GIS Best Practices

GIS for Customer and Market Analytics
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>What Is GIS?</td>
<td>1</td>
</tr>
<tr>
<td>GIS for Customer and Market Analytics</td>
<td>3</td>
</tr>
<tr>
<td>Internet Mapping Helps Customers Find Stores</td>
<td>5</td>
</tr>
<tr>
<td>Creating Client Proposals with Internet GIS</td>
<td>9</td>
</tr>
<tr>
<td>GIS and Web Services Help Manufacturer Find the Best Retailers</td>
<td>13</td>
</tr>
<tr>
<td>U.S. Census Bureau's American FactFinder Provides Easy Access to a Wealth of Data</td>
<td>17</td>
</tr>
<tr>
<td>Shell Signs Groundbreaking Enterprise Agreement</td>
<td>23</td>
</tr>
<tr>
<td>ArcWeb Services Put Stamp on Target Marketing</td>
<td>27</td>
</tr>
</tbody>
</table>
What Is GIS?

Making decisions based on geography is basic to human thinking. Where shall we go, what will it be like, and what shall we do when we get there are applied to the simple event of going to the store or to the major event of launching a bathysphere into the ocean’s depths. By understanding geography and people’s relationship to location, we can make informed decisions about the way we live on our planet. A geographic information system (GIS) is a technological tool for comprehending geography and making intelligent decisions.

GIS organizes geographic data so that a person reading a map can select data necessary for a specific project or task. A thematic map has a table of contents that allows the reader to add layers of information to a basemap of real-world locations. For example, a social analyst might use the basemap of Eugene, Oregon, and select datasets from the U.S. Census Bureau to add data layers to a map that shows residents’ education levels, ages, and employment status. With an ability to combine a variety of datasets in an infinite number of ways, GIS is a useful tool for nearly every field of knowledge from archaeology to zoology.

A good GIS program is able to process geographic data from a variety of sources and integrate it into a map project. Many countries have an abundance of geographic data for analysis, and governments often make GIS datasets publicly available. Map file databases often come included with GIS packages; others can be obtained from both commercial vendors and government agencies. Some data is gathered in the field by global positioning units that attach a location coordinate (latitude and longitude) to a feature such as a pump station.

GIS maps are interactive. On the computer screen, map users can scan a GIS map in any direction, zoom in or out, and change the nature of the information contained in the map. They can choose whether to see the roads, how many roads to see, and how roads should be depicted. Then they can select what other items they wish to view alongside these roads such as storm drains, gas lines, rare plants, or hospitals. Some GIS programs are designed to perform sophisticated calculations for tracking storms or predicting erosion patterns. GIS applications can be embedded into common activities such as verifying an address.

From routinely performing work-related tasks to scientifically exploring the complexities of our world, GIS gives people the geographic advantage to become more productive, more aware, and more responsive citizens of planet Earth.
GIS for Customer and Market Analytics

Businesses are able to maximize their return on assets using ESRI GIS software. GIS gives any organization the ability to go beyond standard data analysis with tools to integrate, view, and analyze data using geography. And the applications can be used across an entire organization, in the field, and on the Internet.

Market analysis, customer analytics, and site selection are ways businesses can combine geographic analysis for better business intelligence, customer relationship management, financial modeling, and enterprise resource planning. Business analytics is a key subcomponent of business intelligence, one to which GIS is naturally connected. GIS helps any business gain more accurate predictive analysis, business activity, and performance monitoring.
Internet Mapping Helps Customers Find Stores

*American Suzuki Motors Corporation*

American Suzuki Motors Corporation (ASMC) started business in 1909 as Suzuki Loom Works. After World War II, Suzuki’s motorized bike, Power Free, was successfully introduced followed by the 125 cc motorcycle, Colleda. The lightweight car, Suzulight, helped bring along Japan’s automotive revolution, solidifying Suzuki’s reputation as a company optimizing the most advanced technologies available. Today, the company is constantly thinking ahead to meet changing lifestyles, and the Suzuki name is seen on a full range of motorcycles, automobiles, outboard motors, and related products including generators and motorized wheelchairs.

