. Depending on the resources available, the survey instrument design and data cleaning and analysis could be done either in-house or by another research institute/firm.

Recommended Schedule and Frequency of Data Collection

Telephone surveys are ideally suited to be completed on a routine basis. In fact, a time series of telephone responses is one of the best ways to assess overall customer satisfaction or to assess the penetration of TxDOT messages.

Typical Number and Composition of Participants

A survey of the entire Texas population would take approximately 1,000 survey participants to assure a reasonable level of statistical significance.

Advantages:

- It has a broad reach since most households in Texas have a telephone. Random-digit dialing provides a mechanism to easily generate a random sample.
- Telephone surveys can provide quick contact with respondents. Well-trained interviewers can elicit complete and substantive answers during telephone surveys.
- Data can be accurately recorded by using computer-assisted telephone interviewing systems.

Disadvantages:

- Younger people are more likely to use mobile phones and there are challenges involved in engaging in surveys that include mobile phones, like when the customer is driving. This can lead to a sample biased towards older participants.
- Costs can be expensive.
- Telemarketing combined with devices such as caller identification and answering machines have made many people reluctant to answer calls from unknown numbers, resulting in lower respondent and contact rates. The timing of a telephone interview may need to be limited to evening hours. The complexity of the survey should be moderate at most.

Step 3: Selecting a Research Method

Mail Surveys:

Low-cost, low response rates.

Advantage:

- Mail surveys usually cost less than telephone surveys.

Disadvantage:

- Mail surveys usually have very low response rates. For best results, the survey questions should be written to minimize the amount of time that the customer must take in filling out the survey. In addition, mail surveys should not be complex because they are self-administered. Respondents do not have an interviewer to prompt or assist them with questions. Simple questions that require no more than checking a box are preferred.

MAIL SURVEYS

Description

Mail surveys work well for memberships of a social, business, interest or other group in which it is important to ask for many participants' opinions.

Typical Time to Complete

Mail surveys take a short time for the participant to fill out, but can take several months for the overall project timeline. Once the survey is printed and mailed, it could take a few weeks to get back the data from the study participants.

Anticipated Effort Involved in Data Collection

Like all surveys, be careful that the survey questions will result in measuring the desired concepts accurately and effectively. A significant amount of effort has to be put into data entry and cleaning after the surveys are returned to ensure data integrity.

Recommended Schedule and Frequency of Data Collection

Mail surveys are ideal for collecting similar data on a schedule from the same participants over time. Mail surveys can also be used as one-shot events.

Typical Number and Composition of Participants

A problem with mail surveys is the low response rate. This can result in biased samples because people who respond are generally considered to have some inherently different characteristics than those who do not respond. It is also generally considered that people who feel strongly about an issue will respond to surveys, leaving out those who do not value the issue, thereby skewing results.

A typical number of surveys would be from 500 to 1,000 participants per mail survey with a population as large as Texas. The number of solicited participants should be larger than the required sample size to ensure statistical validity, and is usually practical due to the low cost of mail surveys.

Step 3: Selecting a Research Method

Web Surveys:

Easy access to information; responses may need adjustment.

Advantages:

- Rapid responses
- Substantially reduced cost
- Increased respondent flexibility in answering the questions.
- Useful when quick results are needed.
- Nearly any type of survey question can be asked on a web-based survey, but it is best suited for multiple-choice responses and open-ended responses.

Disadvantages:

- Not everyone in the general population has email addresses, computers, or Internet access. This means sample size may not always reflect whichever population you are interested in measuring.
- Participants' emotions while answering the questions can be difficult to record.

WEB-BASED SURVEYS

Description

Web-based surveys are similar to mail surveys except that participants are usually recruited by email or self-select to participate by clicking on a link from a website, and data are collected via the Internet. Survey software can simplify the compilation and analysis of any data collected.

Typical Time to Complete

Web surveys should be reasonably short, with an upper limit of about half an hour of survey time. Like most surveys, the overall project time would be about three to six months of effort from design to final report.

Anticipated Effort Involved in Data Collection

Like the other formats, web-based surveys can be challenging to design effectively. However, once they are designed and implemented, the process becomes easier because the data have already been entered by the participants themselves.

Web-based surveys require a modest amount of preparation time in designing the web-based questionnaire. To ensure that respondents are only answering once, it may be necessary to establish a mechanism such as programming a username and password or other Internet Protocol (IP) address identification techniques.

