

Exploring GIS Applications in the Marketing Field With a Focus on Direct Marketing

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Introduction

1. Marketing

1.1 What is Marketing?

Marketing is any method or technique that a company uses to attract the attention of an audience and direct it towards the company's product or service. Through deliverables and content, marketing creates value for leads and existing customers, with the big picture focus being on communicating product value, establishing customer relationships and brand loyalty and improving sales. Marketing is a component in many departments, such as sales, advertising, product development and distribution. This is because marketers have the most solid understanding of the consumer profile. The marketing department aims to conduct research and analyze their customer base, with the intention of answering the question of what, when and how the consumer wants to interact with the business. Marketing entails every aspect of the business's sales cycle, including product development, market research, product distribution, public relations and sales strategy, and customer service, and this is achieved through several platforms. Marketing is a very multifaceted and extensive field, and this is a basic definition for the purposes of this paper.

1.2 Types of Marketing

1.2.1 Traditional Marketing vs Digital Marketing

There are two distinctions in types of marketing, the traditional version of marketing and the digital version of marketing. The difference lies in the medium through which the marketer is communicating messages with the audience. Traditional marketing uses traditional media like print, magazine and newspapers, and digital marketing uses digital media, like websites and social media. Every corner of the internet can be used to reach different audiences through digital marketing. While digital marketing is growing rapidly as our world becomes more digitally oriented, traditional marketing is just as important. It provides an avenue to reach people away from the digital path by taking advantage of the consumer's need to step away from the digital nature of society. A balance of both types of marketing is key in marketing strategy development. Extrapolating aspects of both types of marketing, depending on the unique needs of the user's product, is an effective approach to creating a marketing strategy.

1.2.2 More Types of Marketing

There are also variations within these two types of marketing, as well as other forms of embodiment.

Internet Marketing, also known as Online Marketing

This is a marketing strategy that occurs online, it incorporates a variety of marketing formats, such as email marketing, search engine marketing and video advertisement. This can also fall under the digital marketing umbrella. This type of marketing needs a productive combination of advertisement, design and development.

Offline Marketing

This is the opposite of online marketing, so it encompasses all types of marketing that isn't conducted over the internet. Examples include advertisements in newspapers and televisions. This is often used in conjunction with online marketing.

Outbound Marketing

This involves the more traditional methods of marketing. This type of marketing is where marketers attempt to introduce a product or service to a potential customer who isn't actively looking for the product or service in question. This can include cold calling, newsletters, banner ads at different locations or billboard advertisements.

Inbound Marketing

This is a marketing approach that encourages a pathway where consumers find the company on their own, rather than the company reaching out to them. This is where a consumer begins with a demand or need, and they want to purchase a specific product. For example, they may be looking for an internet provider for their apartment. In this case, they would go out and try to find a provider.

Newsletter and Email Marketing

In this format, newsletters and marketing campaigns are used in an attempt to promote the company, and the company's products and services, to its leads. This group of leads is a contact list that is continuously developed and emailed interesting content that brings value to the contact. The goal here is to present captivating information that highlights the quality of the company. It entices the contact and builds trust with them, to the point where they are seeking out the company once they are in need of the product they sell.

Article Marketing

Another example of the company creating content to bring value to the potential customer. This is done in the form of informative articles. The company will dedicate a team to producing content related to the industry they are in, and distribute this online and offline. It builds trust and credibility, and boosts the company's reputation as a leader and resource in the industry, helping them stand out against their competition.

Print Marketing

Companies can sponsor articles, newspapers, magazines and other content in different publications that they know their target audience is reading, and reach them through targeted advertisements.

Trade Show Marketing

This is when companies participate in large marketing events or trade shows to connect with other industry leaders. It is an important networking opportunity, with potential for partnerships and collaborations as well as research and intelligence gathering. This is also great visibility for the company, and gives them the chance to meet and nurture relationships with potential clients.

Search Engine Marketing (SEM), also known as Pay Per Click Advertising (PPC)

SEM is a marketing technique that allows companies to pay for placements on search engines, like Google, in order to advertise their business and increase their exposure to potential leads.

Search Engine Optimization

This is the opposite of SEM and is a more organic way to generate more eyeballs on the company's webpage or socials. It is a process of content optimization that encourages its appearance on the first few pages of a search engine to organically gain more lead traffic.

Niche Marketing

This type of marketing is used when a product or service is supplied to a specific subset of the market, so the company can focus on that niche and target a need that isn't being

met by other providers. This can be a better use of resources, narrowing down on a niche market, rather than trying to compete in a much larger market.

Drip Marketing

This is when marketers coordinate and create an emailing schedule ahead of time and execute targeted email campaigns with the aim of contributing to a larger objective. Multiple emails can be written and scheduled as part of a marketing strategy, and the marketer can let them drip into the consumer's inbox over a carefully determined timeline.

Social Media Marketing

This type of marketing takes place over social media, companies dedicate entire teams to managing social media campaigns on different social platforms, such as Instagram, Twitter, Facebook, or a website or blog. These campaigns are spread over these outlets and tailored in a way that they are maximized in whatever channel they are implemented in. They are intricate in that they focus on delivering a specific message that aligns with the company brand and highlights its products, representing the company, and creating content that brings value to the consumer.