The Challenge

The Suzuki trademark is recognized by people throughout the world as a brand of quality products that offer both reliability and originality. Customers specifically look for Suzuki motorcycles and automobiles. To accommodate this, the company needed a more cost-effective, immediate means for its customers to find dealerships.

Goals

- Provide cost-effective mapping application over the Internet.
- Give customers user-friendly experience when finding information.

The Solution

ASMC came to ESRI, the world's leading provider of geographic information system (GIS) software products, to find the right answer to its problem. After discussing its needs, ASMC realized it needed a dealer locator service for customers searching for vehicles on the Suzuki Web site. ASMC
knows the automotive industry well but did not want to become an expert in GIS technology. ASMC contracted with ESRI for its ArcWeb Services. ArcWeb Services gave ASMC access to both GIS content and capabilities without the overhead of purchasing and maintaining large data sets or software.

ASMC provided its store locations in digital format to ESRI, who then geocoded, or created points on a map, with these locations. These dealer locations can be viewed on a street map on the Suzuki Web site, www.suzuki.com. When a visitor to the Suzuki Web site types in a ZIP Code, ArcWeb Services process the query and return a list of Suzuki automobile dealers within a 50-mile radius. Along with a list of dealers, the query also returns hyperlinks to dynamic map displays and driving directions. A visitor can click a particular dealership and retrieve a map to that particular dealership. The visitor can pan and zoom on the map to discover more information about the area.

**Results**

By hosting associated geographic and customer specific data sets and GIS processing, ArcWeb Services are the most cost-efficient solution in the marketplace for integrating location finding services into applications. David Harris, Internet development manager for ASMC says, "When we compared the cost of hosting and maintaining the geographic data ourselves, it became clear that ArcWeb Services were the superior solution. It's a great way to help our customers find and route themselves to our stores for a minimum cost."

- Potential clients can easily find dealerships.
- Suzuki provides a powerful mapping application for little overhead.
- Improved customer service.
"ArcWeb Services are a great way to help our customers find and route themselves to our stores for a minimum cost."

David Harris
Internet Development Manager
American Suzuki Motors Corporation

**ESRI Software Used**

ArcWeb Services

For more information, visit www.esri.com/arcweb.
Creating Client Proposals with Internet GIS

Lamar Advertising Company

Lamar Advertising Company is one of the largest and most experienced outdoor advertising companies in the United States. By combining innovation, products, and strategic growth, Lamar has been helping clients find the right audiences for its products since 1902.

Lamar currently operates 152 outdoor advertising companies in 43 states and is a leader in the highway logo sign business. Currently, Lamar operates more than 149,000 billboards and 97,500 logo sign displays across the country.

The Challenge

Lamar strives to be the premier provider of outdoor advertising in the markets it serves. One way it achieves this goal is by providing clients with targeted placements for their outdoor advertising. Finding vacant billboards in the best areas for various products requires managing vast amounts of data including the actual location of the billboards and demographics of the areas where the billboards are located.

In early 2003, Lamar began actively researching new options for its Maps and Photos system. This map system allows the sales staff to create a map proposal for a prospective customer that contains a map of the billboard panel locations and can also contain a photo sheet that shows a close-up map of the billboard panel's location, pictures of the location, and detailed information about the panel.

Users were requesting many features that the map system could not accommodate at the time including attaching multiple maps to one proposal, using demographic maps, the ability to distinguish between different types of panels Lamar uses, and saving maps in different formats. Lamar needed to find a mapping system that could accommodate the increasing sophisticated needs of its clients.
Problem

Needed mapping system that cost-effectively met its customers' needs and could be deployed easily to the sales force by MIS staff.

Goals

- Attach multiple maps to one proposal.
- Incorporate demographic maps.
- Distinguish between different advertising panels displayed on the map.

The Solution

After researching several vendors, Lamar chose ESRI ArcWeb Services because they provided all the data and features its clients were requesting. "ESRI was the only vendor that could accommodate the requests of Lamar's sales staff," says Tom McNamee, chief information officer, Lamar Advertising. "We chose ESRI's ArcWeb Services because they provided all the data and features our clients were requesting, and they were easy for our Management Information Systems (MIS) department to implement."