Recommended Schedule and Frequency of Data Collection

Web-based surveys can be either one-shot or continuing. Once a web-based survey is set up, the only factor affecting participation is who knows about the survey and who is sent a username/password (if needed for access). Therefore, web-based surveys are useful when you want to have the same participants return periodically to measure any change in their responses.

Typical Number and Composition of Participants

Sampling is where web-based surveys have some problems. First, as discussed above, respondents may not represent the general population. There may also be multiple responses from one email address or the same respondent may use multiple email addresses to complete the survey. This will bias the sample and makes selecting a random sample from the population more difficult, as those with more email addresses are more likely to be selected. To reduce the chances that one person may complete the survey multiple times, collect passwords or unique IP addresses.

The number of participants is flexible and will depend on the project objective and target population. Once the initial setup is completed, there is virtually no additional cost to add more people as long as you have valid email addresses. Likewise, links may be provided on an unlimited number of websites. The only real limit to the number of people that can be added is that statistical validity is achieved once the number of participants reaches a certain level (typically about 1,000 statistically random participants for a national survey).

Step 3: Selecting a Research Method

Intercept Surveys:

Short survey of target population.

Advantage:

- Get quick responses to specific questions or customers opinions.
- Can be developed and implemented quickly.

Disadvantage:

- Results are unlikely to be statistically valid when compared to other types of surveys because there is no way to know if the people who take the survey represent the targeted population.
- It is very easy to get a biased sample from an intercept survey.

INTERCEPT SURVEYS

Description

Intercept surveys are usually conducted in locations where a target population already exists, such as a rest area or transit station. A trained surveyor will ”intercept” a customer with a short survey that is either given verbally or written.

Typical Time to Complete

Designed to be short, intercept surveys can be developed and implemented quickly at a fairly low cost.

Anticipated Effort Involved in Data Collection

Because intercept surveys can be designed and implemented quickly, the effort involved in data collection will be determined by the number and location of places where the survey is conducted.

Recommended Schedule and Frequency of Data Collection

Intercept surveys can be one-time efforts or can continue over time. They may be especially useful in before-and-after studies when changes have been made to facilities.

Typical Number and Composition of Participants

Intercept surveys have some sampling problems. As discussed above, respondents may not be representative of the general population. The “convenience sampling” used in intercept surveys makes selecting a random sample from the population difficult, if not impossible. The number of participants is flexible and will depend on the project objective and target population.

Step 3: Selecting a Research Method

Demonstration Surveys:

Survey based on observations.

Advantages:

- Demonstration surveys are good to collect data when you want to capture immediate responses to an item or situation as they happen or just after they occur.
- May be the only way to collect information when the overall context of the situation is important.

Disadvantages:

- Number of participants is greatly reduced because demonstration surveys take more time to conduct.
- It can be difficult to recreate a typical driving experience in the natural situation for the participant.
- The presence of a researcher and note taker can put the participants "on their best behavior."
- It is difficult to replicate certain situations, such as weather factors or congestion concerns when trying to reach a destination by a specific time.

DEMONSTRATION SURVEYS ("RIDE THE ROAD WITH TXDOT")

Description

An on-site, or "demonstration," survey is conducted when the other forms are unable to capture the true essence of a topic or if the responses must be considered in an overall or larger environment. Demonstration surveys require the respondents to either recall from their own experiences or observe items in a controlled environment. In some situations, however, it is necessary to have a respondent observe items in context with their typical surrounding, such as driving down a familiar road.

The types of questions typical to a demonstration survey include:

- Did you notice X?
- If so, was it obvious or more subtle?
- Did you prefer X in this situation or that other situation?
- Did X influence your behavior or response?
- After experiencing X, Y, and Z, which did you prefer?

Typical Time to Complete

For the participants, demonstration surveys will normally last from about an hour to several hours. The overall project length is likely to last from three to six months for a typical demonstration survey.

Demonstration surveys take more time to plan and conduct than other surveys. Most of the planning occurs in two areas:

a. Identifying and planning the physical area of the survey, and
b. Preparing the logistics of arranging all the elements associated with the survey.