Referral Marketing, also known as word of mouth marketing

This relies more on a company's customer base referring it for a product or service to their friends, family or coworkers. This is hard for the marketing department to control or enforce, however, a company with a strong product and customer service can invoke trust and loyalty from a customer, who will walk away with an overwhelmingly positive experience and then be more inclined to refer the business to other consumers.

Guerrilla Marketing

This relies more on making a statement or creating a splash. It involves coordinating unusual approaches with energy, timing and perhaps luck to gain the consumer's attention. It is an unconventional method of marketing but can be successful if performed correctly, with every previous factor mentioned in complete alignment. It's about leaving a lasting impression in the consumer's mind with minimal resources.

Promotional Marketing

This is a very common marketing strategy, it encourages a consumer to make the decision to purchase their product or service. This promotion can be done by offering coupons and discounts, holding raffles and competitions with prizes, and giving away free samples to attract more clients who can try the product and then make a decision to purchase based on quality.

Affiliate Marketing

There are four parties that are relevant in this format of marketing. The merchant is the business that is selling their product, the network is the channel they use as an outlet to promote the affiliate link to their product, and the publisher or affiliate is the individual that has the website with the affiliate advertising. Finally, the consumer who makes the purchase and completes the transaction is the party that closes out the process.

Viral Marketing

Viral Marketing focuses more on the message of the marketer, and how quickly it can spread. This is often through rapid levels of engagement on social media and an increased degree of brand awareness. It will likely not span as much time as the other marketing types, but it has the potential to leave a mark on the right audience.

B2B Marketing

Any business that is marketing to another business uses a business to business marketing strategy. It involves mass selling quantities of products, more direct efforts and the development of a much closer relationship with the other business.

B2C Marketing

This is when a business is marketing towards a group of consumers who may be interested in purchasing their product or service. In this context, the marketing strategy is more broad.

Mobile Marketing

This consists of using the cell phone as a marketing medium, companies are researching ways to reach consumers through their phone with the rise of smartphones. This can be done through SMS marketing, in game marketing, location based marketing and web page banner marketing.

Reverse Marketing

This type of marketing is similar to inbound marketing. The objective here is to market the product or service in a manner that will encourage the consumer to find and reach out to the company themselves. This can be accomplished through print, television or internet marketing. An example where this type of marketing would be really successful is when the company's product is able to solve a problem in the market, because potential customers will turn towards the company while in pursuit of a solution to their issue, which they can then find in the product.

Telemarketing

This form of marketing is conducted through phone calls, and reaching consumers through this medium. This treads a careful line because it can venture too far into cold calling and this is usually frowned upon.

Direct Mail Marketing

This is when consumers receive marketing material in the mail. Companies will send marketing material through paper mail, with promotions, coupons or other advertisements.

Personalized Marketing

This is a type of marketing that focuses on the customer, it involves a deep level of personalization. The marketing team tailors their marketing approach to each individual customer.

Database Marketing

This is a type of marketing where the focus is more on analyzing data. Companies can identify target groups or individuals and then focus their marketing campaigns on them. This gives the marketing department a chance to analyze statistics and model data.

Direct Marketing

This is a form of marketing that sends messages directly to its consumers, bypassing the need for any third party channels that would bridge the connection. Examples include mail marketing, telemarketing, and direct selling. This is easier to measure

results for and gives a clearer picture of the campaign's performance and overall success levels. This type of marketing is what this paper will be investigating.

1.3 More on Direct Marketing

As previously mentioned, direct marketing is the type of marketing this paper will be examining in the context of GIS applications and tools. The user tries to bring out a specific action from a targeted group of consumers, such as a purchase, a website visit, an email click through, or request for more information, as a response to a carefully crafted communication. This communication can take place through telemarketing, point of sale, postal mail or direct email marketing, among other methods.

There are several benefits that are a result of direct marketing procedures. Direct marketing helps the user promote their product or service directly to their target audience, saving resources and concentrating efforts on qualified leads, and evaluating the success of results. Additionally, the marketing department can perform high segmentation and targeting, optimize resources and marketing budget, improve on sales with current and former customers, increase loyalty strategies, generate new business leads and opportunities and test and analyze the results of the campaign.

At a very high level, the next few sentences will outline what a direct marketing campaign looks like in terms of workflow. First, the contact list needs to be developed so there is a list of recipients for the direct email marketing campaign. The perfect email script needs to be produced, with an eye catching subject line, visuals, copy and a call to action. This needs to include a code or identification pixel so it is possible to measure how many leads visited the website directly due to this email. When sending emails, many marketers perform A/B testing to test the campaign efficiency. This means dividing the contact list into groups and sending them variations of the same email. This is valuable information in understanding which email script most consumers are responding well to, which they aren't responding to, and why this is, so this can be implemented into future email scripts. Send a test email to confirm that it looks correct and finally, launch the campaign and send out the email to everyone on the contact list at an ideal time. After this step, it is important to collect contact responses, and then evaluate how the email campaign performed. This should be done in a very data driven way, measuring performance based on open rates, click rates, and conversions, or any other KPIs the business is interested in analyzing. This will be incredibly useful information when refining the next marketing campaign.