ArcWeb Services offered Lamar a way to include geographic information system (GIS) content and capabilities in its applications without having to host the data or develop the necessary tools in-house. With ArcWeb Services, data storage, maintenance, and updates are handled by ESRI, eliminating the overhead of purchasing and maintaining large datasets.
Lamar introduced the online service in two phases. The first phase was completed in September 2003 when all maps in the system were redone using ESRI’s batch geocoding process to ensure placement accuracy of the billboards. Now Lamar’s sales staff can log on to their intranet, enter an address location requested by a client, and do a radius search in miles to find all available billboard panels within that radius, displaying them on a map.

The second phase introduced a map-editing system, allowing sales staff to change and edit the maps on the intranet for use in client proposals. Now sales staff can zoom in on a cluster of icons so each one can be seen, and the subsequent map can be saved as a new map in the proposal. They now have the ability to change the background of a map to new map types including U.S. streets, North American streets, census data, and aerial photographs. Users can also add icons showing locations of billboards if needed.

Results

More than 1,200 sales staff request an average of 1,600 map proposals each day. The average number of maps included in a proposal is 15. “Lamar has received lots of positive feedback from our users,” says McNamee. “They have expressed their appreciation for the new features that have been added.”
All features requested by Lamar's clients were accommodated.

More than 1,600 maps are generated per day.

Multiple maps can be attached to one proposal.

“We chose ESRI's ArcWeb Services because they provided all the data and features our clients were requesting, and they were easy for our MIS department to implement.”

Tom McNamee
Chief Information Officer
Lamar Advertising

ESRI Software Used
ArcWeb Services

For more information, visit www.esri.com/arcweb.
GIS and Web Services Help Manufacturer Find the Best Retailers

Levi Strauss & Co.

Levi Strauss, North America, a division of Levi Strauss & Co. (LS&CO.), encompasses the company’s largest region and employs approximately 3,100 people throughout the United States, Canada, and Mexico.

The North America region markets products under the Levi's, Dockers, and Levi Strauss Signature brands and includes three businesses: Levi Strauss U.S., Levi Strauss Canada, and Levi Strauss Mexico. Based in the company’s San Francisco headquarters, the region accounted for $2.4 billion of the company’s $4.1 billion in total sales in 2004.

The Challenge

LS&CO. wanted to increase distribution to more specialty stores such as general merchandise/work wear and western apparel outfitters. These stores often serve a demographic that is traditionally underserved by other retail channels.

LS&CO. wanted a tool that would geographically display its existing authorized retailers, potential retailers, and the customers the distributors serve. This application would ensure that new stores would not adversely impact the sales opportunities of existing stores.

LS&CO. uses ESRI Business Analyst Online to view prospective retailers. The impact of a new retailer is analyzed by creating ring study areas.
Clothing manufacturer needed a cost-effective solution to manage the growth and approval of new authorized retailer locations.

Assess new retailers for additional product distribution.

Protect existing retailers' trade areas.

Avoid making costly mistakes when opening new retail locations.

The LS&CO. marketing group has used ESRI software for several years. Based on the group’s success with the software, the LS&CO. Sales Center decided to review geographic information system (GIS) software to help manage its distribution. It began using BusinessMAP desktop mapping software to look for new accounts. "BusinessMAP was a great cost-effective tool for us to use in researching new look in these channels of distribution," says Maurice Kelly, new accounts manager, LS&CO.

Numerous new account applications arrive weekly, and LS&CO. needed a tool that would help it to view this incoming data accurately and stay abreast of it. LS&CO. selected ESRI Business Analyst Online, an on-demand reporting and mapping service that combines GIS technology with extensive business, demographic, and consumer household data and delivers it via the Web.

Kelly imports existing store locations from the Market Trends and Analytics Division of LS&CO. and draws study area rings around the stores. A study area defines a boundary in a report. Business Analyst Online enables users to choose an address or predetermined latitude and longitude coordinates as the center point of a ring study area in one-, three-, and five-mile ring reports. Next, the potential retailers’ locations are entered. If the location is deemed to be too close to an existing store, the application may not be accepted. "Geography is one of the key criteria we use when deciding to accept a new retailer," says Kelly.

