

Making e-government a reality

Data mining makes the difference™



Governments around the world have not been able to escape the “e” explosion that drives today’s economy. And, in this era of accountability and performance measurement, governments face increasing pressure to make their services more accessible to their citizens. This pressure comes directly from legislation but also, indirectly, and perhaps, more intensely, from citizens. The public does not use government services in a vacuum – they simultaneously make transactions and interact with the corporate world. Consequently, it’s increasingly difficult for your citizens to understand how they can secure a mortgage, furnish a house or book a vacation in a couple of mouse clicks yet, to renew their driver’s license, they must stand in line, sometimes for as much as five hours!

In addition to these direct and indirect pressures, governments, themselves, realize the cost-saving benefits online delivery produces. For instance, in the banking world, it costs over one dollar to service a customer face-to-face, yet servicing this same person online can cost as little as one cent! Industry analysts estimate governments that provide online services can realize savings in excess of 70 percent over the cost of traditional service delivery methods. Therefore, the need to deliver e-services and programs becomes more and more crucial.

Design an e-government strategy that works

How does a government agency make the transition to successful online or “e” service delivery? Unfortunately, it’s not as easy as simply adding an “e” in front of your current service delivery strategy. So how do you cut through the clutter and build an e-strategy that really works? Can technology really make interactions more personal? Does your Web site have the intelligence to know what your public wants?

For superior service delivery, it’s critical your agency focuses on the whole citizen experience. What are the best ways to service your citizen? How do you get from where you are today – whether your site already delivers online services or not – to real-time personalized interactions via the Web? If you wait, you risk being perceived as out of touch with your public’s needs and you will lose the opportunity to realize a tremendous cost savings in overall service delivery. Yet if you start in haste, you are doomed to fail. According to a recent Gartner Group report, 75 percent of e-business projects will fail due to poor business planning.

When conducting business online or off, your agency’s goals persist whether you want to:

- Realize cost savings from online service transactions
- Manage your e-strategies or e-service delivery more effectively
- Improve relationships with Web visitors
- Improve your overall relationship with citizens

Start with a sound strategic plan for your agency. Leverage your data to find valuable information, make predictions and support your decisions with facts. While new technologies speed up the pace and change the ways you implement your agency’s strategies, the same rules that made organizations successful in the past still apply today.

No matter where you are today, you can take steps now to learn more from your data, put data to work on your Web site and incorporate them into all points of citizen interaction. This paper provides guidelines to help you plan and implement data mining to make personalized e-government a reality.

Focus your goals – begin with the end in mind

Imagine if you could:

- Increase service delivery volume on your Web site by determining who's visiting your site and dynamically adjust content to provide information that meets each person's needs
- Show your citizens that you understand their needs by suggesting information, programs and services that pertain to them
- Help your visitors find what they want – faster – design paths that are easier to navigate
- Maximize your Web's return on investment (ROI) when you deliver the services people need most
- Make your e-service delivery programs more responsive, direct and successful by evaluating your efforts to know what's working and what's not
- Get a complete picture of your citizens – connect information from the Web to information from all other points of citizen interaction
- Put better information into the hands of your decision makers, faster

Personalized, online service delivery is today's vision. When are you going to get there? How? Will you act quickly enough to ensure your window of opportunity doesn't pass you by? With unlimited resources, you could make anything happen. But with tight budgets, changing public preferences and technology and information overload, you don't have the resources you need to tackle everything at once.

Alas, all is not lost. With some careful planning and focus, you can greatly improve your chance of success – even if your resources are tight.

Start by evaluating where you are today in the big picture: What are your strengths today? Biggest weaknesses? Do you know how to identify your critical business issues so you can successfully mine the right data to get maximum results? What are your key business and service delivery challenges? What percentage of your program and service transactions are shifting online? How rapidly? Do you need to increase online transactions now? Or, is there a more immediate threat of alienating your public if more traditional delivery methods are not continued? Do you need, therefore, to deliver services in multiple ways? What does online service delivery mean for your organization?

Focusing on the citizen is essential for long-term success. You need to integrate information from all points of citizen interaction to truly understand your public. To get the answers you need, you've got to ask the tough questions today.

Data mining enables one-to-one responses at every citizen point of interaction

Imagine if, when interacting face-to-face, your service representatives could have the citizen intelligence to recommend the programs and services that best help the citizen.



Imagine if service representatives could respond to citizen calls for service with personalized actions.

Imagine if you could personalize content for each of your Web site visitors and lead people to the programs and services they are most likely be interested in.

Imagine if, when designing new programs, you know which of your many potential participants were most likely to enroll and be successful in these programs.

Next, focus your objectives. Start in data mining by doing a project that is clearly linked to what you want to accomplish and start small. When you develop specific objectives with critical success factors up front, you improve the chances of realizing short-term, tangible results. What is your most urgent challenge? What will it take for you to be successful in the next six months? What information do you need to make decisions to get things back on track? Is one of your citizen interaction points more important than others in the short term? If it is the Web, what systems do you have in place today? What are your technology resources? Will you be successful if you can increase online transactions by 15 percent, or is it more important that you realize a cost savings of 20 percent?