2. Geography and GIS

2.1 What is Geography?

Geography is the study of the relationship between people and their surrounding environment. It sheds insight into data driven and spatial analysis in relation to any secondary field. This can be in health, development, business or globalization, to name a few examples. Geography attempts to understand the patterns and trends that emerge from conducting this type of analysis, and the overall impact this has on the subject being analyzed. Geographers use a combination of databases, research, and statistics to produce maps and models to gain a better understanding of different fields and problems.

2.2 What is GIS?

Geographic Information Systems (GIS) is a field ingrained in geography, and a foundation for collecting, synthesizing and analyzing data. It has the potential to combine different types of data, and it allows the user to create visualizations and maps using layers and spatial location analysis. It is uniquely constructed, with the ability to conduct a detailed analysis into data, specifically in trends, patterns, relationships and scenarios. A key function of GIS is to apply geographic technology and science to investigations and extrapolate actionable intelligence from a given dataset. In other words, it is an important tool in communicating geospatial information, performing analysis and providing data to help in decision making and problem solving.

GIS and Marketing

1. How is GIS Used in Marketing?

Location is an integral aspect of marketing. As the marketing sector moves towards a more digital format, location and the spatial element of marketing is becoming increasingly more important. With society making strides in the research and advertisement fields, and consumers becoming more knowledgeable about products on the market, marketing is evolving to become more personalized and exact. This has an impact on all components of marketing, especially in strategy and messaging.

GIS technology can be used to create spatial visualizations, projections, modeling and data analytics to leverage location. Location data plays a huge role in customized marketing and ensuring a positive customer experience. This is only the tip of the iceberg regarding GIS applications in marketing, there are a lot of advancements being made in this field. With this development there are also obstacles, such as knowing how to protect data quality while still making it accessible for different parties, and extracting actionable results from spatial and data analysis. GIS techniques can be executed at almost any stage of the marketing cycle, starting from the initial market research, and extending all the way through implementing and assessing marketing campaigns. Examples include customer segmentation depending on location, digital marketing and advertising targeted specific geographic locations, messaging determined by location, and using customer lifestyle and demographic information for personalized product and service recommendations.

GIS is slowly becoming a key element in marketing departments and business in many companies. Market planning and decision making that is driven by an approach combining GIS and marketing is resulting in the emergence of new marketing strategies. For example, companies can use this technology to select optimized locations, map out and visualize customers, leads and sales, and gather information on lifestyle and behavior.

More GIS applications include location analysis, market classification, test marketing campaigns, Salesforce and call data integration, customer and lead database management and resource allocation.

The following sentences summarize what this might look like in terms of a very simplified workflow. GIS can be used to profile a market of interest, segment that market, and shift the market so it is more product centered. Users can start by plotting connects as well as disconnects in a geographic context. This will demonstrate any

trends in the data so the marketing team can focus on expansion where there is a positive reception and even consider what went wrong or win back strategies in places where there were less favorable outcomes. This also allows the user to establish long term customers and high average revenue per user (ARPU) customers. The user can also gather and synthesize a large amount of data about the customer base, and the more detailed this information is, the more the marketing team can tailor their messaging and approach. GIS software can categorize leads or customers by their characteristics, specifically by what they have in common. These characteristics might be income level, average housing price, area, or any other variables. There are a host of demographic factors that can be used to segment markets. This informs the user what types of products or services a specific customer may be interested in, what their spending habits are, how they respond to different types of promotions or email campaigns, and other factors that are related to and play a role in the sales funnel. After accumulating and analyzing all of this information, the user might decide to flip their approach. Instead of focusing on the customer base, they might switch their perspective and focus on the products. This means mapping out the locations where the product or service performs the best and the worst, this might bring more insight into sales patterns or trends in specific areas or product lines. This is invaluable information for not only future sales and the sales department, but also the product development and packaging department. These three steps can be used as a way to gather data and design a specific plan that focuses company resources on leads that are the most qualified for potential lead conversion. Decision making that is driven by data and data analytics benefits marketing strategy and execution, in addition to providing justification towards stakeholders or higher management teams. After using this data driven plan to roll out a new and improved marketing campaign, users can track the results, such as which KPIs are being met and to what extent, as well as what the conversion rates are, to establish that the plan was successful.

2. GIS in Direct Marketing Campaigns

GIS software can be used to implement meticulous marketing campaigns. Esri provides tools for marketers to optimize their direct marketing campaigns, allowing users to determine and analyze both prospective leads and current customers in a more efficient manner.

The main focus point for every direct marketer is the customer, the best ways to determine who they are, evaluate their potential for conversion, retain them, nurture a relationship with them, and continue to expand the customer base. Each part of the marketing cycle needs to be completed at the highest productivity level to ensure the company in question performs better than their competitors. This includes maximizing

marketing and customer service applications such as messaging, purchasing, customer acquisition, messaging and customer retention. In addition, it is important for marketers to gain an in depth understanding of their lead and customer base, which means learning about customer demographic information, behavior, preferences, demand, spending habits and purchasing patterns. This gives insight into data that makes it easier for marketers to identify and retain leads who have a similar profile.