Step 3: Selecting a Research Method

DEMONSTRATION SURVEYS ("RIDE THE ROAD WITH TXDOT")

Anticipated Effort Involved in Data Collection

For demonstration surveys, selecting the elements and the situation in which those elements are located determines whether the survey responses are biased or unbiased. Take the time to locate or construct the situation where the context seems "natural" yet allows the researcher to control the differences between the elements of consideration. This planning portion could take many weeks to coordinate, depending on the need for the survey.

Based on the survey topic and the research elements, demonstration surveys can be conducted with individuals or with groups. Regardless of the number of participants involved, a researcher will be with the participant(s) to provide instructions and answer questions as appropriate. At the same time, a second researcher or assistant will also be along, taking notes and possibly recording participant(s) responses. At times, the researcher may suspend the "active" portion of the survey to ask the participant(s) questions before proceeding to the next portion of the demonstration.
Other logistical items to consider include:

- Initial meeting point for survey participants,
- Parking,
- Comfort locations and breaks,
- Vehicles or other transportation for the actual survey portion,
- Briefing and debriefing locations, and
- Distribution of material and safety instructions/equipment.

Recommended Schedule and Frequency of Data Collection

Demonstration surveys can be either one-shot or repeated.

Typical Number and Composition of Participants

The number of participants in a demonstration survey will be less than with the other survey types and more like a focus group or interview. If demonstration surveys are conducted repeatedly over time, the overall survey population will grow, helping to assure that the characteristics of the sample will match the targeted population.

In general, the population for participants in demonstration surveys is the same as with other the survey forms. But with fewer participants, take greater care to select a broad range of participants so that multiple perspectives are represented and included in the results.

Step 3: Selecting a Research Method

Online Community:

Representative sample of opinions from a discussion group.

ONLINE COMMUNITIES

Online communities are fairly new mechanisms for gathering customer opinions. They can be created using a representative sample of people that agree to participate. The community that is formed can be used for online discussions, brainstorming sessions, surveys, or informal chats on different issues. Participants in the community may be asked complete surveys about a variety of topics over time.

A facilitator typically poses a question to the participants on a regular basis (weekly, monthly, etc.) and asks community members for feedback.

Step 3: Selecting a Research Method

Choosing a Method

There are occasions when the best way to learn about your customers is to use multiple methods to measure their satisfaction levels.

The best method is based on an agency's unique objectives and resources. Deciding whether to include or exclude one in particular usually comes down to logistics and costs: is it reasonable and cost-effective to use a particular method or measure? If recording or coding the number of times a customer smiles while traveling on the road can be captured by other more easily implemented measures, then it makes sense to exclude it.

Different types of measures will be useful at different times when measuring the characteristics of TxDOT customers. And there are occasions when the best way to learn about your customers is to use multiple methods to measure their satisfaction levels. As discussed above, each one provides different challenges and rewards in effectiveness, effort, and implementation costs.

Important considerations to narrow the range of possible choices:

- Resource availability and constraints – what internal resources are available, should you outsource some activities where internal capacity is insufficient.
- The target population and most effective way to reach them:
  - Do you want to know about customers from a specific region?
  - Do you want to know about customers of a specific type (e.g., urban commuters)?
  - Do you want to know about users of a particular road at particular times?
  - Do you want to learn more about people who do not use the roads? These types of characteristics help define the population of customers.

If you know who you want to target as your audience, the concepts you want to measure, and an idea of the measures you want to obtain, then the choice of a particular method usually becomes apparent.

Step 3: Selecting a Research Method

Choosing a Method

1. What are the Costs Involved with each Method?

The costs of each data collection method can vary widely.

- Interviews are relatively inexpensive; they may be conducted over the telephone and only require a time investment in preparing the interview guide, conducting the interview and coding the information. But sometimes it may be more helpful to travel to meet with an interviewee in person and this could increase the cost.
- Focus groups, on the other hand, can be more expensive. In many cases, a facility to hold the focus group may need to be rented. Often participants are paid for their time, usually between $50 and $200. Focus groups are labor-intensive in securing a location, recruiting participants, developing a discussion guide, and analyzing the results, all of which contribute to the total cost.

Among some of the other research methods, previously conducted federal research (NCHRP 08-36 Task 74) uncovered the following typical costs:

- Telephone surveys can range from $20,000 to over $200,000, depending on sample size and level of analysis.
- Mail-out surveys and web-based surveys can be less expensive than telephone surveys but are still between $20,000 and $100,000, and may cost more depending on sample size.
- Online communities can cost over $ 600,000, depending on the monitoring used and the length of time the community is active.

