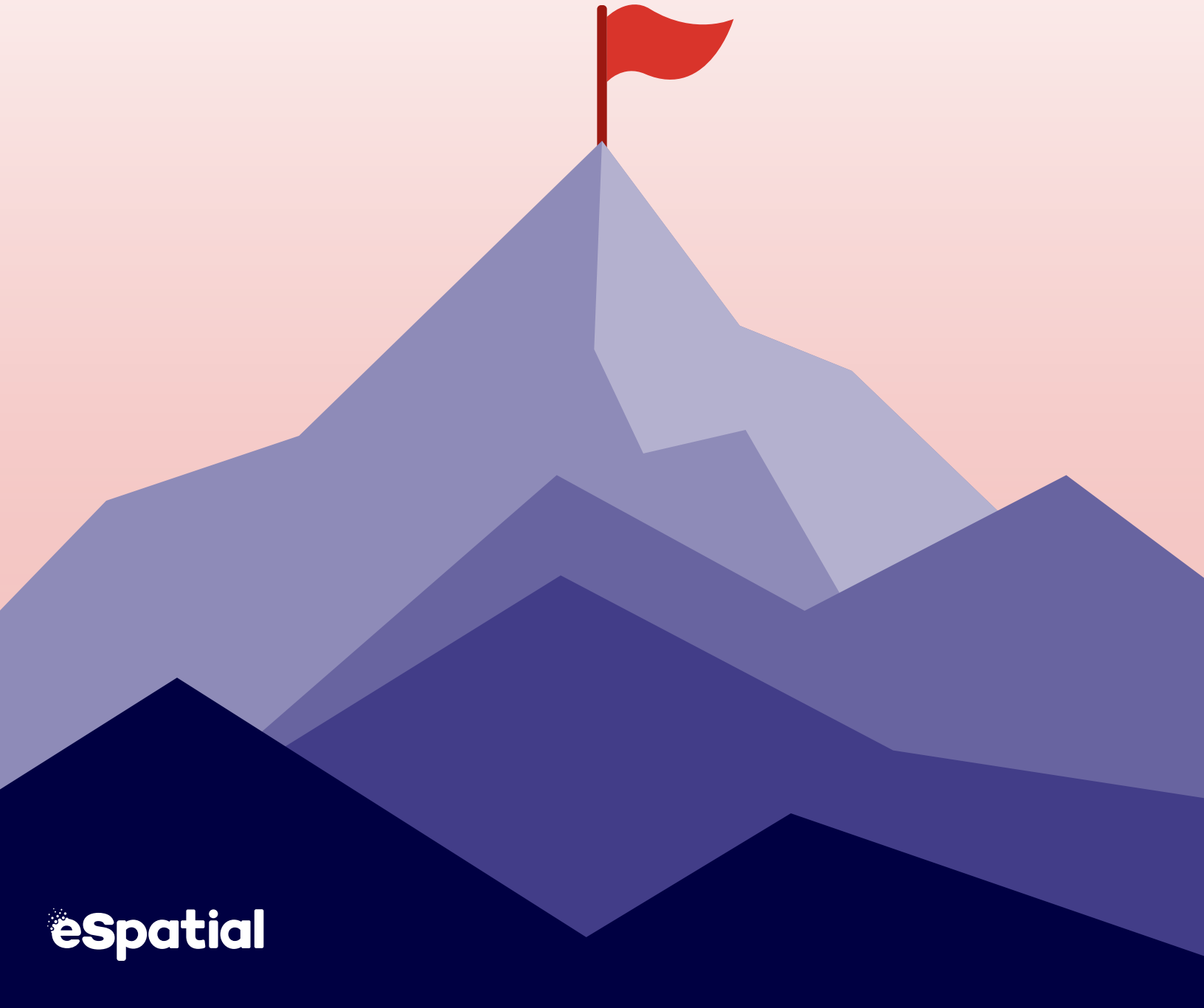
The ultimate guide to

Conquering mapping software



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Introduction

Mapping software has become an indispensable tool for sales operations, sales leaders, and marketing teams to unlock insights into their data. Mapping software takes your existing location data, stored in spreadsheets, CRM, or ERP systems, and converts it into vibrant, insight-rich maps.

Mapping software allows you to take tabular data and visualize it more meaningfully. More and more businesses realize the value of mapping software as a critical tool. Used by various industries and companies, from Fortune 500 companies to non-profit organizations. Marketing and sales teams use it to track sales and manage territories to generate new business. Insurers use it to measure levels of risk. Healthcare providers map patients and facilities for the most efficient delivery of treatment. Non-profits use it to communicate and organize volunteers.

This guide takes you through how mapping software can save you time, reduce cost, and increase your organization's revenue. In the first chapter, we discuss the reasons why you should use mapping software and the benefits you can obtain from doing so. The second chapter introduces the fundamental concepts you need to understand to get the most out of using mapping software. In the third chapter, we set out three examples of business outcomes realized by using mapping software. The fourth chapter will discuss how you can communicate, share or collaborate with maps. In the final chapter, we will guide you on how you should assess the right mapping software to use in your organization.

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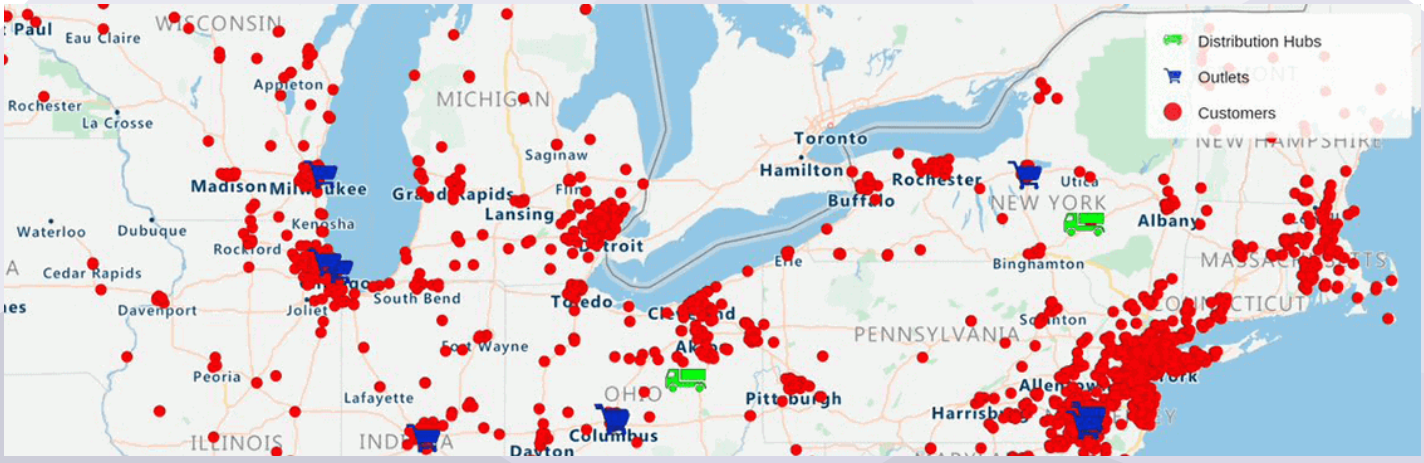
01. Why use mapping software for decision making

Whether you are a small organization or a large multi-national, mapping software can empower you with a more insightful understanding of your business leading to more impactful decision-making. At the basic level, use Mapping Software for data visualization, which is about using our eyes to assist our brain make insights that traditional approaches might hide.

It's important to understand that mapping software is not only about showing data graphically on a map. It's also about being able to interact with and interpret the visual display. Users can change the display, drill down into the data, create filters, focus on sub-sets, and look at different graphs, maps, and reports showing the same data simultaneously. The best systems also allow for the data to be annotated and shared with others to enhance communication and collaboration.



Multiple data layers displaying customer, outlet, and distribution hub locations

Information and locations

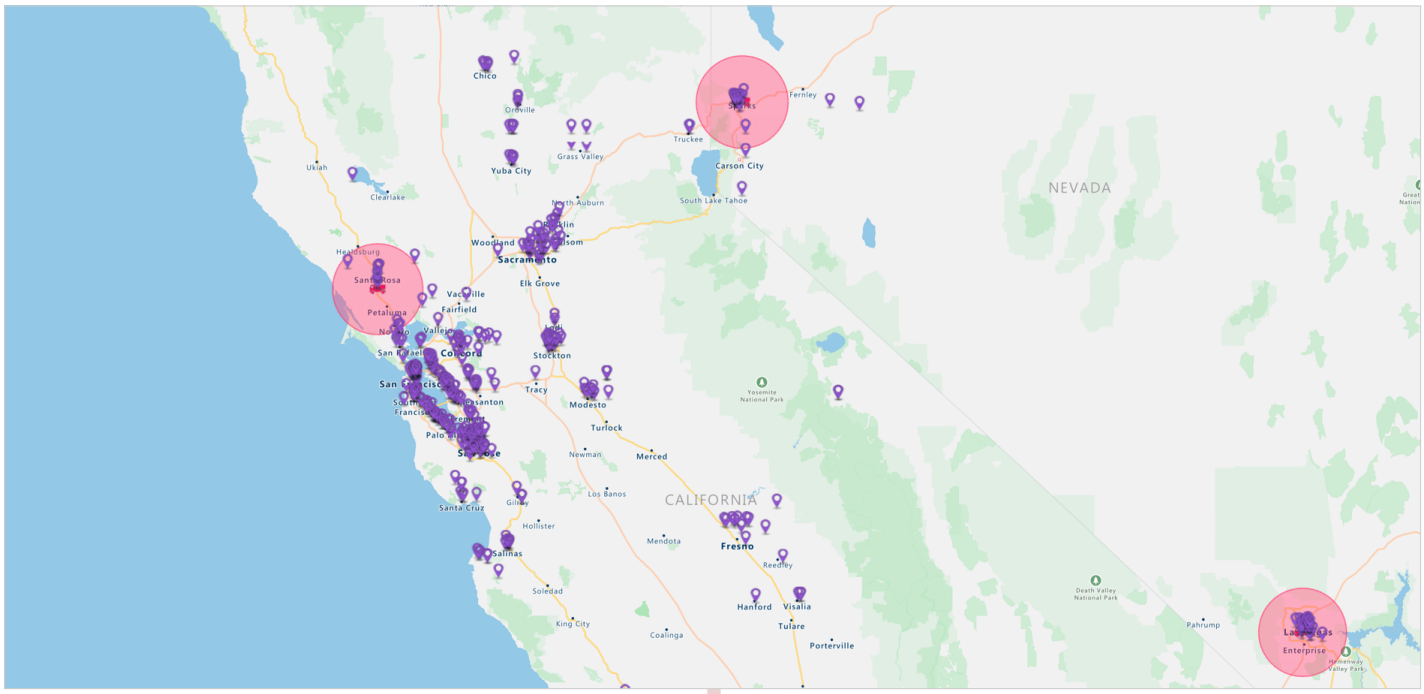
Much of the information that organizations must monitor and understand is location-based:

- Where are my sales and service teams located in relation to customers?
- Where are our sales occurring?
- Where are the highest-value sales potential locations?
- Where are my outlets?
- Where are my depots?
- Is our marketing spend in our customers' locations?
- What is the best location for an event?
- How near are my customers to my service center?
- Can I match a volunteer with the care needs of a client?