Esri offers a GIS software and technology that combines demographic data, segmentation capabilities and other web services. This helps marketers who use Esri GIS software in customer acquisition and retainment. Over time this builds a customer and lead base with the most responsive and profitable clients, and clients with the highest potential to convert to a sale. This software can increase response rates, produce more revenue and implement the most effective marketing campaigns. This means the user can target leads and potential new customers, while also profiling their current customers as accurately as possible

3. GIS Applications for Direct Marketing

3.1 Customers Profiling

Learning how customers think, what their preferences are and what buying patterns they display are all components that make up their customer profile. This is important information that allows the user to analyze and predict their behavior. This is done by using database variables to recognize the customer characteristics that separate the qualified leads from the unqualified leads in different stages of the lead scoring process. In other words, this helps the user identify who the best prospects are in a pool of potential customers by evaluating them all using a list of their characteristics, and comparing that against a rubric of characteristics that denote what a lead with a high potential to convert looks like. Additionally, these customer profiles and characteristics can contribute to opportunities for cross selling and upward campaigns, stronger responses to promotions and other customer loyalty programs, and more accurate lead prospecting.

Specifically, users can map their best customers, such as the ones who purchase the most and are return customers. They can then focus on these customers and target them for loyalty and reward based campaigns and promotions. They can analyze the channel where their best sales are occurring, and which channel their best customers are originating from. Finally, users can analyze the relationship between products that perform poorly, or vice versa, with customer preferences to establish any useful patterns.

3.2 Customer Segmentation

Customer segmentation is a procedure where the user can identify certain customer or lead groups separated into segments on the basis of characteristics that they have in common. With GIS database and marketing software, users can implement demographic and geographic data, along with purchasing and spending characteristics, preferences and behaviors, into a series of models that will segment the customer or lead base.

This would play out so that the user can start by grouping customers by their product preferences, visualize customer subsets by product and then conduct an analysis on customers by whatever sales territory they are categorized in. Finally, the user would create tailored messages directed towards their best customers and best leads or prospects.

3.3 Obtaining and Maintaining Customers

Customer acquisition is expensive and ultimately costs the business money. It is more cost effective to retain and maintain current customers so they make repeat purchases. This is done by ensuring that customer acquisition methods are in accordance with customer retention efforts. In this case, accordance is defined as both processes working in coordination with each other, with minimal expenses towards the business. Communication is absolutely essential in this stage, as crafting the most effective campaign and message delivery will result in the highest number of retained customers.

In practice, this means that users will obtain more leads, especially more marketing and sales qualified leads, identify the prospects with the most potential, convert these prospects into opportunities and then customers at a faster rate and in larger volumes, while also reducing the length of the sales cycle and diminishing costs associated with longer sales cycles, whether that is in the form of finances or energy expended. Overall, this is conducive to developing and strengthening long term customer relationships while keeping costs as low as possible.

3.4 Multichannel Approach

Marketers are aware that the most successful inbound and outbound marketing approach is to expand different types of messages and content across different modes of communication. This helps companies extend their messaging to leads and customers through a host of media channels, such as social media, catalogues, print, blogs or even television. This is an extremely important facet of marketing, and requires

careful monitoring and focus. Geography based systems can assist users in implementing, managing and analyzing campaigns and their results.

This is where customers are segmented into categories based on their point of purchase, which can be in person at the store, over the internet or through catalogue. These sales are then analyzed and measured by channel, to see which channels are facilitating meeting KPIs. On this line of thinking, users can also map productivity by channel and develop a solid understanding of customer channel preferences, which is information that will inform which channels will receive the most resources and funding in future campaigns.

3.5 Customer Analysis

Customer service, marketing and site analysis are examples of business functions that use demographic information as a foundation. Demographic data and analysis can enhance the operations and processes of these departments. Again, understanding the way customers think, their behavior and their socioeconomic profiles is important to a business.

In other words, over time the user can uncover new response markets, they can then target specific messages based on segments. They can also analyze the relationship between a product or service's purchasing power and product assortment or portfolio. Basically, a product portfolio is an assortment or set of products and services that a business offers in a package style because that's how consumers view them. For example, a product line selling a keyboard and mouse would be an assortment because many customers buy these products in a bundle. Finally, a user can also map out current leads and customers, and analyze which markets are performing as per expectation, which markets are performing well and which ones are underperforming.

3.6 Customer Relationships

For a business, focusing on customers is key. Nurturing the relationship they have with their customers is another crucial aspect of marketing. Exerting effort on understanding customers and maintaining relationships with them shapes marketing and sales strategy. For example, this allows the business to understand what types of products or services a particular lead would be interested in, based on their demographic information, behavior, purchase history and geographic location, and gauge their interest level. This also establishes trust from the customer's end, because the relationship has been developed and this makes it more likely for them to make a purchase with that specific business.

The user can tap into customer service and set up customer service procedures, which means that they can designate a customer service representative to each customer, or to different groups depending on product territories or geographic territories. They can also locate where customers and leads are on a map, track and monitor each conversation or nature of contact with prospective leads and customers, and implement their suggestions and feedback. Customer service is integral to any business, especially in the marketing and sales processes because it can either facilitate or break down a potential sale.

3.7 Advertising to Leads and Customers

An effective advertising strategy is a vital part of the sales funnel. The way a product or service is marketed is another important element in the sales process. Goods have to be presented in a way that maximizes their image projection in order to be conducive with an effective advertising campaign. Using the response from previous campaigns as data and tracking results is a great way to course correct and keep crafting more effective marketing campaigns to showcase products.

More specifically, this allows the user to track and evaluate advertising campaigns and whether they are reaching KPIs. They can also map out which campaign territories are showing the most success and growth, study responses towards new products by region, and screen product use by region.