LS&CO. receives numerous retailer application packets each week. This information can now be entered into the database and the address viewed on a map. Each analysis is repeatable, applying the same evaluation criteria to each prospect.
Results

LS&CO. streamlined its review process of new retailer applications into a solution that allows it to see prospects geographically in relation to existing stores. LS&CO. now uses Business Analyst Online to view the information accurately and consistently to make informed decisions before opening a new retail account.

These analyses were originally performed by an outside vendor, but LS&CO. wanted to streamline this process and gain more autonomy. "Fortunately, ESRI helped us create the application we needed," says Kelly. "This application is absolutely essential to my job. We previously didn't have a readily accessible archive of retail store locations. Business Analyst Online allows us to manage them and see prospective retailers. We can avoid problems such as opening a store directly across the street from an existing account."

LS&CO. has found a cost-sensitive solution that allows it to accurately see where retailers are located, avoid unnecessary site visits, and open competitive stores. LS&CO. believes that this analysis better meets its customers' needs by bringing the right products to the stores where these consumers shop. An easy-to-use, essential tool, Business Analyst Online allows LS&CO. to better manage its retail distribution strategies.

- Reduce costly onsite visits to new retailers.
- Accurately model locations of existing and potential retailers.
- Provide quick analysis that is repeatable with same evaluation criteria for each prospect.

"Business Analyst Online provides us with the tools to do a simple but essential analysis. I can easily see where my retailers are located and make the right decision on whether or not to approve new stores. This is a mandatory application for my business."

Maurice Kelly
New Accounts Manager
Levi Strauss & Co.
By viewing potential retailers and their impact on the market in 1-, 3-, and 5-mile radius, it is easier for LS&CO. to decide whether or not to accept a new applicant.

**ESRI Software Used**

BusinessMAP

Business Analyst Online

For more information, visit www.esri.com/bao.
U.S. Census Bureau's American FactFinder Provides Easy Access to a Wealth of Data

GIS Helps Homebuyers, Business Ventures, Nonprofit Organizations, and Local Governments

A thematic map of median household income for 60614 showed a census tract near one of Jenkins' possible restaurant locations with a median income of $127,031.
The United States Census Bureau understands that there are hundreds of thousands of people who have a great idea yet need detailed statistical and geographic information to help in analysis and decision making. To help these people, the Census Bureau developed the American FactFinder Web site (www.factfinder.census.gov), which has become the Census Bureau's primary Internet tool for access to official and current demographic, economic, and geographic data. American FactFinder generates online customizable reference and thematic maps for users to visualize detailed information. Using only the default settings, users can link data to mapped geographic areas to create more than 18 million maps.

American FactFinder regularly helps people make informed decisions. Many local governments already make extensive use of Census Bureau data to identify the locations of target populations for services and to allocate facilities and resources to serve target populations most effectively. Nonprofit organizations frequently access language statistics to determine areas where information should be distributed in a language other than English. Potential homebuyers compare housing values and high school graduation rates across different communities to make an informed home buying decision. Using the Internet, the Census Bureau returns the valuable data it collects to the individuals and organizations that provide it, supporting and enhancing their business, policy, and personal decision making.

American FactFinder thematic maps, reference maps, and geographic address searching capabilities were developed using ArcIMS and ArcSDE technology. ESRI was selected for this project because of its comprehensive approach to GIS requirements across the Census Bureau. ArcSDE is utilized for the retrieval and management of all spatial data. ArcIMS provides the interactive mapping capabilities used to search for and visualize data with spatial components through Web browsers.

To support data visualization and site navigation, American FactFinder provides a range of geospatial features, including map-based geographic selection to support data queries, reference maps to visually identify survey boundaries, thematic maps to aid data visualization, and geocoding services to support search-by-address queries.

Maps displayed in American FactFinder are drawn using an Albers equal area conic projection, which is predominantly used to map regions of large east-west extent, in particular the United States.
American FactFinder's reference map for 60614 illustrates geographic boundaries along with selected features, such as streets and major highways, helping the user better visualize the location.