The best way to represent this data visually is on a map. Users need other contextual data that adds value to their business data, such as demographic data, census data, and boundary data sets. You also need to graphically analyze the data on the map using techniques unique to mapping software, such as color-coding the data by region based on quantities. It's also essential that you combine maps with other forms of data visualization such as tables, charts, and legends.

High-level use of mapping software

There are numerous high-level purposes organizations use mapping software. They use maps for 'lookup' purposes, where the primary requirement is to present information in a way that makes it easy and efficient to find the individual facts they want.



Depot locations and all customers within and outisde a 20-mile radius

Other datasets that people visualize include market share by territory, service coverage areas based on spatial distance searches, drive time analysis, routing patterns, etc. Lookup is a straightforward use case but common. Very closely related to lookup is monitoring. Analyzing sales performance by territory, monitoring the current state of an asset, identifying gaps in-service coverage due to asset downtime or personnel gaps.

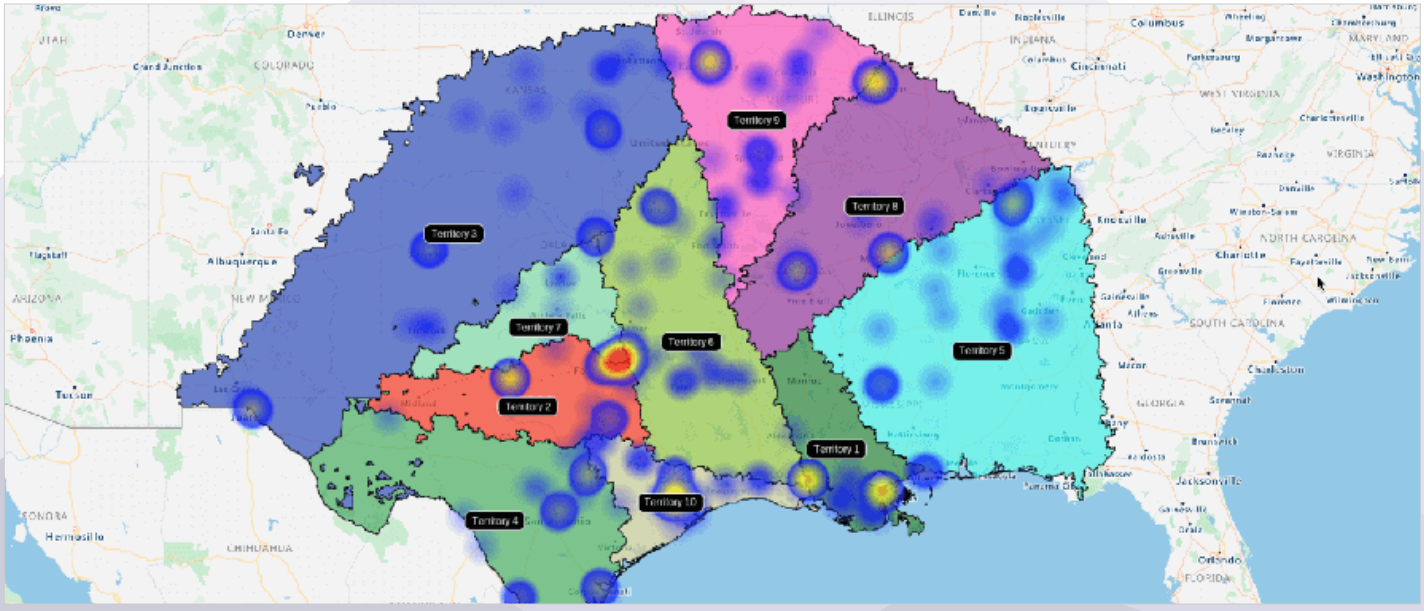
Visualizing data on a map also facilitates analysis and fact-finding. Use mapping software to inform, explain, or persuade for 'narrative' purposes. It is helpful for reporting, for feedback, for telling stories. An essential requirement here is the ability to share maps through web portals, web links, email attachments, presentations, and printouts.

Of course, many organizations will use map software for several reasons, and one display may serve multiple purposes.

Business outcomes using mapping software

Some of the most common business outcomes from using mapping software are:

- Increasing your sales revenue
- Impactful decision making
- Understanding where your customers are
- Optimization of your workforce
- Controlling your expenditure
- Optimizing and aligning your sales territories
- Better collaboration and operational awareness
- Better site selection
- Removing requirement for specialist consultants
- Finding gaps in your market or coverage
- Highlighting new opportunities



Sales territories and a heatmap of customer locations for each area

Industries using mapping software

Mapping software is now used in most industries, especially where location or geography is a factor in influencing business performance. Businesses not only visualize their business data on maps but also perform powerful analytics to improve decisions (for instance, Scenario Planning).

For example, Insurance companies will use mapping software as part of their process for pricing insurance premiums. If you are unfortunate enough to live in a flood plain or an area prone to extreme weather conditions, your insurance company has probably used mapping software to determine the potential risk associated with your location.

Examples of other industries that leverage mapping software as a business-critical tool are:

- Manufacturing (for sales, marketing, or distribution)
- Distribution (for sales, marketing, or distribution)
- Medtech (for sales territory optimization and management)
- Retail (for site selection or targeted marketing campaigns)
- Utility (for asset management or job allocation)
- Food and restaurant (for franchise management or customer loyalty programs)
- Educational (for alumni management or student prospecting)

In the next chapter, we will outline some mapping fundamentals in advance of Chapter 3, which details specific examples of businesses using mapping software.

02. Mapping fundamentals

Most people are very comfortable using and interacting with digital maps on web browsers and smartphones. As a result, most users understand common terms. For clarity, in this chapter, we will go through the most important concepts.

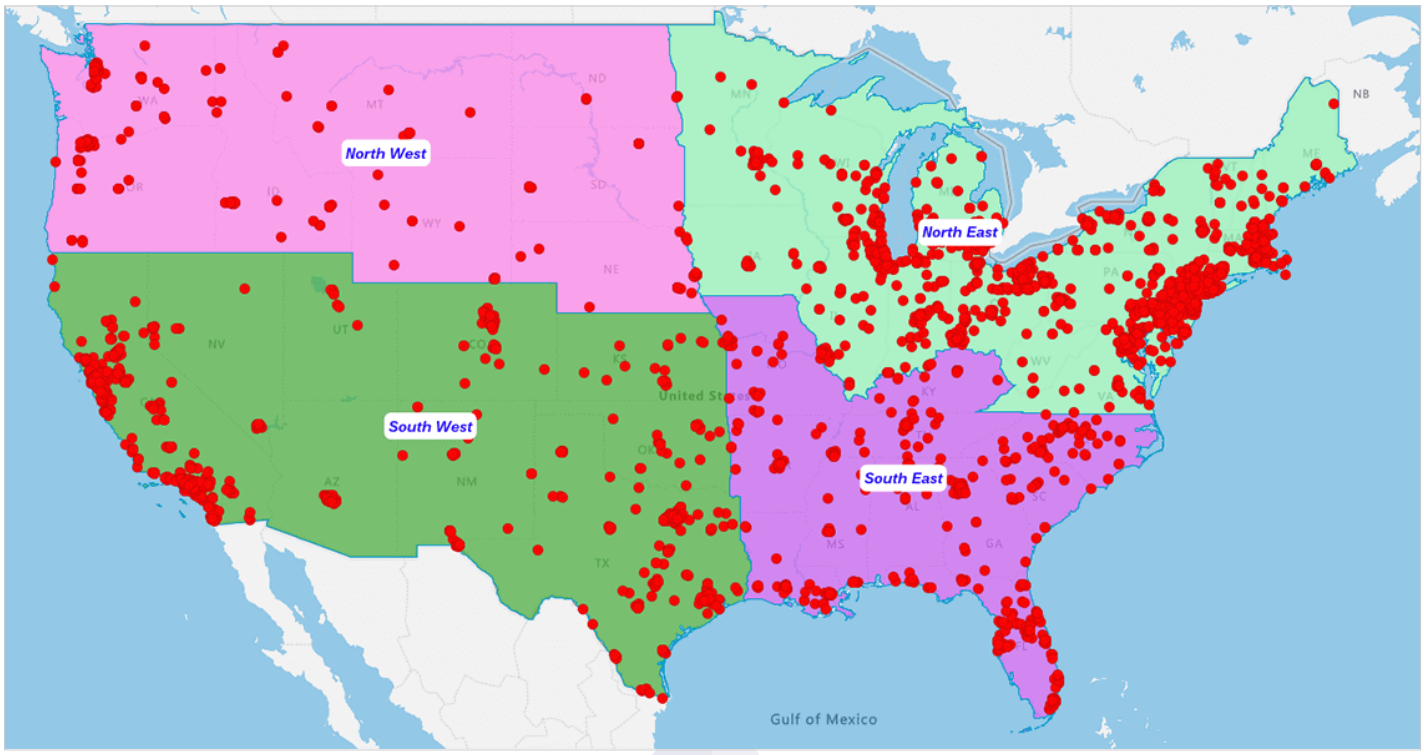
Components of a good map visualization

You are familiar with maps, both from your school atlases and from the web and mobile applications, but have you ever stopped to consider what goes into making good visualizations?

First, the map is a diagrammatic or graphical representation of an area that shows physical features from that area. Second, there are the features represented on the map. Maps usually contain three types of features:

1. Those displayed as points, such as addresses or customer locations
2. Those shown as lines, such as roads or rivers
3. Those shown as polygons, such as boundaries of regions like counties or sales territories

Then, there's the legend. The legend provides the code for the symbols displayed on the map, including any color schemes, symbols, or categories of data. Without a legend, the color and symbols on the map might make no sense to the user.