Step 3: Selecting a Research Method

Making a Final Selection

If money were no object, you would not have to choose. You could measure each concept using all the various methods and benefit from their own unique perspectives. It would give you a much better understanding of what is being measured. Realistically, however, cost is always an issue and you must eventually settle on the method or methods best suited for your needs.

There are no hard and fast rules for this decision and it depends largely on the context of your particular situation. It would be nice if there was one simple set of questions, but the fact is, there is none. Your questions should be those that will help you get the results you want, meaning it should line up with your goal of getting the satisfaction of your customers.

Many of the factors discussed previously will weigh on this decision:

1. Identify what you want to know.
2. Determine which methods line up with your anticipated budget for the project.
3. What you intend to do with the data and how data will be analyzed.

On the following page is a matrix that you may find helpful to your decision. It illustrates some potential types of research questions that might be asked, and which methods might be better suited for these questions.

Step 3: Selecting a Research Method

Table 1. Research Methods and Applicability

● **Preferred use -** works just about all the time	◍ **Useful in proper situations –** have to be careful	○ **Rarely useful –** can work, but much more difficult

Evaluation Element	Face-to-Face	Focus Groups	Telephone Survey	Mail-out Survey	Web-based Survey	Intercept Survey	Demo Survey
Evaluation of new operating practice (e.g., new mowing schedule)	○	◍	○	○	○	○	●
Statewide opinion survey of attitudes about TxDOT	○	◍	●	●	◍	○	○
Statewide awareness survey	○	○	●	●	◍	○	○
Opinion about specific roads or road attributes	◍	●	○	○	○	◍	●
Opinion about specific TxDOT actions or services	◍	●	●	●	○	◍	●
Opinion about specific road improvements	◍	●	●	●	○	◍	●
Opinion about specific operating improvements	◍	●	◍	◍	○	◍	●
Opinion about specific safety treatments	◍	●	◍	◍	○	◍	●
Opinion about relative importance of TxDOT programs or project types	◍	●	●	●	◍	◍	◍
Opinion about possible project or policy changes	◍	●	●	◍	◍	○	○
Opinion about TxDOT funding priorities	◍	●	●	○	◍	○	○
Opinion about specific service TxDOT provides (e.g., load permits, driveway permits, etc.)	●	◍	◍	○	○	●	◍
Evaluation and testing of new messages	◍	●	●	○	◍	◍	●
Evaluation of current indicators of good/fair/poor road condition labels	●	●	◍	○	◍	○	●
Evaluation of possible strategic transportation investment opportunities	●	●	●	○	◍	○	●

Step 3: Selecting a Research Method

Ensuring You Get Useful Customer Satisfaction Data

Now that you have identified your research needs and who you will ask, the next step is the quality and structure of the questions, regardless of the method you choose. Poor question selection can lead to incomplete, biased, or unfocused answers that will make your research ineffective and limit its usefulness.

Below are some guidelines to keep in mind when creating questions that will accurately reflect public attitudes towards the product/service/issue you are asking about:

Do:

1. Limit each question to a one issue or topic. Make questions as concise and specific as you can to reduce confusion on the respondent's part.
2. Keep questions short. Long, drawn-out questions increase confusion and risk being misinterpreted by respondents.
3. Use simple language. Make the questions as easy to understand as possible so respondents will take them seriously. Respondents should not have to guess what you are asking. Remember that respondents' time is important to them. Complicated questions will only result in boredom, forcing them to hastily answer the questions and give you inaccurate results.
4. Keep the questions identical from year to year (if repeating a survey). This gives you the ability to compare the results.
5. Include a few open-ended questions. While closed-ended questions help people to focus on specific answers, adding a few open-ended will allow for broader customer feedback.
6. If using a survey, leave a space for respondent comments to record their additional reactions, suggestions, or constructive criticisms that may be useful.