A sound plan is critical to success and it must include clearly defined goals. The bottom line: Keep it simple. Know where you are headed and what you want to achieve. Align and communicate your goals to maximize your chance at success.

Make data your best friend, know the data you have and need

What do you know about your public today? Who visits your Web site? How do the people who visit your Web site differ from those who don't? What do you know about those who interact with your agency via more than one point of contact? How are public preferences changing? Using data, you can learn more about your citizens and answer your tough questions.

Do you know what data you need? As you plan, review your current citizen data and information sources. Do you know where your citizen information is coming from today? What data sources are missing? What is the status of your data integration? To get a complete view of your public in the long term, you'll need integrated data. However, if your short-term focus is on better service delivery via the Web, you could start with basic Web site activity data. Or you could match Web log data with visitor behavior, transaction information and even citizen data for more comprehensive profiling.

Whether you have citizen information in an outdated legacy system, minimal information in a simple database or an integrated citizen data warehouse, you can start mining data now to gain better information. Better knowledge about what data you have helps you understand what you could be doing if you had data from other channels and additional types of data – and get you started on a realistic path.

Realize the power of data mining to predict the future

Can technology really make interactions more personal? Does your Web site have the intelligence to know what your citizens and visitors want? Data mining turns data into actionable information that you can use to transform the way you interact with your service recipients. When you want to simply see what has already taken place, reporting and OLAP can serve as an easy-to-use rearview mirror. However, when you're driving at Internet speed, you need to predict what's ahead or risk missing a sharp curve. Data mining takes you beyond OLAP with the smarts to predict future needs. It gives you and your organization the ability to proactively make changes that help you reach your goals.

How do you know which analytical approaches are best for answering your tough questions? Realizing the power of data mining and what it can do for your organization helps you employ the technology and people who can make it happen. As a decision maker, spend the time to understand the very basics about the data mining methods that unlock key citizen information. Armed with this knowledge, you'll be more effective at bridging the gap between the analytical and technical experts. Work together and you'll be able to translate your key business problems into specific data mining strategies that align your organization and technology objectives. Where to begin? Here's a table of key methods for mining Web and citizen data:

Business issue	Data mining method	What it enables you to do
Understanding citizen's needs	Citizen profiling	Gain a deeper understanding of your citizens' needs and maximize your return on program and service investments. Learn who is most and least likely to use a particular service or enroll in a specific program.
Maximizing service delivery	Online service utilization modeling	Better meet citizen expectations when you recommend the mix of services and information that people are most likely to need.

Business issue	Data mining method	What it enables you to do
Managing resource allocation	Lifetime cost modeling	Invest your resources wisely – develop programs that minimize the lifetime cost of servicing a citizen. For example, learn who constantly re-enters your system and identify the reasons why they continually re-enter.
Improving citizen relationships	Classification and predictive modeling	Get better results while respecting Web visitors' time and privacy – ask only the questions necessary to improve the relationship.
Developing effective programs	Satisfaction survey modeling	Develop new programs and services based on what people value. Increase satisfaction to ensure program success.
Maximizing program enrollment	Program drop-out modeling	Develop preventative measures to reduce program abandonment when you learn why and when participants leave programs.
Preventing online fraud and hacking	Intrusion detection analysis	Ensure your site's security – pinpoint the factors that lead to its vulnerabilities. Identify suspicious patterns that point to an imminent attack and make certain appropriate firewalls are in place.
Designing effective Web sites	Sequence modeling	Improve Web site effectiveness and performance. Discover the major paths through your Web site and determine what content produces satisfied visitors.

Make it happen

Discovering information and meaningful patterns in your data is of limited use if that decision-making information doesn't make it into the hands of the actual decision makers. Planning the ways you use new information and data mining results is another critical step to accomplish real-time changes in the way you interact with your public. When you are armed with answers to your key business problems, how will you transform your organization? For example, if your goal is to increase online transactions by 30 percent using a more effective Web site, how do you accomplish that? Data mining can create citizen profiles that tell you who has the highest propensity to enroll in a certain program, who's more likely to make a particular transaction or who will request a specific report. It can tell you the sequences of the actions people take on your site and show you which actions are usually taken together. Data mining can also create individual citizen profiles in real-time – as a person browses your Web site, you can determine what type of visitor is in session and dynamically adjust site content to match the person's needs and interests.

The final step is to pull together the resources you need and formulate your plan. Include your agency's goals. Address the specific ways in which your data mining results will be deployed in day-to-day decision making and how it will enhance citizen interactions. Know how you will evaluate success. When you start with a sound plan, you can maximize information about your public to ensure that you use information effectively.

Revisit, reevaluate and adjust – constantly

How have your service challenges changed in the last month? Did your online registrations increase, while your service center saw the same number of walk-ins as it did before you implemented online registration? How do you stay one step ahead of cost containment without compromising service delivery to your citizens? Just as soon as you address the critical issues of today, new ones occur due to changes in legislation, your public's needs, technology and so forth.