Regional heat map with customer data overlaid

Add a Title to a map to explain the map's purpose to the viewer. Similarly, you might want to add annotations to add context or provide further information about the map and the visualized data. To bring your maps to life, you can add a graph or chart, making it easier for viewers to understand your data story. Including a data table that shows some of the data displayed on the map in a tabular format is good.

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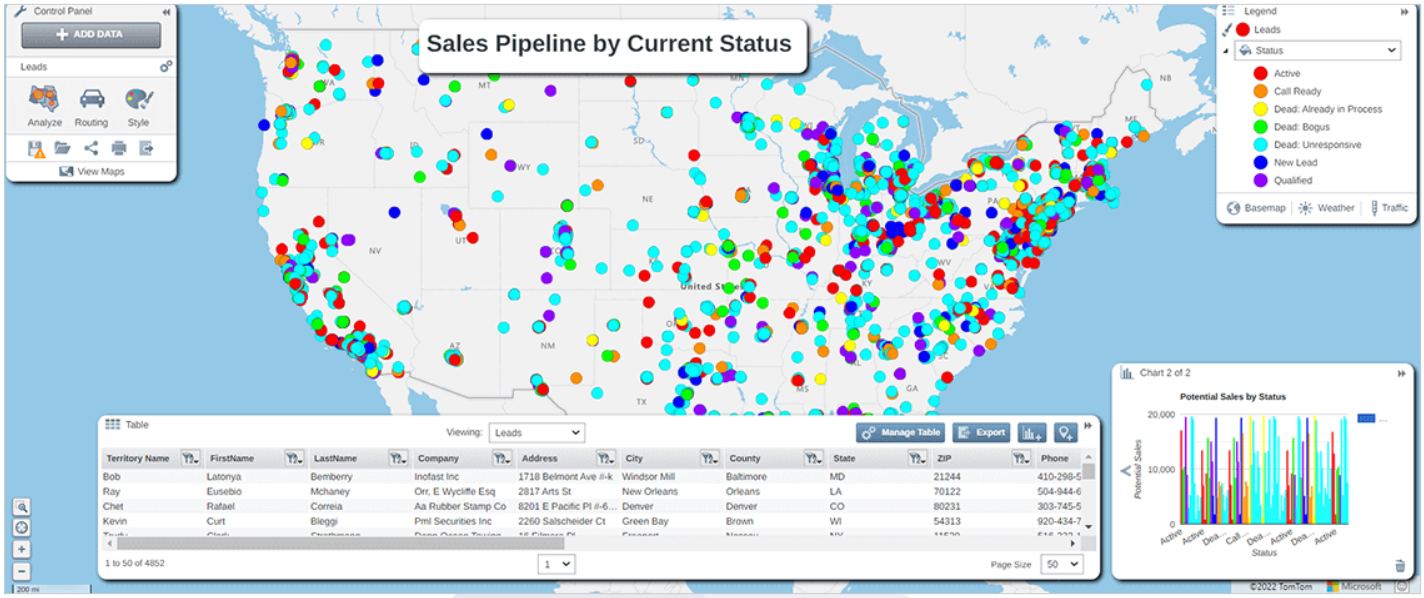


Pin map showing sales pipeline colored based on lead status

Preparing the map

To prepare a map, you must first consider which data you want to visualize. You have your sales and marketing data, such as customer and office locations or sales territories. You can use a base map to give the data context.

Next, you can include a geographic boundary dataset such as post codes, ZIP codes, county, state, or sales territory boundaries.

It is helpful to have your data by region to summarize your findings. Finally, add third-party data, like demographic or census information, to understand or analyze your market and data.

Most mapping software products will already include base map options from Azure, Google, Bing, Open Street Maps, or other data providers. They will contain a library of boundary and third-party datasets. To prepare your map visualization, you must pick the base map style you want to use and if you wish to add any boundary or third-party datasets.

Load your datasets first to the software to create maps. Organize your data as a table with rows representing each unique feature you want to display (for instance, one row for each customer location) and columns representing the attributes of each feature.

	A	B	C	D	E	F	G	H	I	J	K	L
1	First Name	Last Name	Email	Contact number	Department	Job title	Home/Office	Street address	ZIP	City	State	Country
2	Ronan	Kilroy	rkilroy@espatial.com	19999999999	Sales	Head of Revenue	Office	40 Linwood	11040	Portwashingt	NY	US
3												
4												

Suggested layout for your data in Excel

One or more columns will need to include address data to enable the software to plot your point locations. Load your data with a longitude/latitude location assigned to each feature based on its address using a process known as Geocoding.

Organize data so each feature type (customers, offices, outlet, distributor) loads as a separate dataset.

It allows you to add it to maps as separate layers and to add different colors or symbols for each different dataset. For instance, when viewing your map, you can distinguish office locations from customer locations. You will also interact with the map more effectively by switching on and off which layers to be displayed as required.

Data styling

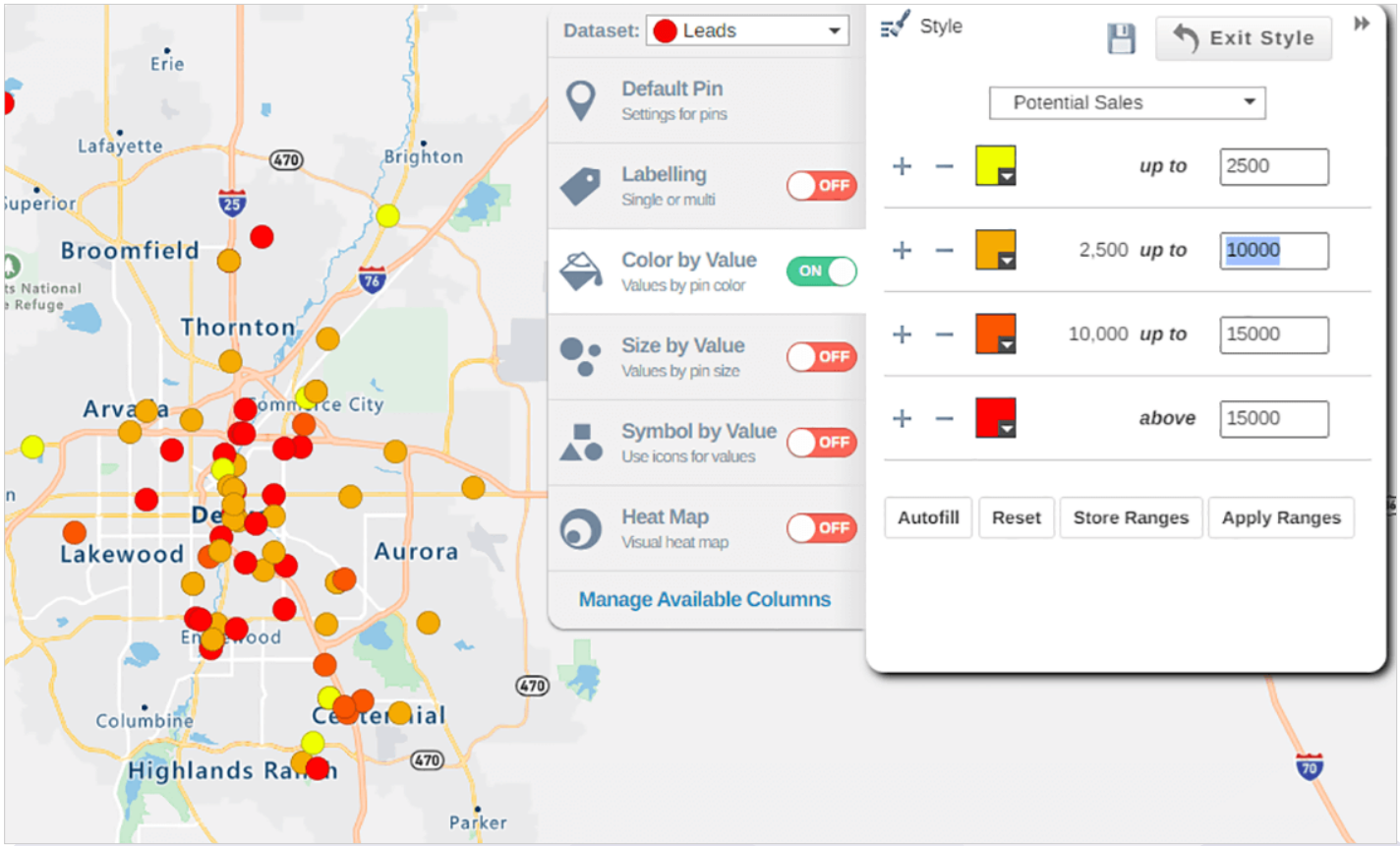
When you have added your data to the map, you will need to decide how you want to display each feature. Good software will usually assign a default style and color and ensure that each dataset or layer represents it differently. You have the option to change your defaults.

For point data, you will need to consider the symbol to use, do you want to use one already available in the software library, or do you want to add a custom symbol? You might want a simple dot or a pushpin for each point; you might prefer a meaningful symbol such as a factory icon; you may use a company's corporate logo.

Point display size depends on the volume of points you display. Choose the size that makes the most sense. A clustering option may also be appropriate for high volumes or dense data. The cluster displays the number of points, and you can show all points by double-clicking. It makes it easier to display a high volume of locations. The color and transparency of the point.

Including a data table that shows some of the data displayed on the map in a tabular format is good.

Depending on the data you have used, it might be necessary to display a copyright notice.



Styling options within eSpatial

The best mapping software will also allow you to vary the symbol, size, or color of points depending on some attribute value associated with the points. For instance, you would be able to show higher value customers with larger symbols or with different colors. The map legend would contain information to explain what the different sizes, colors, or symbols represent.

For polygon data, think about the line style and thickness of the boundary, the fill pattern or color of the polygon, and whether you want the fill to be transparent or not. You can change the polygon style depending on attribute values like point datasets.

Labeling your data on the map is another important consideration. Good software lets you automatically generate labels for each element based on one or more feature attributes. Labels add information about each feature. However, if you have many features on the map, labels can become cluttered and unusable.