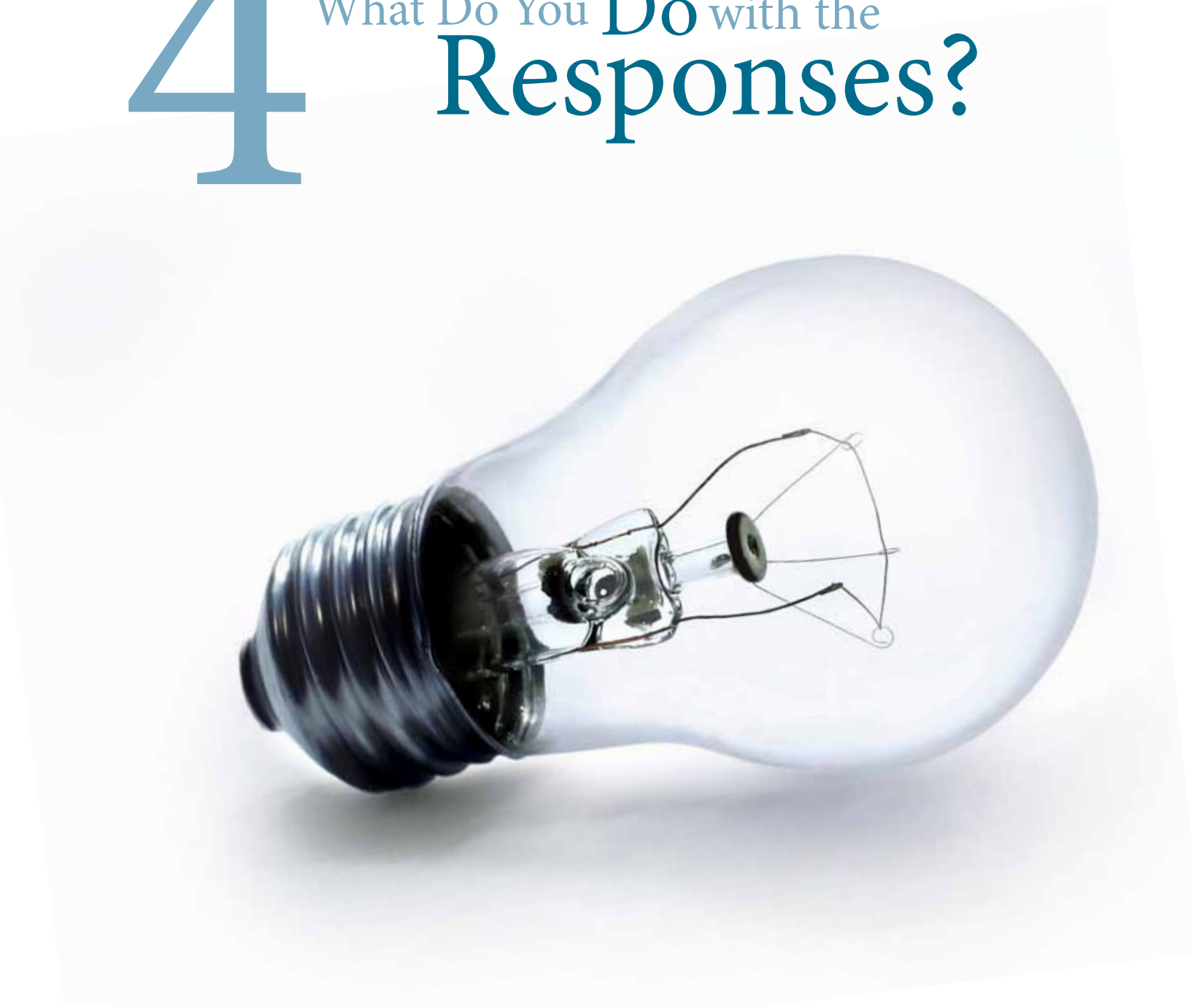
Step 3: Selecting a Research Method

Ensuring You Get Useful Customer Satisfaction Data

Don't:

1. Don't write questions that "lead" or suggest a particular answer. This prevents biased responses.
2. Don't write so-called "double-barreled" questions that ask two questions simultaneously where there are two possible responses. Split these up into two parts and ask them separately.
    - *Example: Do not ask, "Was your experience easy and timely?" An easy experience may not have been the timeliest.*
3. Don't use "loaded" words or phrases that might create an emotional response. Keep questions neutral.
    - *Example, "Should seat belts be used for our loved ones?" Instead, ask, "Do you think seat belts are useful for family members?"*
4. Don't use words that are dramatic or exaggerate a problem or condition. Use questions that are neutrally worded. Words that overstate a situation tend to coax a respondent toward a particular answer.
    - *Example: " Do you think seat belts can keep people safe from severe bodily injury?" Instead, ask, "Do you think seat belts can be useful?"*
5. Don't use words that suggest an absolute. Words such as *all, any, anyone, best, ever, every, never,* require respondents to either fully agree or disagree with the position in the question.
    - *Example: " Do you always stop at red lights?" Instead, ask, "Do you stop at red lights?"*

Step 4 What Do You Do with the Responses?