3.8 Targeted Messages to Customers

Another way customer and lead profiles, behaviors and preferences are utilized is in the context of direct mail campaigns. Studying demographic data helps the user or business evaluate whether the lead in question would respond well to a specific direct mail campaign. This may be because they have shown through their purchasing history that they have an interest towards a specific product. Or, they respond well to a specific type of messaging, such as a customer who always visits the business's website if they are emailed about a new product launch, or a customer who migrates to the website only if they see an advertisement for a new product on an instagram story. Some customers might feel more incentivized by a coupon, and some might be more incentivized only if the coupon is sent to them on a media channel that they regularly consume. If so, there is a chance of converting the prospective lead to a sale. It is also possible that the direct mail campaign is far removed from what the customer responds to, whether that is in terms of the style of the campaign, the type of messaging, or the channel of communication. The campaign may be centered around a product that either doesn't

apply to the customer or cater to them, or it is a product that they have historically never shown interest towards. For example, too much messaging about a product a customer doesn't care about or find random may annoy them and result in them unsubscribing from the mailing list. In these situations, including them on the mailing list might turn them off from being open to purchasing products that they would have otherwise been interested in. When customers don't feel understood by a company, or feel as if the company is being careless, this shows the customer that they are not valued and damages the relationship, decreasing the chance of a repeat purchase.

This looks like creating a lead scoring process based on demographic data and segmenting them based on their product preferences and purchasing behavior. This allows the user to build a model that matches their leads and customers most closely, in addition to selecting leads based on demographic based segment or geographic based segment, and screen new markets for sales potential.

4. GIS Software for Direct Marketing

4.1 ArcGIS Business Analyst and Business Analyst Online

4.1.1 Overview

This application is designed by Esri specifically for businesses. Business Analyst Online brings the functionalities of ArcGIS Business Analyst to the internet.

With this business oriented set of geospatial tools and data applications, users can maximize their business's direct marketing strategy and capability through location based market intelligence analysis. This technology allows the business to conduct an analysis on markets, market segmentation, customers, sales and consumer spending, as well as other business, lifestyle and demographic data, examine maps demonstrating patterns and any trends, and create extensive reports on demographic data. This software enables the user to navigate intricate business operations through a very user friendly interface. With the software being geared towards direct marketing and integrating these processes, the business is free to focus on the results, whether that is a visualization or a detailed report, and next steps concerning business decisions and justifications.

4.1.2 Key Objectives

First, a comprehensive and detailed report allows the user to present recommendations for business locations, remodeling, expansions and consolidation.

Second, using market analysis and profiling customers enables the user to evaluate different areas regarding their potential for prospective leads, as well as tailoring marketing communications based on individual market segments.

Finally, it streamlines the work process for sales and operations departments in terms of efficiency and territory optimization.

4.1.3 Useful Features

A. Selecting Sites and Conducting Market Planning

Analyzing marketplaces is productive and exhaustive with this feature, which enables the user in deciding where to apply expansions or reductions. This toolset includes consumer profiling capabilities, market potential, sales forecasting, trade area rings and drive time. The user can also conduct analysis on demographics, selection of facilities and retail locations, implement trade areas around sites and determine specific markets for products and services.

1. Suitability Analysis

This helps the user select the most suitable locations from a set of location options, based on the results of individually weighted criteria. Basically, the tool can be used to create scoring and rankings for different sites based directly on the weighted criteria. From this, suitability for different sites can be presented in a list that ranks locations. This is based on specific variables used in the project in addition to demographic, social and economic data. The specific variables help frame an overall criteria, and the user can designate different weights on them to assign weighted scores for each location. This is useful information because the user can create a list of location rankings, starting with the most suitable and descending onwards. This type of analysis can be conducted on point location sites, polygon areas, standard geographies or any combination of these.

2. Steps to Conduct a Suitability Analysis

Define Your Sites

This is possible either by adding sites from a specific project or starting with the features that are already on the map. The user can also filter selected sites based on the characteristics or attributes of those sites.

Select Criteria For Your Analysis

The user chooses one or more methods to select criteria for the analysis. The methods are adding variables from data browser, adding attributes

from sites or adding point layers. The user can also use the saved criteria from previous projects.

The user can then click on more options to adjust how variables are used in the analysis. For the variables and site attributes, the user can determine the influence and threshold. They can also edit how the point layer impacts the analysis, and change the summarize layer attribute and distance to nearest point option.

Finally, the user can view the results. The user can also choose to refine the results and either filter it or modify colors as they see fit. There is also an option to export the results to share with relevant parties.

B. Implementing Territory Design and Area Planning

In this feature, automated workflows can be implemented, granting the user the ability to perform market penetration analysis, allocation of location and territory design. This also allows the user to pinpoint sites that are not performing well, forecast how different locations will perform and use data to narrow down the best potential locations. Essentially, this optimizes each location and sets the territory manager up for success.

1. Mapping and Analysis Tools

Calculate Market Penetration

This tool helps the user track how much of a specific market, or area, has been encapsulated based on the total number of customers in the market in comparison to the user's choice of demographic variable.

Color Coded Layer

This layer helps the user produce maps and create visualizations for any attribute in a dataset. Different coloring effects and options to adjust the cartography of these visualizations communicate information and patterns, such as demographic data, consumer behavior and spending habits, and additional market conditions. These maps demonstrate data for areas as large as a state or as small as a block group level, so there is a lot of flexibility with what the user wants to analyze and communicate.