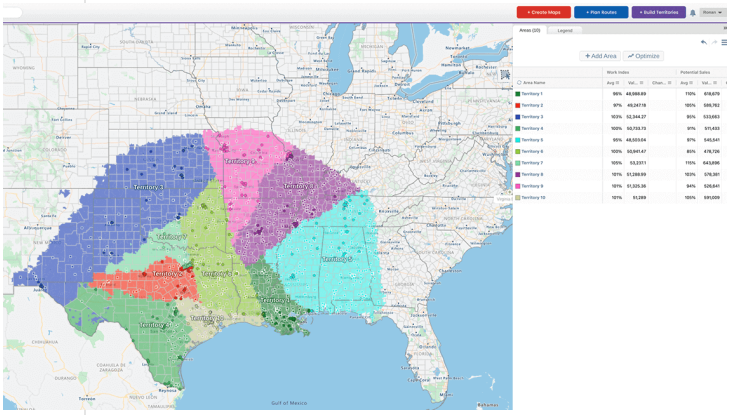
For label styling, you need to consider size, text font, color, and whether to include a box or frame. Your mapping software should allow you to control the positioning of the labels relative to the feature and whether you want to display all labels or just those that don't overlap with others. The best software will have sophisticated algorithms to optimize label placement to avoid clashes.

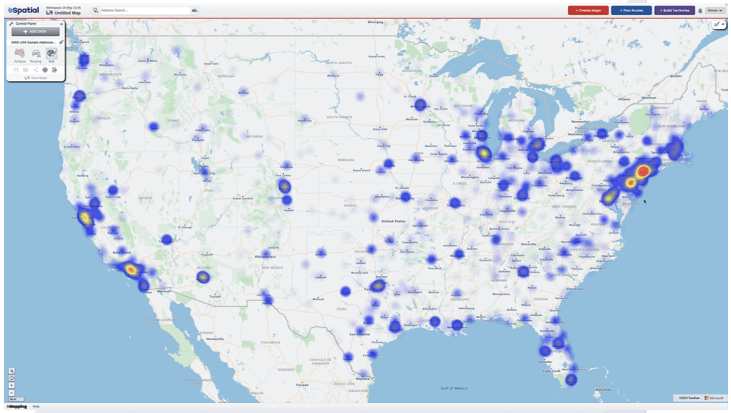
Map analysis

In the last section, we discussed the best way to style the data on the map. In this section, we will discuss analyzing that data for insight. You can use a basic map style and display every feature individually or deploy a thematic map, where the map shows the correlation of datasets to regions. Thematic maps allow you to quickly identify your data's hot spots, clusters, and gaps. There are two main types of map analysis, summary analysis, and proximity analysis which we will discuss in this section.

1. Summary analysis

Summary analysis refers to summarizing your data to visualize coverage, gaps and highlight areas of opportunity. It is done on a regional basis.



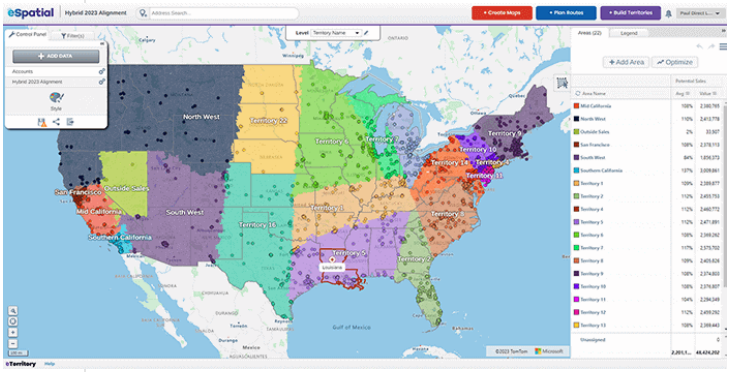


2. Heat map analysis

Heat maps use a color gradient to indicate increasingly higher data density areas in a geographic area. Heat maps are one of the best visualization tools for dense point data and can quickly identify clusters with a high activity concentration.

3. Regional heat map

A regional heat map uses graded differences in color to indicate average values or quantity in particular areas, e.g. the aggregate sales value or volume for each state or territory is color-coded into ranges, with each color representing a value.

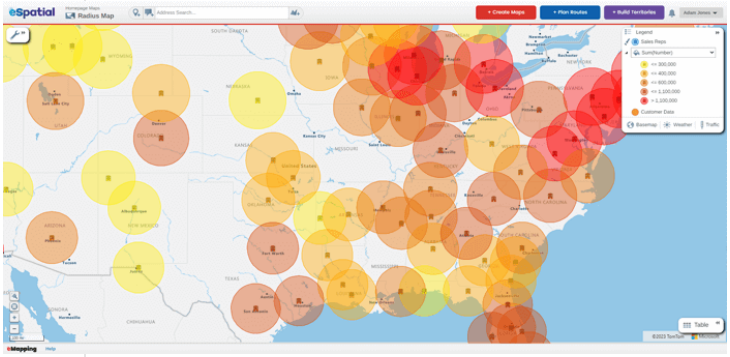


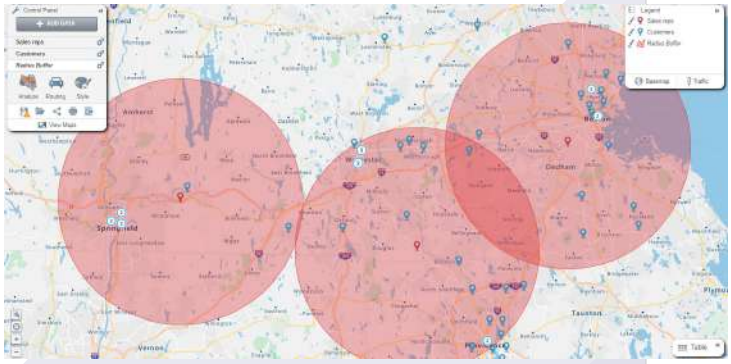
4. Bubble map analysis

Another map places bubbles or other symbols in the regions to represent the displayed values. Using two data sets on a bubble map may also compare data sets linked to one another.

5. Proximity analysis

Use proximity analysis to identify locations close to your chosen central location. It is helpful for sales call planning, site location, event planning, and performance reporting.



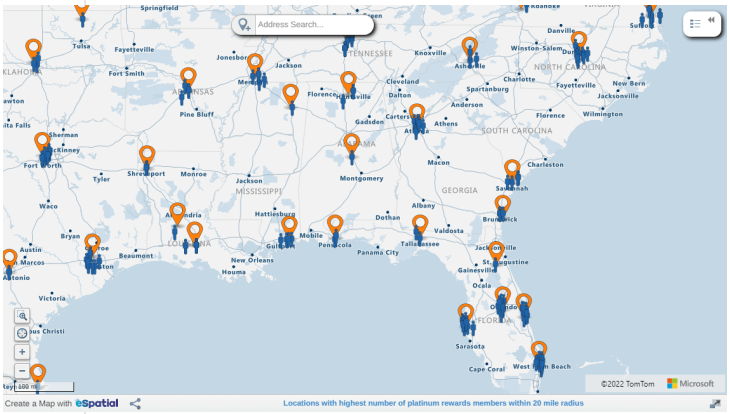


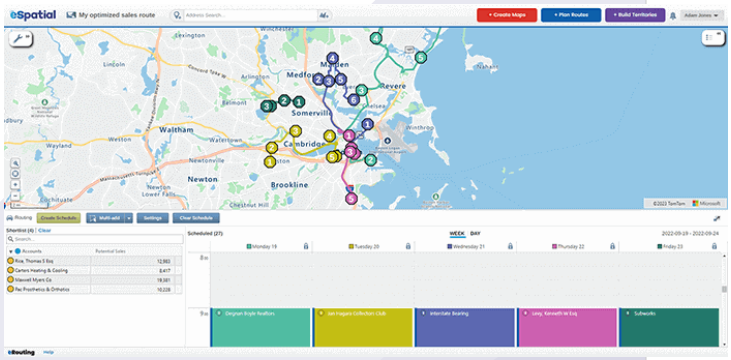
6. Radius analysis

Radius maps, also known as buffer maps, are helpful when you need to understand your data in relation to its proximity to other features. For instance, you may need to visualize how many customers you have within a 10-mile radius of your office locations

7. Nearest neighbor analysis

This type of map analyzes the relationships between two datasets based on nearest neighbors. It allows you to identify the nearest set of features in one dataset compared with a starting point in the other dataset.





8. Drive time analysis

Drive time analysis is perfect for field sales teams and event planning as it allows you to identify data points within a particular drive time of a center location.

Improving your map visualization

So your map is created, and now you want to add tables, charts, titles, or annotations. These can enhance the meaning of the map and help communicate your message more effectively.

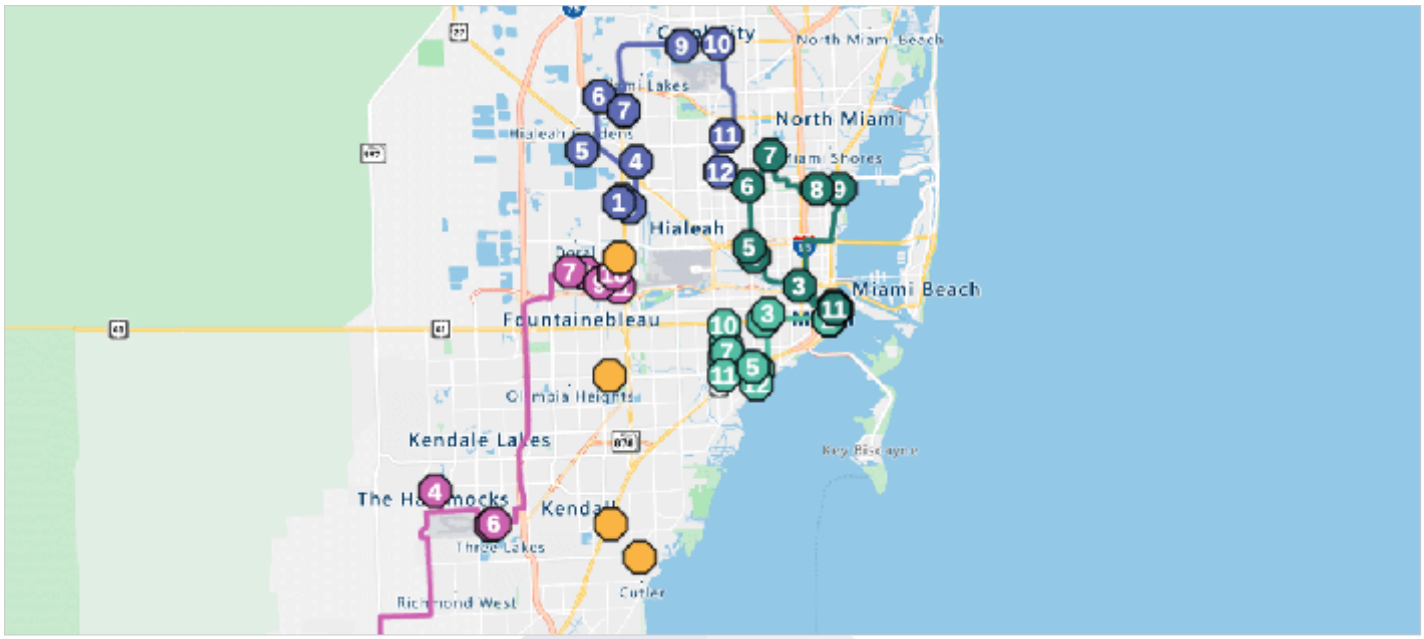
1. Creating multiple map views

It is often necessary to create several map visualizations from the same data. For instance, you might have imported all of your sales data from your CRM but want to prepare separate maps for individual sales regions or reps. The mapping software allows you to filter the data to see a sub-set of the dataset. To produce multiple viewpoints, you can produce a simple pin map, regional heatmap, and buffer map on the same dataset. You can easily create and save multiple maps linked to the original dataset, making all maps readily available to launch as more up-to-date data becomes available. Like in Excel, each map should form part of a larger 'Mapbook' that can be managed together or separately for styling, sharing, printing, etc.