American FactFinder's mapping capabilities are supported by more than 1,000 layers in the ArcSDE spatial database. Detailed layers display actual geographic boundaries. Projected layers are needed for the smallest map scales in American FactFinder to minimize distortion in representing the three-dimensional earth in a two-dimensional space. Generalized layers are used to display appropriate features and boundaries at various zoom levels. American FactFinder's 140 AXL files reference multiple layers in the ArcSDE database and specify which layers to use for certain zoom levels.

**Hypothetical Organic Food Restaurant: How to Target Potential Customers**

To help show exactly how American FactFinder works, this article proposes the following hypothetical, nonetheless detailed, step-by-step example of how analyzing the comparative merits of several potential restaurant locations in Chicago, Illinois, could be made easier using Census Bureau thematic and reference maps.
Let's say that late in 2003, Howard Jenkins noticed the lack of organic food restaurants in Chicago and decided to evaluate potential business opportunities in this market. Jenkins himself was an excellent cook and decided to seriously consider opening a restaurant that featured organic ingredients. For his new business to be a success, Jenkins knew that his restaurant would need to be located in a high-income area because of the high cost of organic ingredients. He found several potential restaurant locations available in various Chicago area ZIP Codes, but he was unsure of which site locations would be in closest proximity to the appropriate clientele.

Jenkins' small business "how-to" guides touted using U.S. Census Bureau statistics for targeting potential customers, analyzing site locations, assessing the competitive environment, and forecasting potential growth. His local librarian then referred him to the American FactFinder Web site.

Jenkins began his research by looking for basic demographic information for each of the Chicago area 5-digit ZIP Codes where restaurant locations were available. He started with American FactFinder's Fact Sheet, which gave him basic information on each of the areas he was considering—including the population count, median household income, education level, and average household size.

Jenkins then decided to try looking at the data in map format, to more easily identify patterns across multiple geographic areas. Using links from the Fact Sheet to thematic maps of population density, median age, household income, and average household size, he noticed significant differences in median income across the various ZIP Codes under consideration. He pinpointed the 5-digit ZIP Code tabulation area with the highest median income in the group he was considering: 60614. According to the 2000 Census, ZIP Code area 60614 had a median annual household income of $68,324, significantly higher than the national median of nearly $42,000. Further analysis also showed that the median age in 60614 was 31.0 years—much younger than the national average and a desirable demographic indicator since younger adults tend to eat out more often than older people.

To help convince potential lenders, Jenkins downloaded the thematic maps in PDF format for insertion into his business plan. He also downloaded the associated data into Microsoft Excel format for further offline analysis, allowing him to integrate Census Bureau data with industry specific data obtained from restaurant trade associations.
Jenkins' next task was to choose the specific restaurant location within his selected ZIP Code. Because the Census Bureau has data available for more small geographic areas than any other survey organization, Jenkins was able to further analyze median household income in the immediate neighborhood of each potential restaurant. Using American FactFinder's search-by-address tool, he displayed a map of ZIP Code area 60614 subdivided by census tract, each of which included an average of only 4,000 inhabitants. American FactFinder maps include streets and major highways in addition to demographic data—allowing Jenkins to easily find and compare the characteristics of possible restaurant neighborhoods.

Jenkins decided he'd struck gold when the map of median income (TM-P063) for 60614 showed a census tract (#720) near one of his possible restaurant locations with a median household income of $127,031.

Jenkins next visited American FactFinder's Business and Government page to learn more about the competitive environment of the restaurant industry in the Chicago area. Restaurant industry highlights—including data on annual revenues, number of locations, and number of employees—were available from the 2002 Economic Census Quick Reports. Jenkins analyzed Cook County, Illinois, data and then narrowed his search to look at local trends by individual ZIP Code for the restaurant industry. Possible restaurant offerings were developed using statistics on full-service restaurants. Data in the County Business Patterns showed the growing state of the restaurant business in Cook County, Illinois.