Enrich Layer

Once the user has selected the area they are most interested in studying, this tool supplements the dataset by inputting demographic information or

other data to the locations. This provides the user with more information on the customers, leads and locations in the area of interest.

Create Desire Lines

This tool allows users to visualize spatial relationships between entities, such as the spatial relationship between customers and stores. Users can even measure the distance between both entities, or calculate distance using either straight lined or network based.

2. Reports and Infographics

This is the most important tool in the communication stage, as users can use infographics that are both visually appealing and extremely informative and data driven. This enables the user to make business recommendations to clients, stakeholders, internal and external departments. They can also use current data to make future projections and overall, make decisions based directly on data.

Summary Reports

There are six types of reports in the Business Analyst software.

Business

This introduces the user to information about the demographic data in a specific location, select new sites, and even analyze where the business's competitors are located, in addition to a host of other information related to business data analysis.

Consumer Spending

Study the spending behaviors and needs of your customer base, to gain a better understanding of their purchasing preferences. This sheds insight into the areas that hold the most potential for customer reach.

Demographics

This report gives information on how the population in the user's area of interest evolves and changes over a period of time. This data is especially useful in enhancing the business's planning and forecasting efforts.

Maps

This is a visualization of both current and potential locations, in addition to patterns and trends, the way customers are concentrated in different regions, consumer demands and patterns, and distance and traffic patterns between different sites.

Market Potential

Understanding the preferences and behavior of the customer and lead base helps the user identify any existing gaps. This gap analysis will inform the user of the need that is not being met in the community, and the user can then strategize how their product or service can fill this need.

Tapestry Segmentation

This tool categorizes areas into different segments depending on demographic and socioeconomic classifications, to demonstrate a detailed analysis of the area in question. This helps the user build an understanding of the area and the characteristics of customers and leads in the area they are analyzing.

Interactive Infographics

Another important aspect of communication and presentation, these infographics are a key tool in conveying information and using visualizations in the form of detailed reports and dynamic charts to do so.

3. Suitability Analysis Tools

This tool helps the user compare, create scores for and rank different locations in an interactive environment. This is done by identifying specific criteria or characteristics such as distance, income, spending habits, behaviors, competitors and other factors, and then modifying the weight for each characteristic. The user can then apply this to the sites of interest and watch in real time as the location scores and rankings changed over time.

4. Trade Area Tools

Create Trade Areas Derived from Customers

Customer derived trade areas are customized areas that are generated by selecting locations that meet certain criteria corresponding with the customer base. Users can generate customer derived trade areas to demonstrate the closest 30%, 50% or 70% of customers by straight line, walk time distance or drive time, in addition to other criteria such as household income, the amount customers spend and the number of times they visit the store. The criteria of interest can be combined and weighted in different ways to conduct the analysis with the most weight placed on whatever variable or criteria is relevant to the investigation.

Use Overlays to Create Geographies

This tool helps the user in identifying administrative boundaries that happen to fall within another boundary. Basically, this tool can calculate how much of one area is intersecting with another area.

Create Standard Geography Trade Areas

This tool allows the user to generate a trade area based on a standard geography. Standard geography trade areas are determined by standardized administrative boundaries. Examples of standard geographies include states, zip codes, counties, block groups and census tracts. Specific trade areas can be created for each individual geography that the user is interested in, or they can also create unique layers that have multiple trade areas.

5. Territory Design

Auto Balanced Territories

Establishing account management territories and outlining sales is not effective when it is done based on instinct, or even when it's based on the decision of the team member with the strongest leadership skills and experience. However, this is still a common practice in many businesses. Auto Balanced territories is a tool that lets the user generate territories and modify them based on a specific rubric, with criteria such as volume, size, number of accounts, population, and prospective customers, along with other factors.

Interactive Territory Management and Creation

Once the user has generated a territory, they can begin to adjust and make any necessary changes, even minor modifications. The specific areas shaping the user's territories can be identified, moved and extracted using either the simple panel, ribbon and map tools, or the attribute tables and charts from the alignment layer.

6. Features

This software allows the user to bring in their own datasets from external data sources. This is incredibly useful, as users can incorporate their own datasets of interest with datasets that Esri provides.

C. Targeting New Leads and Existing Customers

This helps the user understand customer behavioral preferences and demand for both new and potential customers. This level of understanding guides the user in separating potential leads into different groups, targeting these different segments in an approach that is tailored to them, and the best way to execute these campaigns. This segmenting process is implemented using a combination of demographic data and lifestyle data.

1. Overview of Target Marketing

Data on a customer base can enhance the user's business by targeting the leads or customers who are most likely to respond well with direct mail and promotion campaigns, knowing where to invest resources into and open locations, and evaluating the success of existing locations and how much profit they are bringing the company. In addition, this also helps the company identify which customers, groups or geographic locations will respond to specific products and services and the best way to direct advertising strategy and messaging based on the target audience. Specifically, the tapestry segmentation data can be used to gain a deeper understanding of the target customer base, gather more insight into the typical customer's behavior and lifestyle characteristics, as well as their geographic location of residence. This results in the user obtaining enough information about the company's target customers to develop marketing strategies that will attract customers to specific products and services, and in doing so analyze the market to find potential for sales growth.