Data mining is a journey – an ongoing initiative – not a project. Plan for growth and consider scalability (the ability to work with very large datasets) and flexibility (the ability to apply the technology to a variety of situations). Review the ways that other organizations use data to build better citizen relationships. Measure your success, revisit objectives and adjust – constantly.

Data mining makes the difference™

By applying sophisticated data mining techniques to your Web and citizen data, you can discover patterns and develop insights that enable you to build strong, one-to-one relationships. Turn to SPSS people, process and technology to apply leading-edge data mining techniques so you can make sound decisions based on reliable results. SPSS brings additional skills and experience to your data mining initiative, reduces the learning curve and gets your organization started quickly.

Build a clear vision and make it a reality. SPSS people, solutions and services provide sound, objective advice to make better use of data and technology to improve customer relationships at every point of citizen contact. We team with you to bridge the gap between the varied analytical and technical knowledge and your business expertise. Along the way, we educate your staff, provide recommendations and build a repeatable process so your organization is equipped with the skills and tools you need to easily proceed on your own.

Partner for e-government success

Governments are entering a new era of service delivery, and thinking in “e-terms” can be daunting. SPSS experts can work with you to understand your key business challenges. They guide you through the data mining and analysis process and transfer this knowledge and experience to you. Leverage your technology investment so your e-government solution is more effective – partner with the data mining leader.

Solve your complex business problems

Start and stay on track with the best practice approach to data mining, Cross-Industry Standard Process for Data Mining (CRISP-DM). CRISP-DM is a comprehensive data mining methodology and process model that makes large data mining projects faster, more efficient and less costly by enabling users to take advantage of a proven process. SPSS subscribes to this best practice approach to data mining, which it co-authored with several other leading companies, and brings it to your organization to deliver actionable results. For more information about CRISP-DM, see www.crisp-dm.org.

Conclusion

The Web is changing the world we live in. While new technologies speed up the pace and change the ways you implement your business strategies, the best foundation starts with a sound strategic plan for data mining. Today, data mining makes the difference in every sector, in every industry, in every area of the world.

You, too, can do data mining – and use the results to make proactive, positive changes in your e-government strategies and with your citizen relationships. SPSS’ end-to-end analytical technology enables you to collect citizen data from every point of interaction, mine the data to create in-depth profiles and deploy it back to the interaction points providing real-time, personalized responses. Drawing from a broad range and depth of analytical capabilities, SPSS delivers models that offer the best fit for your specific business issues and data. Better models mean more predictive power – which translates to more efficient e-government and improved citizen relationships.

From A to “e”

SPSS people, solutions and services take you from A to “e.” Approach your challenges with confidence based on a sound action plan for building powerful data mining into your programs. Improve your knowledge about your citizens. Increase your success with specific data mining goals and measurable success criteria. Get started more quickly and stay on track more easily, guided by a road map and a team of experts. SPSS people, services and end-to-end analytical technology help you:

- Know your citizens, their past program outcomes and demographic profiles; predict who is most likely to use a particular service or conduct a transaction online
- Determine which reports and services are often requested together so you can create information or service “bundles”
- Know the type of person visiting your Web page based on online behaviors
- Learn the characteristics of your registered Web visitors
- Identify factors that impact online transactions for a specific program or service
- Pinpoint which Web pages are keys to successful outcomes
- Identify which visitors are the likeliest to leave and why
- Determine which reports are often downloaded sequentially and create report suggestions
- Know which content impacts results – understand what pages people visit and which content most effectively enables transactions
- Identify when a visitor may be about to leave your site and why
- Find the most common and direct paths to outcome using sequence analysis
- Understand how visitors use your Web site using visual individual visitor pathways with tree diagrams
- Evaluate where your visitors come from and what they look for; text analysis determines the common ways a visitor finds your site from a search engine as well as the terms that are used within your site’s search facility
- Determine the raw number of visitors, the proportion of people who view pages in a certain order, the number of visitors who fit specific visitor types, the percentage of visitors meeting your success criteria (for example, determine how many people filed taxes online or learn how many visitors downloaded reports) and more using geo maps
- Know more about your Web visitors by classifying their session behavior, including type of information read, directness of visit, time spent in session
- Identify all unnecessary pages using sequence analysis to discover common paths people take to find important information on your site
- Assess page and content category performance by looking at the average time spent on pages
- Determine which pages are being read and which are being skimmed when you know the ratio of read speed to the number of words per page
- Identify trends and predict needs by building reliable forecasting models on Web logs

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SPSS Inc. provides solutions that discover what customers want and predict what they will do. The company delivers solutions at the intersection of customer relationship management and business intelligence that enable its customers to interact with their customers more profitably. SPSS' solutions integrate and analyze marketing, customer and operational data in key vertical markets worldwide including: telecommunications, health care, banking, finance, insurance, manufacturing, retail, consumer packaged goods, market research and the public sector. Headquartered in Chicago, SPSS has more than 40 offices. For more information, visit www.spss.com.

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