Another important factor in Jenkins' hypothesized restaurant site selection was the forecast of future growth based on population trends. Jenkins wanted to see how population for cities and towns within Cook County had changed between 2000 and 2003 to identify trends affecting his potential site. American FactFinder supplied a thematic map from the Population Estimates program that illustrated population growth in the outer suburbs of Cook County between 2000 and 2003 and population decline in the city of Chicago in the same time period. Jenkins used
this information to substantiate his forecast of future revenue growth for his planned restaurant. Having access to Census Bureau information gave Jenkins the answers he needed to create his blueprint for success.

For more information, visit American FactFinder (www.factfinder.census.gov).

(Reprinted from the Spring 2005 issue of ArcNews magazine)
Shell Signs Groundbreaking Enterprise Agreement

Building upon a successful Multinational Enterprise contract signed four years ago, Shell International Exploration and Production B.V. has signed an agreement with ESRI to implement a comprehensive, enterprisewide agreement under which Shell worldwide can use the ESRI suite of software products.

The global agreement allows Shell (which is formally known as the "Royal Dutch/Shell Group of Companies") to easily deploy and support ESRI software throughout its entire organization. The enterprise solution comprises ESRI's full suite of software, including the ArcGIS family of desktop (ArcView, ArcInfo, and ArcEditor) and server (ArcIMS, ArcSDE, and ArcGIS Server) products, closely integrated with a spatially enabled object relational database management system. Support will be provided by dedicated Shell and affiliates staff and a network of regional...
ESRI distributor technical support centers to cover the multiple time zones of Shell's global business.

The Shell agreement is believed to be the first of its kind in the GIS and energy industries. Shell uses GIS technology to integrate and visualize complex business information from many different sources and to produce cartographic maps of its assets, operations, and environments around the world. The company's GIS framework is currently being extended into a corporate spatial data infrastructure in which any authorized user on the corporate Intranet is to have access to a one-stop portal, integrating GIS layers, documents, and company databases in a fully transparent manner.

With more than 20 years of experience in using GIS, Shell fully understands its capabilities, and the enterprise agreement allows it to easily implement the technology throughout its entire organization. Backed by a multtier, global support model, the agreement with ESRI will help Shell control costs and eliminate deployment barriers in its GIS.

For example, Shell's geologists use GIS to compile extensive regional overviews of existing or prospective oil and gas reservoirs, helping them pinpoint any potential opportunities around the world; engineers employ GIS to plan and execute field operations, such as the positioning of a drilling rig offshore or infrastructure maintenance in a remote desert; environmental scientists utilize GIS to monitor emissions, wildlife, or biodiversity within the company's operating areas; legal staff members make use of GIS to keep landowners informed of pipeline inspections or activities affecting their properties; and senior management and stakeholders are informed of project updates through 3D GIS displays in virtual reality rooms.

More recently, GIS has also begun to play a role in the company's downstream operations, helping the planning and marketing of gas stations, as well as in Shell Renewables, where development managers have learned to employ GIS technology to identify sites for on- and offshore wind farms.

Shell, a global group of energy and petrochemical companies, employs more than 119,000 employees in more than 145 countries around the world. Its aim is to meet the energy needs of society in ways that are economically, socially, and environmentally viable, both now and in the future. ESRI technology has been deployed throughout the group worldwide. As this implementation has matured, the emphasis has shifted from interoperability at the data level toward a service-level architecture. This was made possible by ESRI's and Business Partners' continued software development in this area, including ArcSDE and the ArcGIS Data
Interoperability extension. Shell's work flows and business processes require reliable database and client performance, as well as quick turnaround in making regular updates to its vast and diverse data repositories.

Concludes ESRI President Jack Dangermond, "We are honored that Shell has chosen to further expand our relationship. This agreement demonstrates three vital aspects of an implementation of this magnitude: faith in the technology, faith in ESRI and its Business Partners, and a true understanding of the corporate value of GIS."

(Reprinted from the Winter 2004/2005 issue of ArcNews magazine)
ArcWeb Services Put Stamp on Target Marketing

ESRI Business Information Solutions

Marketing analysis and precision marketing campaigns are gaining advantages from demographic data and intelligent map services delivered on the Internet. Businesses can now have demographics and map content and capabilities on their Web sites without having to host data or develop tools internally.