2. Using route optimization

Field employees are expensive and time-constrained. You should optimize their time in the field to get the most from your team. One way to do this is to reduce the time needed to complete an itinerary by planning routes using mapping software with built-in route optimization.

The software optimizes routes for up to 20 days. It can add up to one extra sales call a day or an additional 30% selling time. And that reduces travel time or fuel consumption.



An optimized 5-day sales route

3. Using maps for territory alignment and management

Territory management is the process that optimizes sales workloads, allocates customers or products to representatives, and assigns personnel to territories. Territory Alignment and Management unlocks hidden revenue and inefficiencies in your territory designs. Organizations can boost revenue by 12% without additional sales resources with smarter territory design.

Territory Management is a crucial component of the Sales Performance Management process, essential for salesforce planning, resource deployment, incentive compensation, and financial reporting. Yet, much of the work in designing Territory alignments is done using spreadsheets. The fact is that most territories incorporate real-world locations better understood with a data visualization tool.

Territory visualization is a critical aspect of the alignment process. Others include:

- Hierarchical representation of territories
- Territory re-alignment capabilities
- Territory optimization
- Balance with a workload
- Weighted balances
- The ability to use other data sources to help balance assigned territories, collaboration
- Sharing results for ongoing reporting

High-quality territory mapping software should incorporate all of these features.

03. Improve your business performance

Use mapping software in various ways to improve business performance. This chapter will examine three of the most common ways this occurs. We will discuss how you:

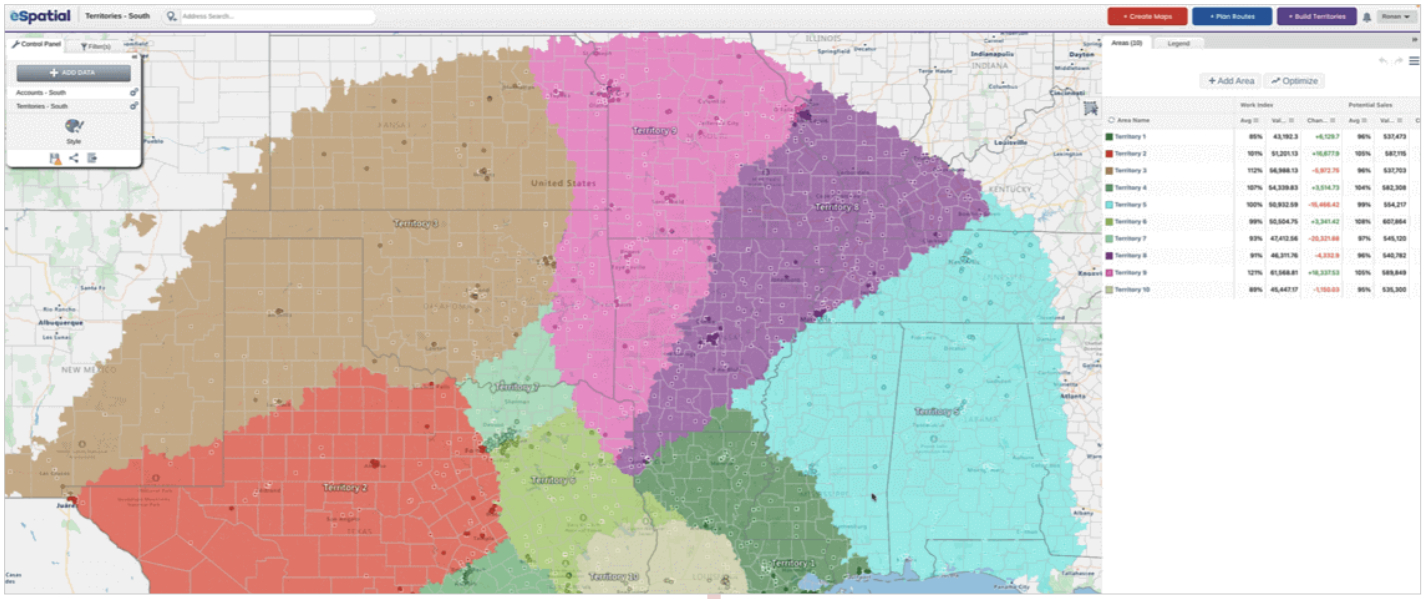
- Grow revenue
- Reduce costs by boosting sales productivity
- Improve customer service

Sales growth using mapping software

Use mapping software to grow sales revenue. In this section, we will discuss:

1	2	3
Sales territory alignment	**Market growth planning**	**Location planning**

1. Sales territory management



Territory alignment map for a regional sales team

The previous chapter described how you use mapping software to enhance territory alignment (the process sets sales areas and workloads, allocates customers or products to representatives and assigns personnel to territories). Territory alignment provides value to organizations in several ways:

- Balance with a workload index to optimize sales productivity
- Spot inefficiencies quickly when you view sales territories on maps
- Spot whitespaces or territory gaps where accounts are not assigned to sales reps
- Mismatches, where one territory overlaps with another
- Size variations, where the geographic size, customer volume, or market potential is out of balance from one territory to another

Territory mapping software should include a balancing tool to compare territories using one or more metrics. It helps identify whether the distribution of territories is balanced and fair. Use heat maps or regional heat maps of territories to help spot regions that may have easy targets with a high density of high-potential customers compared with areas with low potential.

Improve quota setting accuracy by realigning to optimize sales potential. Where territories are balanced (based on revenue potential, workload, volume, or geographic size), sales rep motivation is improved, with performance improvements. Proper workload balance also allows for better productivity and management of travel time. Finally, assigning staff to territories provides a structure for Sales Performance Management reporting and tracking.

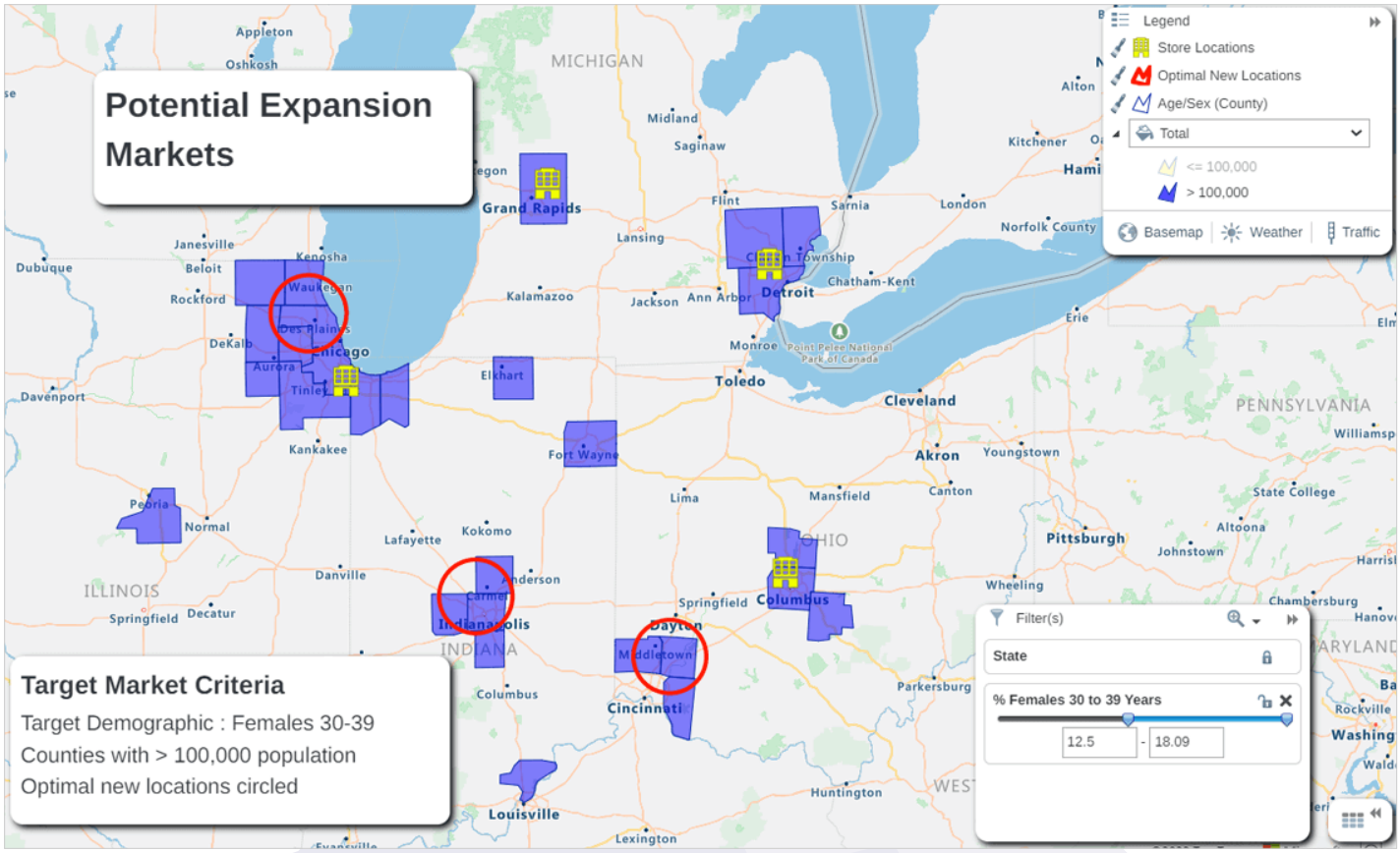
2. Market growth planning

Mapping software can help identify where to target new initiatives for market growth. Most companies know their ideal customer profile, but where these potential customers are situated is often unknown. Identifying the regions in which to acquire new customers to plan for market growth is a critical benefit of mapping analysis.