What Do You Do with the Responses?

Data Analysis

In the end, no matter how the data is collected, you must analyze and report the results to help agency decision makers take action. Customer satisfaction research can provide an important insight into how the agency is performing through the eyes of the customer.

Because there are many different ways in which data can be analyzed, the opportunity for mistakes to be made is always present.

Generally, it is a good idea to consult data analysis experts for this step. As mentioned earlier, a statistical expert should be consulted before the survey and data collection process have been designed. This expertise will take into account how the results will be used, the variability in responses, and other important elements. Doing this step only after the surveys have been collected virtually assures problems!

What Do You Do with the Responses?

How to Communicate the Results

In general, such a presentation usually requires four elements: an executive summary, the survey instrument or discussion guide, a narrative, including tables and graphs, as appropriate, and a summary/conclusion section.

After the analysis is complete, it is time to report results to decision-makers and the public (when appropriate). Customer satisfaction data collection provides the basis for evaluating a wide variety of TxDOT activities. It could also catalyze the agency to act, such as provide the public with more information about an activity, change an activity altogether, or revisit a condition/performance level that is being used as a goal.

Therefore, a critical element of any customer satisfaction program is the report to agency leadership. Any report to executives must summarize the contribution achieved for the investment of time and money that the agency made.

An executive level report should be something beyond a mere presentation of high-level numeric results. It must include a summary of the mission, a summary of the product, services or process issues identified for change/enhancement, the findings of the research initiative itself, and recommendations for action.

A visually pleasing and easy-to-follow slide presentation can be effective when presenting results to high-level personnel. A simple and well-designed pamphlet can also be used to summarize the results. The report format can be tailored to fit the audience and objective.

What Do You Do with the Responses?

How to Communicate the Results

1. **Executive Summary:** A brief overview that states the purpose and results of the research. The executive summary should be brief and understandable, wasting no space or words. Make it as objective and clean as possible.
2. **Copy of the Survey Instrument(s):** Those who will evaluate the research need to understand exactly what was asked. It is also good practice to include an accounting of both the questions asked and the responses to those questions. Depending on your needs, it is also possible to include some statistical information if that information will be meaningful to the readers.
    - Define the target population – explain how and why the target population was selected.
    - Identify the sample from which the respondents were selected – illustrate the characteristics of the sample without identifying participants.
    - Specify the sampling procedure used to draw the sample – explain the process by which participants were selected from the chosen sample.
3. **Narrative:** State the purpose of the research at the beginning and the results at the end. Use the section in between to discuss how the research was conducted (who, what, when, where, why, and how).
    - People do not process information the same way – some are verbal-oriented, others learn through visual cues, and still others deal best with numbers. It would be good to include every piece of important information in the narrative at least twice: once in the text and at least once more in a table, graph or both.
    - Include your recommendations in a plan form: how the results will be used, any additional resources needed, including funding, staffing, and time. If the plan calls for reassigning already-available resources in the agency and does not incur additional expense, include that as well. Include all information that supports your recommendation(s).
4. **Summary/conclusion:** Restate the purpose of the research, the results of the research, the uses to which the results can be put, and subsequent plans for implementation. Ideally, the summary/conclusion would be shorter than the narrative and highlights what is successful and useful. It is the last chance to aid the executive leadership in understanding the research, so make it understandable.