2. Target Marketing Geoprocessing Tools

Market Area Gap Analysis

This creates a layer that demonstrates the difference between the total number of customers and the expected number of customers for a product or service.

Market Potential Analysis

This creates a layer that demonstrates the expected number of customers based on the geography level

Target Group Generation

This generates a new target group, which functions as a package or container for targets to hold segments from a dataset of the user's choice, which the user can generate, populate and give a name to.

Segmentation Profile Export

This allows the user to export segmentation profiles to tables.

Customer Segmentation Profile Generation

This generates a segmentation profile with an existing customer layer.

Create Market Area Segmentation Profile

This creates a summary of the segments from geographic data within the specific location the user is interested in to generate a segmentation profile.

Create Segmentation Profile Record

This generates a record that shows the different segments of the user's leads and customers, and draws a comparison between them and the base profile, also defined as the study area.

Create Profile Survey Report

This shows characteristics from the survey data of the consumer base for whoever the user's target profile is, in order to learn more about the consumer's behavior, preferences and lifestyle.

Create Target Survey Report

This shows what the top characteristics are in every survey category of the target groups that the user specifies, which at this stage are defined as core and development target groups, in addition to more broad customer profiles.

Create Layer for Target Group

This creates a layer that identifies geographic locations where specific segments are contained, and then separated into categories depending on the target.

Create Target Layer

This generates a layer that displays geographic locations containing specific segments, as well as a generating layers that shows geographic locations that don't contain specific segments.

Create Target Penetration Layer

This creates a layer contingent on the penetration percentage of specific segments, producing a visualization of the way target segments are concentrated.

Input Segmentation Profile

This uses information from a table to generate a segmentation profile.

Input Profile Surveys

This inputs segmentation profiles comprised of survey variable information.

3. Target Marketing Wizard

This is a workflow that begins with segmentation profiles for leads and customers or market area of interest. Next, it separates the potential customer base into categories to denote the target customers, and then produces a map to demonstrate where these target customers are dispersed geographically.

4. Target Marketing Segmentation Profiles

Segmentation profiles are used to demonstrate through visualizations how customers or potential leads are spread across a market in terms of social and economic categorizations.

5. Target Marketing Four Quadrant Analysis

The Four Quadrant Analysis produces a visual representation of the way the customer base is divided into groups. The core customer segment denotes the group of customers that there are an abundance of and are happy and excited about purchasing the product, and do so in a high volume. The developmental customer segment is the group in the customer base that are also in high abundance, but aren't at the same level as the core customer segment in terms of satisfaction and purchase volume.

Practical Example

An analysis on a segment called “Modest Income Homes” shows that it is a segment in the development category group. If the user wants to expand this segment, they can use the wizard workflow to create a target group layer map to visualize all customer segments. In the resulting map, the blue areas correspond with the census block groups within the developmental segment. These regions have the most potential for expansion through the growth of leads and existing customers.

D. Data and Infographics to Drive Decision Making

A data centered approach allows the user to justify any decisions related to location. This software also has access to several types of business and demographic datasets that span the world, with data from more than 130 countries and more than 15,000 variables on market data. This assists the user in compiling data on different locations and property costs with data on prospective leads or customers, and then creating personalized infographics to present this information.

1. Eight Types of Datasets

Demographic Data

First, there is demographic data on variables including and related to population and daytime population, households and housing, income, age, ethnicity, and languages spoken, in addition to education and marital status. This data is available in current time estimates and in the form of five year projections.

Consumer Spending

Another dataset is on consumer spending, which shows the products and services that consumers are buying and where they are making these purchases. These products and services vary across more than 20 different sectors. There is also information on total expenditure by product or service, average spending rates per household and a Spending Potential Index.

Tapestry Segmentation

The tapestry segmentation dataset is an exhaustive market segmentation showing how residential neighborhoods are divided into more than 67 segments based on socioeconomic status and demographic data, and then subdivided into further segments such as LifeModes and

Urbanization Groups. LifeModes group together consumers who have an experience in common, this can be the generation they were born in or countries they immigrated from. There are 14 different Lifemode categories that separate consumers into subcategories. The Urbanization groups separate consumers based on living circumstance and location. This information is important because it provides a deeper understanding about customer behavior and lifestyle.

Market Potential Data

This dataset shows information on the products and services that consumers want to use and have a high level of demand for. The word demand is key in this dataset, and differentiates it from the consumer spending dataset because the focus here is product and service demand. This dataset shows an expected number of consumers and a Market Potential Index for goods and services of all different sectors, in addition to the attitudes consumers have towards these goods.

Business Locations and Summary Data

The next dataset is the business locations and summary dataset, which allows the user to gather information and statistics for more than 13 million businesses, such as names, geographic locations, industrial classification code and industry type, sales volume and number of employees.

Esri Basemaps

These base maps provide interactive and customizable visualizations in different styles to create a geographic context and background for a user's business analysis, in the form of imagery and streets.

Traffic Counts Data

The traffic counts dataset allows the user to examine US traffic data to analyze trade and routing, and conduct mathematical modeling. This helps in tracking how traffic volume fluctuates, such as when traffic peaks and when it is at its lowest level. For example, the dataset shows users how many vehicles will cross a certain street or point on a street between a specific time period. This database also includes statistics on average daily traffic volume, previous and current count types and cross street direction and distance.