The starting point in this process is to analyze existing success factors, such as:

- Proximity to outlet, office, distributor, or franchisee

- Demographic profile of region served (for instance, age, income bands, socio-demographic groups, administrative considerations)
- Competitor locations



Territory alignment map for a regional sales team

You can then use the map to identify regions with similar characteristics in several ways by:

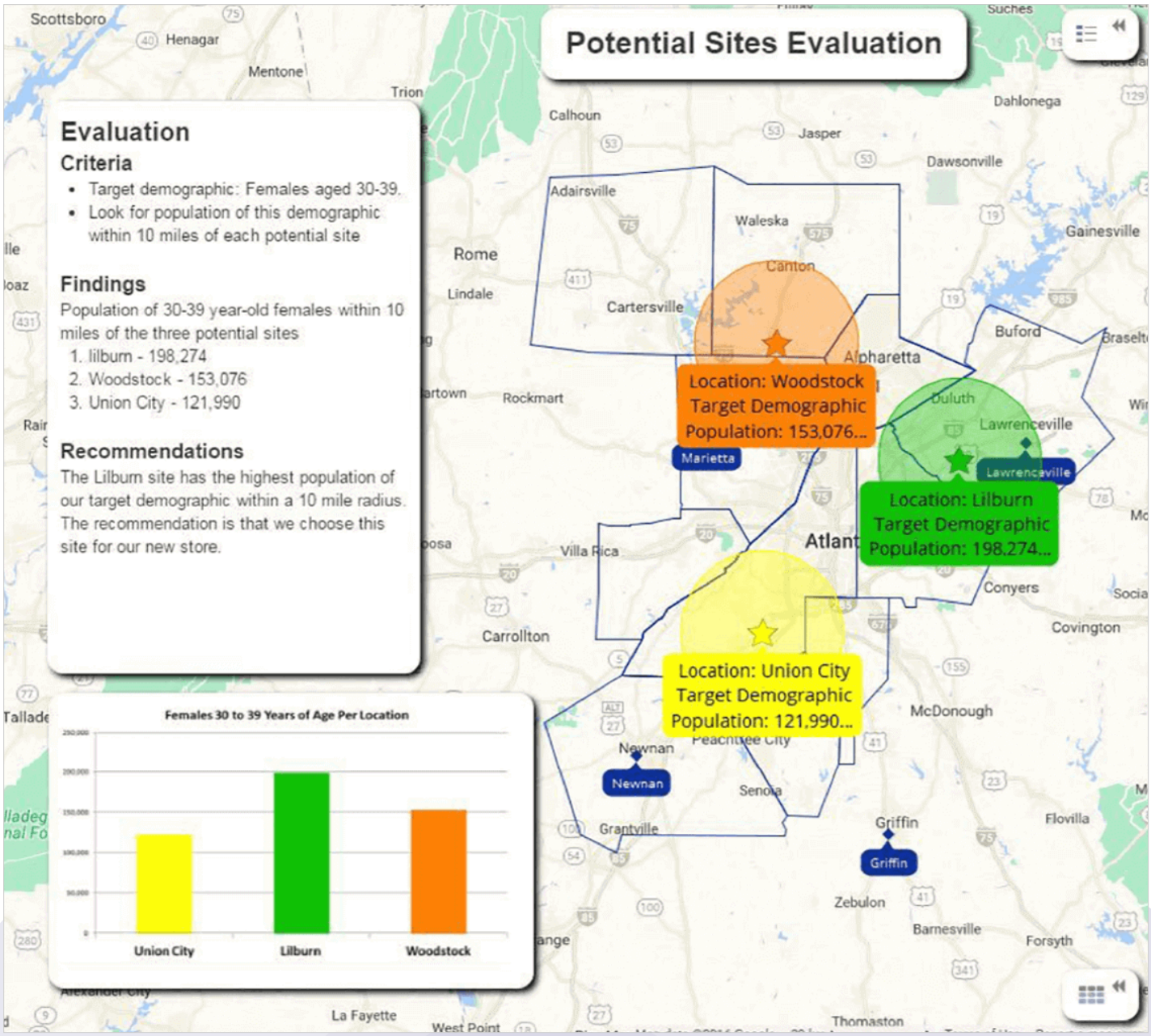
- Plotting the distribution of potential customers across the catchment area
- Assessing the aggregated demographic profile of the region
- Analyzing demographic distribution using heat maps or regional heatmaps
- Mapping competitor locations

Using proximity analysis tools, such as distance buffers or nearest neighbor analysis, to understand the accessibility of target market groups. Most companies will look to manage growth on a phased basis, first moving into areas with the highest potential. Using mapping software, it is possible to create multiple target regions for development and to compare potential across these regions, for instance, by using a regional heat map to identify areas with the best underlying market potential.

Opportunities for growth in markets currently served but underperforming can also identify growth potential—map performance by territory or region using a bubble map to identify performance from high to low. Compare with market potential by mapping this in the same way. It is then easy to locate mismatches –for instance, where market potential is strong, you under-perform.

Map your regional market share statistics to identify poor performance. Visualizing under-performing territories or regions unlocks new insight, which is the real benefit of mapping. Examining geographic factors to identify potential causes. For instance, you may have a franchisee (such as a restaurant) operating in a territory with good potential but under-performing compared to a similar market profile. It is easy to see if the restaurant's location is a factor using a map. Is it on the edge of the territory; does it overlap with the territory of another restaurant; are there competitor outlets close by; is accessibility an issue; or is there some visual or environmental problem nearby?

3. Location planning



Potential site evaluation map

The previous section described how mapping software helps identify territories or regions for potential market growth. Once you have identified a region to target, the next step is to pick your location site.

Site selection is one of the most important decisions that companies face. Picking the right location is essential to ensure success over the long term. Use mapping software to help make the right choice by identifying potentials, such as demand potential, customer density, accessibility, or delivery routes.

Picking the best location for your business is related to your industry. Retail organizations will require locations with high customer demand and ease of access. The questions identified above in the restaurant example are relevant to assessing a specific site –where is the site relative to the target customers? Is it in a central position; does it overlap with existing stores or competitors; is accessibility an issue? Assess these questions visually using mapping software.

Service organizations will need to assess a potential location to see how quickly personnel can reach customers. They can map the distribution of customers relative to the proposed location and see how well it fits. They can run routing programs to estimate drive times or plan scheduled service stops. They can use drive-time analysis to assess catchment areas.

Manufacturing companies will be concerned with site access, distribution networks, and proximity to key suppliers. Most companies will look to analyze alternative sites relative to employee recruitment –are relevant skills available in the catchment area?; is the site accessible?; is the location attractive for access to facilities such as dining, shopping, or leisure facilities?

For some companies, a coverage map will automatically highlight potential locations. A radius or coverage map on existing locations and customers will highlight clusters of existing customers outside your definition of a reasonable distance. Mapping software helps visualize and analyze these selection criteria leading to a better-informed site decision.

Managing costs using mapping software

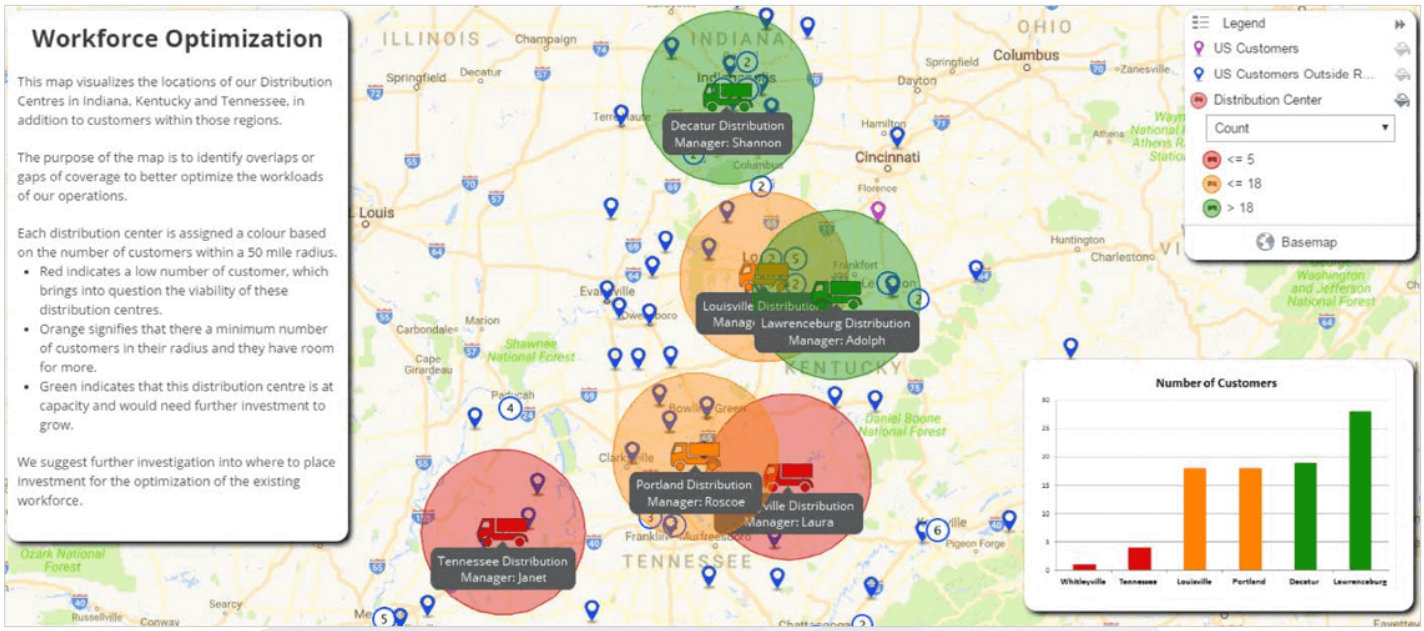
1. Workforce optimization

You are engaged in an ongoing battle to save costs, and mapping software is the perfect tool to achieve this. In the previous section, we described how mapping could identify opportunities for market expansion, but the same processes can also point to opportunities for contraction or consolidation. Using the same analysis techniques to spot opportunities for growth, such as territory alignment or market coverage analysis, you can find under-performing territories. The causes may be related to location, such as accessibility, wrong socio-demographic profile of catchment area, or strong competitor presence. It points to an opportunity for closure or a re-alignment.