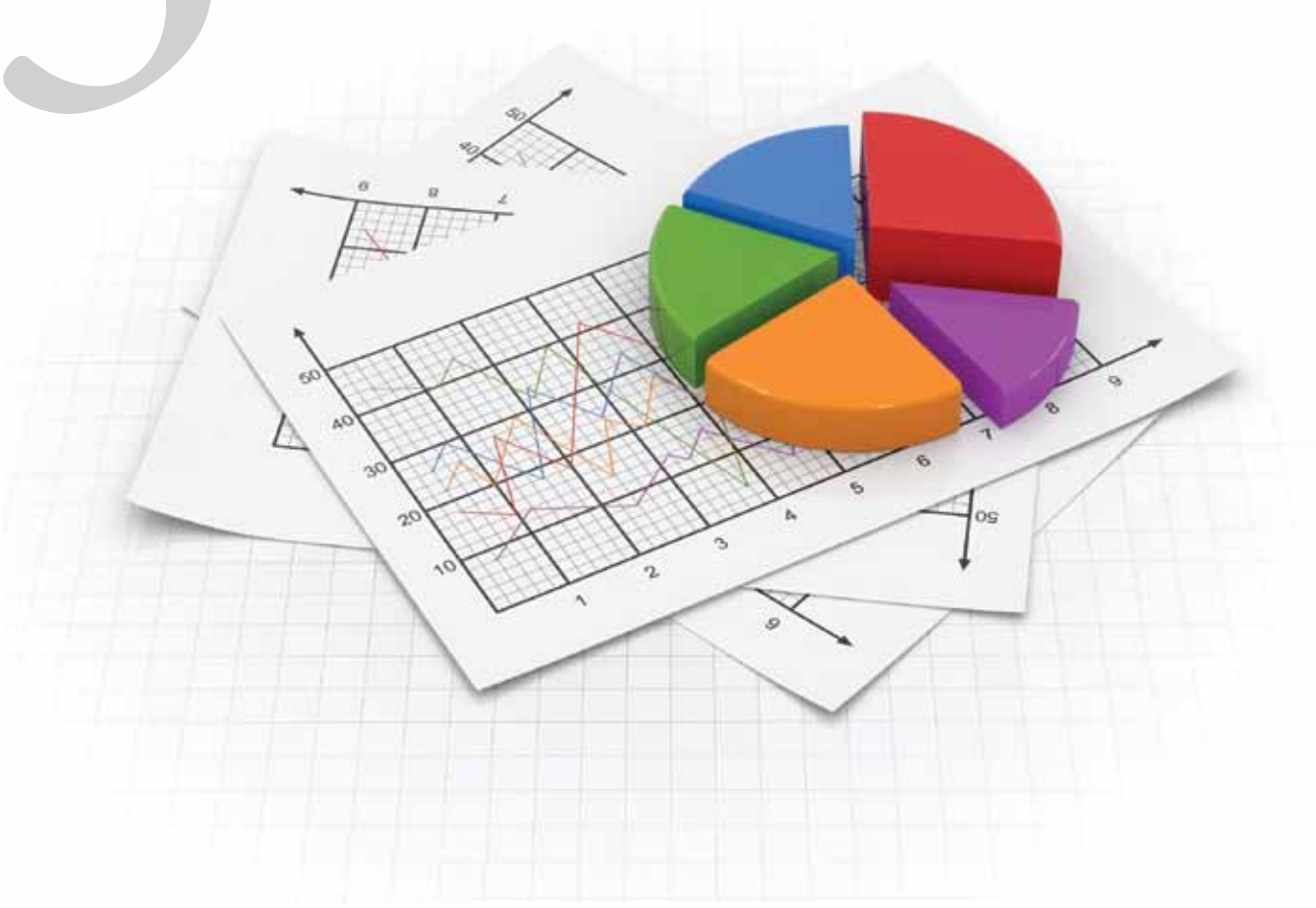
While a report like this is intentionally redundant, it is your job to lessen that impression. The idea is this: repeat the major points but with more detail from the executive summary through the narrative. Then summarize again in the conclusion, leaving it clear to the reader what the findings show.

Remember, your report is to leave the reader with as few unanswered questions as possible.

- Present all the necessary information available.
- Present that information in multiple formats.
- Use understandable language.
- Present it in an appealing report.

One important follow-up activity is to “recalibrate” the technical measures, target values, and strategies (for example, changing the condition defined as “rough pavement”). The recalibrated measure will be a better representation of public concerns and can be used to create better value for the available funding.

5 Summary



Summary

Conclusion

The information resulting from a customer satisfaction program can aid TxDOT in establishing new priorities, setting benchmarks for improvement, and developing unique programs tailored to specific regions of the state to ensure overall customer satisfaction. A list of references follows that can provide further information to assist TxDOT on these efforts.

One recent NCHRP report in particular will be useful in TxDOT's efforts to engage in research related to customers: *Customer Research Practices and Applications in Transportation: A Guidebook for Practitioners by Pecheaux et al. (2007).* It covers the topics covered in this guidebook, but from the perspective of other transportation departments at the state level.

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