ESRI Business Information Solutions (ESRI) offers demographic data, market segmentation, spending patterns, and other valuable market analysis information. ESRI ArcWeb Services deliver geographic data and GIS-Based Analysis and Data Solution for Business Announcing ArcGIS Business Analyst ESRI Business Information Solutions ArcWeb Services Put Stamp on Target Marketing maps to commercial enterprises via the Internet. The combination of ESRI Business Information Solutions' business-focused solutions and ESRI's ArcWeb Services provides businesses with significant savings of time, expense, and computer resources while delivering in-depth market data displayed in reports and on maps.

Money Mailer LLC, a popular direct marketing company, sells direct mail advertising in specific geographic areas. Its 235 franchisees need to create and present demographic market information for their clients. Since 1979, Money Mailer has been a quality leader in the direct mail industry. The company serves local businesses by filling envelopes with money-saving coupons as its media vehicle. Money Mailer mails more than 110 million envelopes and services to more than 30,000 advertisers each year. Delivering precise direct marketing strategies is a driving force of its business success.

A common practice among marketing information distributors is to build targeted geographic customer areas within ZIP Code boundaries. ZIP Codes, although useful to the post office, are not effective for targeting customer regions. Therefore, Money Mailer defines its own custom zones based on segments of customer types. Money Mailer uses ESRI's ArcGIS desktop software to create and manage these custom zones, known as SmartZones.

To deploy these SmartZones over the Internet, Money Mailer worked with ESRI to develop SmartZones Online, a sales support tool that shows an advertiser's best prospects and how Money Mailer can reach them.
The SmartZones Online system lets the franchisees display locations of customer types defined by age, income, and many other demographic variables that are correlated to client response. ESRI hosts, manages, and maintains the SmartZones Online system for targeting direct mail.
Keith Arnold, Field Marketing Manager of Money Mailer, explains, "Our franchisees access the Web site whenever they want to create demographic and market potential maps and reports. They use these to demonstrate to their clients a region's marketing potential. The SmartZones Online system that ESRI put in place for us enables the franchisees to create maps of the market geography that they have available to their clients. The maps greatly help in selling the service because clients can actually see the concept."

The Solution

Money Mailer's Field Marketing Department, which is responsible for the company's geographic information system (GIS) operations, uses ArcGIS desktop software and data from ESRI to profile customers, understand needs, and focus the marketing efforts of its direct marketing services. With 235 franchisees pursuing opportunities throughout the country, the Field Marketing Department looked for efficient ways to extend its mapping and reporting capabilities.

SmartZones Online extends those capabilities. A Money Mailer franchisee uses SmartZones Online maps and reports to help business clients understand if and how they should use direct mail services. Clients buy direct marketing services that place their advertisements and coupons in a Money Mailer envelope, which is mailed to select consumers.

Money Mailer's SmartZones Online system is a sensible business strategy that helps businesses identify and mail coupons to people who are most likely to respond. For example, the map in Figure 1 shows a health food store located at 100 North Azusa Avenue. Within a three-mile radius are several ZIP Codes, including 91706, on the left side of the map. The map clearly shows what a report cannot: the three-mile ring only partially overlaps ZIP Code 91706, which has approximately 17,000 households. It would not make sense to mail marketing envelopes to an entire ZIP Code area where most of the residents are outside the store's direct market area.

Instead, the SmartZones Online tool effectively determines which neighborhoods are best for targeted campaigns. These neighborhoods are grouped into SmartZones (the pink areas), each containing approximately 10,000 households. In this case, the two strongest SmartZones are 001D and 001C, which are almost fully contained within the circled trade area. SmartZones area 001E is mostly contained and clearly has a major road connecting it to the North Azusa Avenue store, so this zone also has a higher probability of response.
Sending direct mail to ZIP Code 91706 and five other ZIP Code areas, totaling approximately 100,000 households, wastes resources. The store needs to target only 20,000 households to seek a higher overall response rate and yield—a primary goal of any targeted marketing effort.