Similarly, mapping analysis could highlight overlaps between locations, for instance, two distribution or service centers servicing the same customers. Or retail locations too close together based on drive times. It presents an opportunity for consolidation and cost reduction.

Use location planning techniques to assess the qualities of existing sites, not only to find new ones. Analyzing existing sites in terms of distribution costs, traffic delays, logistics patterns, and employee costs can point to opportunities for re-location or closure.

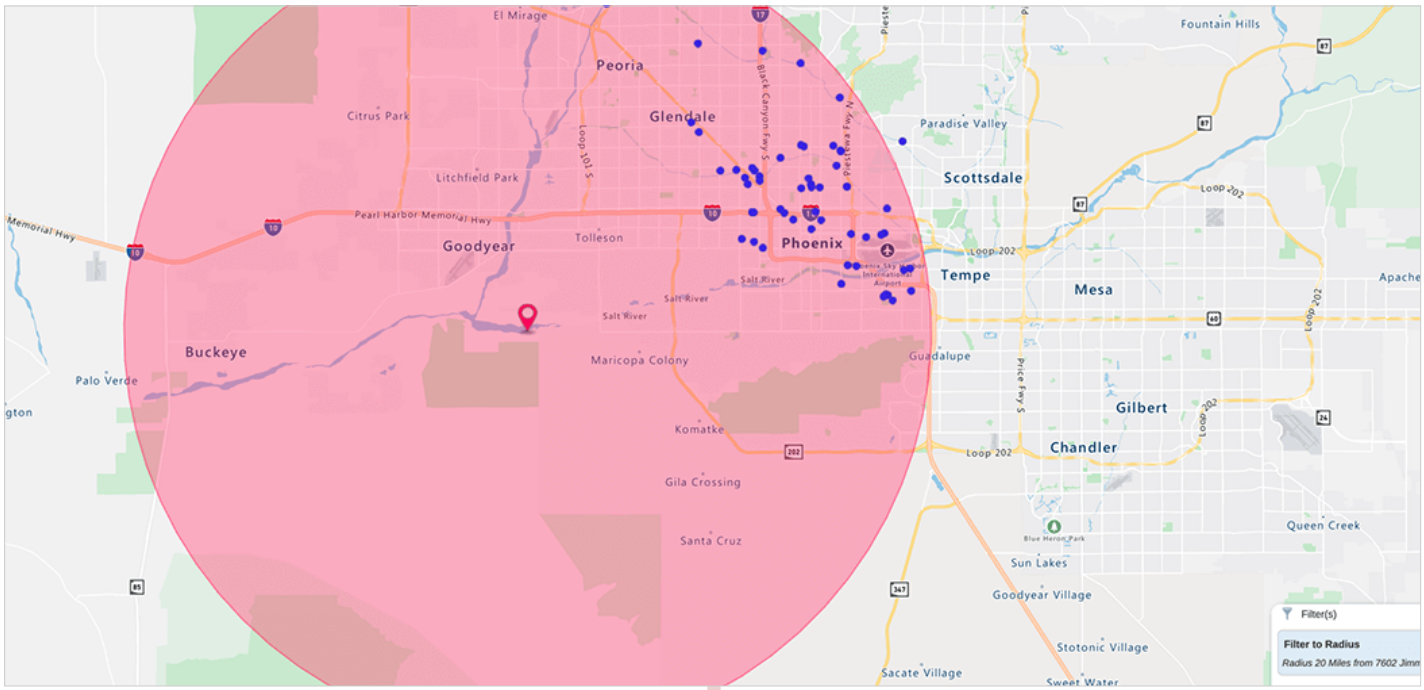
Company acquisitions or mergers often result in duplication of locations; mapping software excels in analyzing the location to close or move.



Workforce optimization map

2. Resource allocation

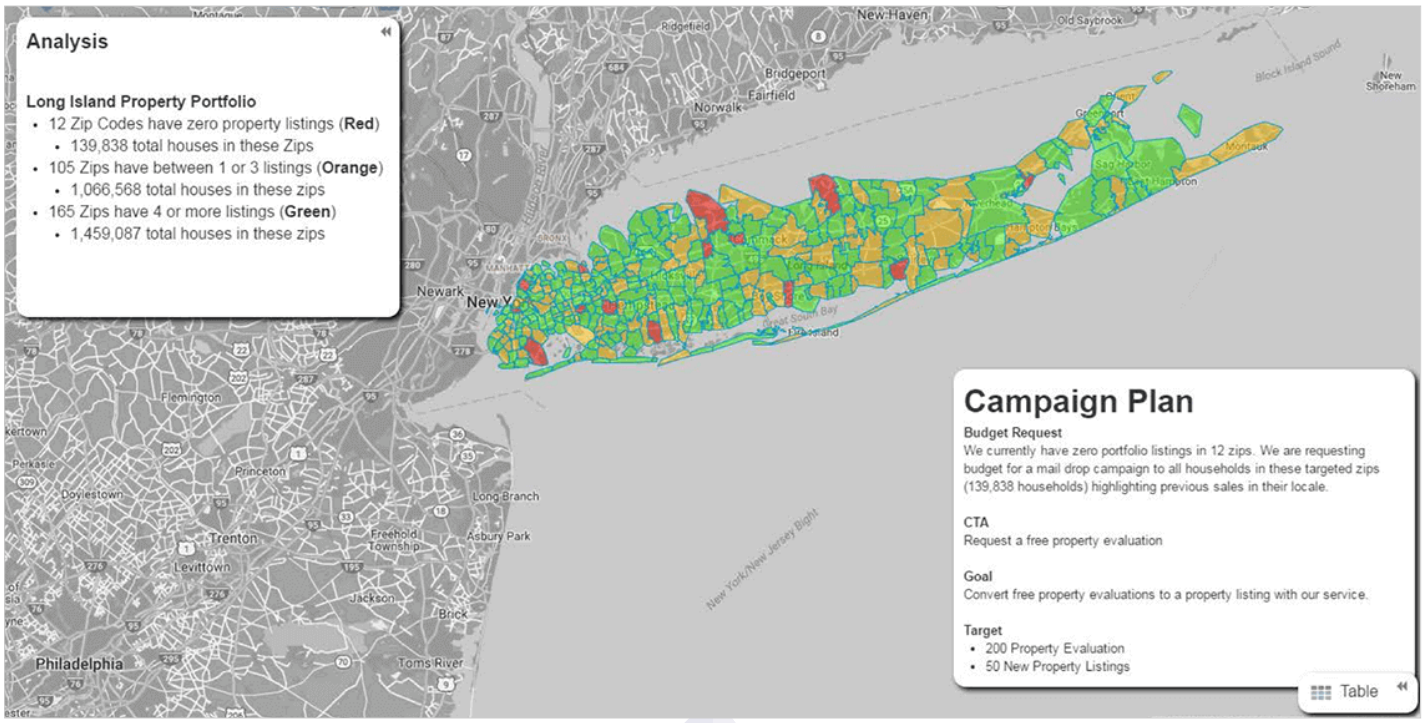
Mapping software is an essential tool in resource allocation, managing people or assets. In many cases knowing the precise location of assets is critical before remedial work is carried out (for instance, underground utilities). Work is prioritized based on location and risk score. Efficiently managing work orders can save costs and enhance customer service.



Use maps to show daily tasks and visualize critical information for each job (such as job status, risk score, the process involved). Allocating staff or equipment to jobs based on location or skills is optimized. Just plan your routes and communicate the schedule with the team. An eSpatial customer reported an increase in productivity of up to 30% using our mapping software to plan, schedule, and report on resource allocation. They reduced operational costs as repair work was executed quicker and customer satisfaction improved.

3. Marketing/advertising campaign management

Mapping software is the tool of choice for managing marketing and advertising campaigns.



Long Island portfolio analysis map

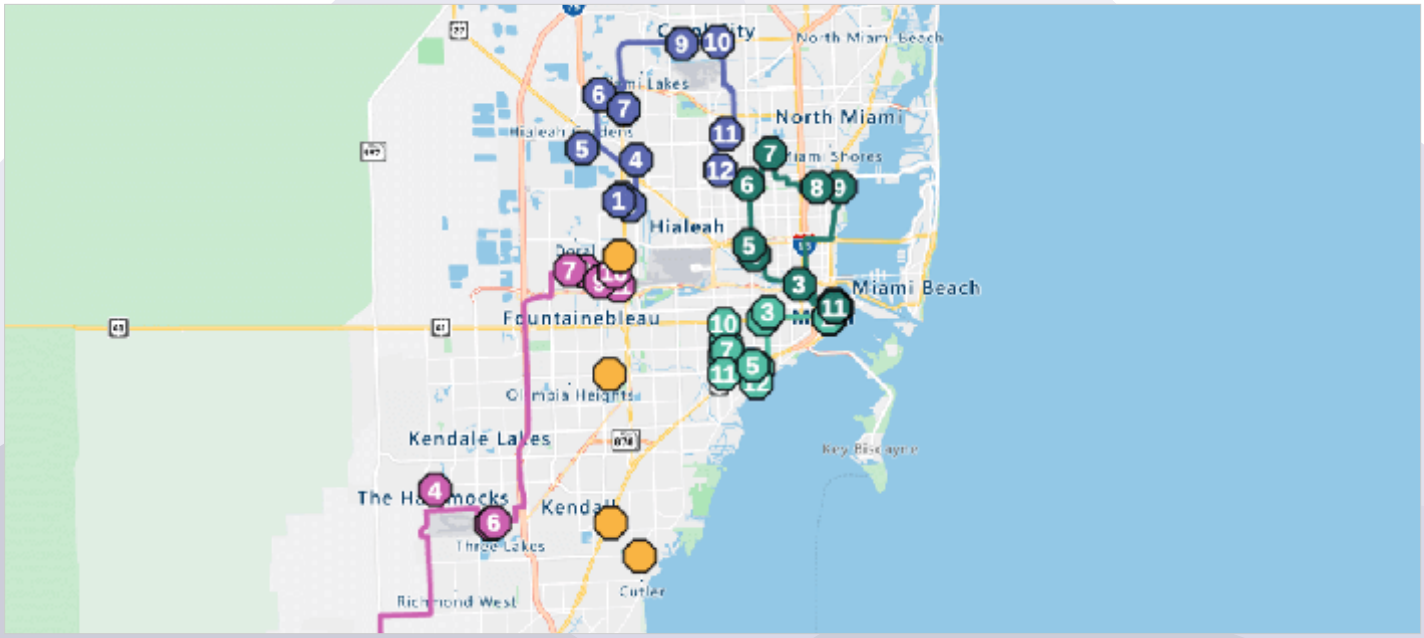
Focusing on tightly defined target groups can reduce the cost of campaigns and increase the effectiveness for direct marketing, online advertising, flyer distribution, in-store advertising, billboard and placard placement, and many other campaign types.