Crime Indexes Data

Finally, the crime index dataset displays statistics on relative risk of both personal and property crimes in particular areas in comparison to the US as a whole.

2. Summary of Steps

Designate areas that are relevant to the industry to undergo analysis. Analyze different areas using demographic information in conjunction with other datasets, study the results through a spatial lens and execute an analysis, and finally, build visualizations.

Use instructive maps, infographics and stories to share results and findings.

Case Study: Mid-America Real Estate Group

Introduction

MarketSource is a sales acceleration company that designs and operationalizes sales and customer experience in the retail and B2B sector. Their solutions provide measurable improvement in business outcomes.

Challenge

Field sales are the crux of MarketSource's business, so location is integral to their work. This company needed to acquire data and assemble coverage models to make sure that sales representatives were focusing the majority of their efforts on the markets with the most potential.

Regarding operations, the company needed to know locations, how far apart locations are from each other, and the most cost efficient way to get from one location to another. They needed to know how to pinpoint the locations with the most return on investment of resources, in addition to data that helps the company define the appropriate workload for each sales representative. Specifically, they wanted to produce a list where they could show recommendations on markets the customer needs to break into to maximize sales.

Solution

MarketSource used ArcGIS Business Analyst to incorporate demographic, behavior, lifestyle and consumer spending data into mapping analytics to construct reports and presentations. Business Analyst also helps in coverage modeling to narrow down the best locations to send sales representatives. For example, if the client has thousands of retail stores, it is not possible or productive to expend a high level of energy and time into

each store. Rather, it is far more effective to analyze data that demonstrates the store locations with the most potential where sales representatives should focus their resources on to achieve the most value in return. This is done by using trade zones and inputting them with the company's internal data, and then conducting an analysis to examine which elements of a store are influencing sales and the effect that the site visit from the sales representative has on sales. That helps narrow down the regions with the most potential for sales, and this determines the areas the sales representatives should be investing time into. Without GIS software the company was only able to compare 5 or maybe 10 locations. With this software, they were able to use sales data spanning 12 years and run a regression analysis to implement a model, which enabled them to compare thousands of locations and identify the ideal locations to focus on. They also used scorecards that the software offers to gain insight into the customer base's behavior and preferences, spending habits, demographics and market potential, along with the data on customers that the company already had. Finally, the company created designated optimized zones and presented this series of data analysis to clients using interactive maps and infographics.

Results

After the data analysis was completed, MarketSource was able to present detailed market recommendations to their clients, which increased sales and improved overall efficiency once implemented by the client. A big takeaway is the impact this had on one of MarketSource's clients, a retail company. Once they introduced the recommendations presented by MarketSource, their sales increased by 150%, which translates to a customer lifetime value of 42 million dollars.

4.2 Community Coder

This is primarily a geographic location and household and lifestyle segmentation software. It assigns an exhaustive compilation of geographic information to individual customer profiles. This includes latitude and longitude coordinates, Federal Information Processing Standards (FIPS) as specific as the census block group level, demographic information and lifestyle segmentation gleaned from the customer's address. It allows for a very broad scope because this software can store an unlimited number of addresses in the US. Ultimately, this helps businesses enhance their geocoding capabilities and data upending abilities, develop focused and targeted lists, and improve response rates and database management.

A process for this in practice may look like the following; the user begins with a customer list or a specific product. They designate geocodes and latitude and longitude coordinates to each customer's address. They may choose to create summaries for each customer that consists of geography, geocode rate and demographic information. The user then designates market segmentation information to outline customer lifestyle and segment customer addresses for mailing campaigns. Or, they create personalized groups of tapestry segments that closely fit into the profile of the customer's wants or constraints.

4.3 ArcGIS

This system can be used by direct marketers to create data, manage it and integrate it into projects, and analyze it. Marketers can also utilize it to demonstrate and distribute data about prospective leads, customers and projects.

4.4 ArcIMS

This software lays the groundwork for marketers to distribute any necessary GIS data or applications. Since communication is such an integral part of marketing, this is a crucial software in not just direct marketing but marketing or advertising departments in general. It provides a mutual platform where companies can exchange information and resources internally, within different teams or departments, and externally with other companies.

Conclusion and Future Study

As outlined in this paper, there are a multitude of ways to use GIS technology and techniques in different components of marketing. A key takeaway here is that Geography and GIS are on the surface, very different from marketing. However, upon closer examination there is a lot of overlap and potential to combine these fields even further. This shows that geography truly is relevant in all sorts of fields, even ones that it doesn't appear to have anything in common with. It is an interdisciplinary discipline that can bring another perspective into business and marketing, among many other sectors. This discussion of the marketing processes that have been improved due to GIS software and tools show that there is room for future study in this direction. This is only the tip of the iceberg in the potential that marketing and GIS have when used in accordance, as this paper only explores one type of marketing and on a very high level. Another crucial aspect of this paper is that marketing is only one part of this research. In the context of an actual company, the marketing, sales, advertising, and communications departments all come together to work collaboratively on these campaigns and procedures. A natural extension of this paper would be to study GIS and geographic applications in different types of marketing, as well as its implementation in adjacent departments. At their core, GIS and Geography are about communication, and because of this, they are very effective optimization tools in the marketing field.

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