**Technology Behind the Solution**

The Web site, SmartZones Online, provides easy-to-use GIS content and application functionality to Money Mailer franchisees. The company neither hosts the data nor develops its own tools because this service is provided by ESRI, using ArcWeb Services and ESRI data. Money Mailer had an earlier version of SmartZones in place for several years from a different vendor before approaching ESRI for the rebuild in 2000. Money Mailer’s Field Marketing Department designed the basic look and feel of the new system as well as the order of operations. Money Mailer’s Marketing Department designed the actual look of every Web page. ESRI Professional Services designed and created the site’s functionality and has hosted and maintained the system for three years.

Money Mailer Web Site.
Franchisees access the site via a thin client Web browser that uses HTML and JavaScript, which means that no downloads are required. Every four weeks, Money Mailer updates the SmartZones boundaries database and all of the zonal demographics, product potential indexes, consumer expenditure indexes, and mailing data. ArcWeb Services provide the AddressFinder geocoder (based on Sagent) and the MapImage map request service to the site.

The hardware for this Internet solution includes Web servers, application servers, map servers, and database servers. A global load balancer shares the user load on two server farms in two different locations. With this configuration, Money Mailer's server site has the capacity to handle 6,000 users per day, giving the site accessibility and fast response.

Money Mailer provides its franchisees with a password protected Internet portal. From this portal, franchisees access the SmartZones Online application hosted at ESRI. Users can either start a new project and create new map reports, or they can access completed projects to edit and manipulate them. Thematic maps, based on mailing geographies, show propensities of defined demographics and display target market potentials. Web site users can select from a list of 280 variables to create demographic and geographic combinations depicting demographics, consumer expenditures, product potential, basemap layers from GDT, SmartZones boundaries, and more. To accompany the maps, users can also create reports that include actual percentages, indexes, and other information that may interest their clients.
In the example of the health food store at 100 North Azusa Avenue, the map (see Figure 2) completes the picture by showing which SmartZones residents are more responsive to using coupons and which patronize health food stores. The dark red SmartZones contain the best homes to target in a direct mail campaign.

"Web site users don't need to know anything about GIS," says Arnold. "They simply enter the attributes of interest and the GIS puts it all together for them. It is very easy. Franchisees generate the maps and reports they want, print them, and carry them to client meetings. Everybody loves maps, and SmartZones maps and reports are very informative. Basically, the system empowers our franchisees by positioning them as marketing consultants who are very capable of providing market information and mapping based on their clients' needs. Franchisees and their clients are served very well by the system."

For example, when a franchisee was about to lose a heating and air conditioning customer, he developed a presentation using SmartZones Online showing the contractor that he should market to a number of areas he had solicited in the past. The contractor said, "This is the best thing I've seen in the 10 years we've done business together," and purchased a 100,000-home mailing.
The system helps franchisees compete against other media that traditionally have stronger numbers behind their presentations. Recently, a franchisee competing with radio and cable advertising providers put together a presentation for a local business with four locations. By using SmartZones Online, he sold a 100,000-home mailing service to that business.

One franchisee used SmartZones maps to help show businesses in a local mall that they should expand their advertising efforts. She convinced them to increase their mailings from 60,000 to 200,000 to reach additional customers likely to patronize the mall.

Because Money Mailer is pleased with the low costs for online system services that include a wide range of capability and efficient services, the company has twice renewed the hosting arrangement. Similar savings and marketing advantages are available to any organization through ESRI data and online solutions. David Huffman, managing director of ESRI, says, "The real power of our data and ArcWeb Services is that a developer within a company, or contracted through ESRI Professional Services or through ESRI business partners, can build powerful solutions similar to SmartZones Online and effectively deploy them in the field."

Since 1969, ESRI has been giving customers around the world the power to think and plan geographically. The market leader in geographic information system (GIS) solutions, ESRI software is used in more than 300,000 organizations worldwide including each of the 200 largest cities in the United States, most national governments, more than two-thirds of Fortune 500 companies, and more than 5,000 colleges and universities. ESRI applications, running on more than one million desktops and thousands of Web and enterprise servers, provide the backbone for the world’s mapping and spatial analysis. ESRI is the only vendor that provides complete technical solutions for desktop, mobile, server, and Internet platforms. Visit us at www.esri.com.