Your starting point is a good understanding of the profile of current customers to build a target profile for prospects and identify regions that match that profile. Factors to consider include socio-demographic, income distribution, location proximity or accessibility, and competitor influence. You eliminate waste by concentrating spending in regions with the best profile.

Use heat maps, regional heat maps, pin distribution maps, and buffer maps to analyze underlying demographic or market data. Prospect data sets can be added to maps and filtered based on geographic constraints to consolidate a target list to the best fit. Region by region comparisons allow you to hone in on areas to concentrate your campaigns. Securely share maps and lists with staff running the campaigns. Identify specific locations for advertisement placement. Organize itineraries to show the most efficient routes for face-to-face campaigns.

4. Route optimization

Mapping software takes your data from different programs visualizes it for greater insight. You can load your calendar and link this to addresses from your CRM, excel spreadsheet, or other programs and optimize and visualize your routes. Customers estimate that they reduced their trip planning time by 75% and added up to one extra call per day for sales or service reps.



Every sales operations team's goal is to spend more profitable selling time with your highest value, highest priority customer. Fuel cost savings average 30%. Sales productivity gets a 15% plus boost. And you achieve your objectives with route optimization software.

With good mapping software, generating customized maps and directions is an easy process. It can be done for ad-hoc sales trips, planned service calls, regular delivery routes, or any itinerary with multiple stops. Plot your data, select the locations to visit, pick a start point and a finish point, and the software will create the optimized route for your day, week, month, or quarter.

Improving customer service

In the previous sections, you learned how to use mapping software to grow revenue and manage operating costs. In many cases, the steps taken will also result in customer service improvements such as:

- Territory alignment and market coverage analysis result in better sales rep utilization and increased productivity
- Location planning puts resources in the right place
- Resource allocation results in faster turn-around times and risk prioritization
- Route planning optimizes selling time and rep productivity and speeds up response times

Mapping practices used to deliver these results can be employed with the specific focus on improving customer service (with revenue growth or cost management as the spin-off). Companies also use mapping software to improve customer service in other ways:

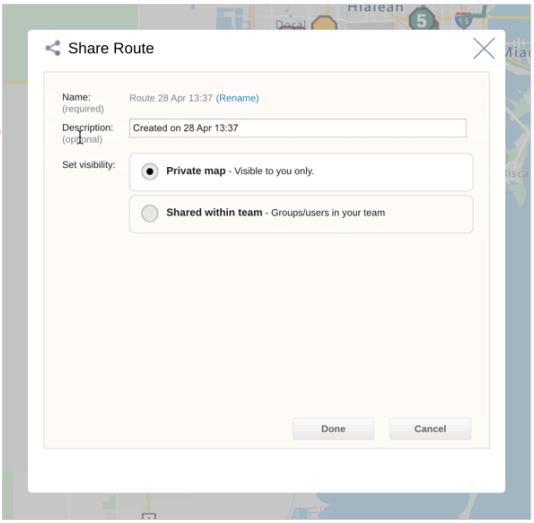
- Call centers use map interfaces to communicate with customers and know when and where field representatives will be available. Call centers use maps to allocate the most suitable representative to a job or a cluster of jobs -reducing the time to service calls while also reducing costs to the company by allocating resources more efficiently.
- Customer service reps use mapping software to advise customers on their best location based on needs and availability. For example, schedule clinic appointments or a maintenance visit to a service center.

Add maps to websites to help customer communication (for instance, store locators, service centers, or fault reporting systems).

04. Sharing your map

When to share a map

You have created your perfect map, and now you'll want to communicate your results. There will be times when you and your team will collaborate on maps. We can identify a few of these as examples:



- The most frequent use case is for performance reporting and feedback. Plot regional and territorial results on a series of maps. The visualization provides a great way to compare results across regions or against targets. Distribute your visualizations widely to aid communication and decision-making.
- Prepare one-off maps for annual budgets or strategic plans.
- A retail company includes a map of its stores on its website.
- A franchise management company shares its analysis of individual franchisee performance with each franchisee.
- A franchise management company publishes a list of available franchise locations to potential franchisees.
- The CSO includes a visual display of regional performance in her report to the CEO.
- A central data analysis team prepares reports for use by regional managers and needs to share these.

- A territory re-alignment project requires regional sales managers to collaborate on proposed changes or to break a large territory into smaller sub-territories.
- The logistics team prepares optimized routes and shares these with the delivery teams.
- The marketing team has identified a list of potential customers the sales team should target for a new campaign.

Sharing techniques

The best mapping software will allow for easy communication and collaboration. It will also provide different sharing options. The most common are:

- Publishing an interactive or static map to a web page for the public
- Sharing a link to a web map with a limited audience
- Sharing a map within an organization with individuals or teams
- Generating a PDF of the map and attach this to an email
- Adding a map or 'mapbook' to a PowerPoint presentation
- Printing the map and distribute the printout (or just pin it to a wall)
- Generating an Excel file with a targeted list of addresses or phone numbers

When we talk about sharing a 'map,' we also refer to the complete map visualization, including any legend, titles, tables, charts, or annotations you may have added to the map. Sharing allows for aggregating maps into a single mapbook if sharing the complete set of maps is required.

User interaction

When you share your map, decide the extent you want the recipient to be able to interact with the map. For instance:

- Can they pan and zoom on your map?
- Can they filter (or un-filter) data on the map for further analysis?
- Will they be able to edit the data on the map or add new records?
- Can they add new layers to the map?
- Can they change any of the styling options on the map, such as pin styles, data filters, or labels?
- Can they generate a thematic map or turn off a thematic?
- Can they save a new version of the map for their use?
- Are they allowed to re-share the map?

The answers to these and other questions will vary depending on your situation and are influenced by whether you need full collaboration or simply want to share the output.

Notifications

You have created a great visualization that generates exciting insight to save the company money. You have shared this with the team that can affect the necessary changes. The last part of the process is to ensure they know you've shared the map. The best software will include notification systems that automatically alert the recipients that the map is available. It includes automated emails and in-application messaging.

Single source of data

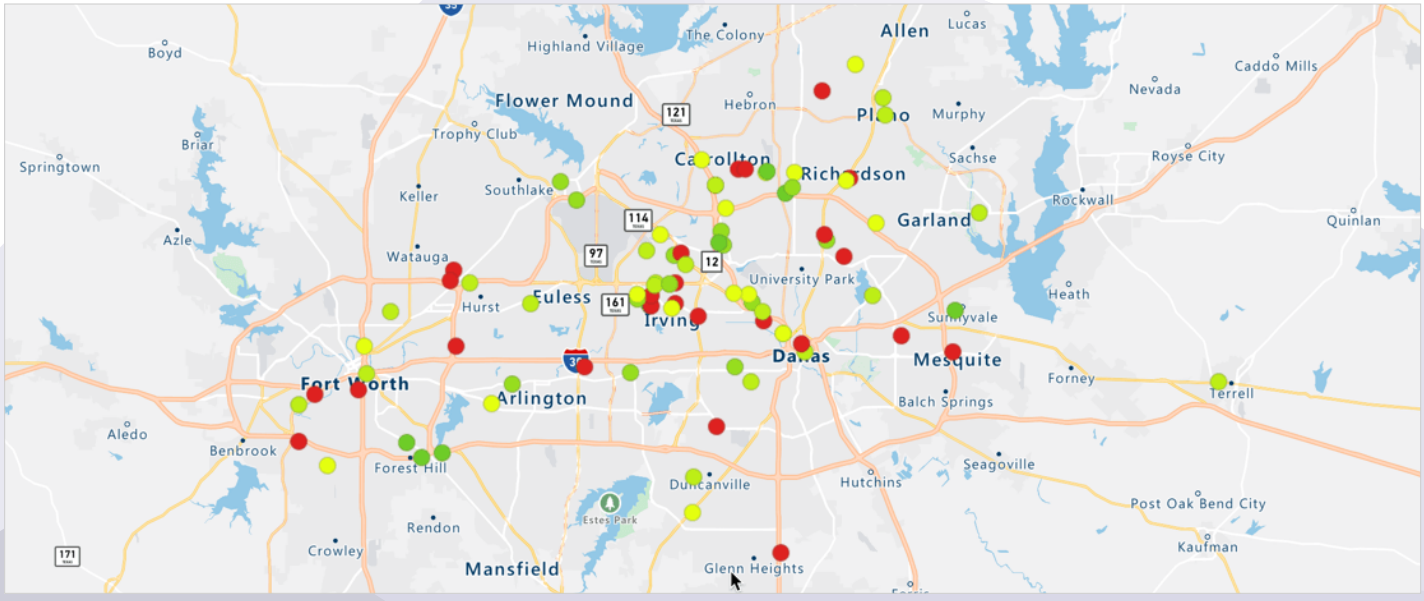
Where collaboration is essential, everyone in the organization must be working from the same data sources. In the past, mapping software implementations used stand-alone desktop solutions, leading to data getting out of sync and miscommunication.

Modern software stores all the data in a central database, giving all users access to up-to-date information.

05. Choosing the right mapping software

Challenges & required outcomes

The starting point to choosing the right solution for you is assessing your needs to identify the expected outcomes. Requirements can be as simple as wanting to view a small dataset on a map or as complex as managing a sales organization with thousands of reps. In the first example, free software might satisfy your requirements. In the second example, you will need enterprise-quality software with an extensive feature set, easy-to-manage administration tools, data integration APIs, and robust security as standard.



Customer locations color-coded by value. Red pins show the highest value customers

The type of outcomes you require will determine your assessment criteria. For example, a sophisticated territory management module will be of little interest if you are only interested in route planning. If you are looking to identify market opportunities or select new sites, you will be looking for high-quality buffer analysis. Assessing regional performance will benefit from thematic mapping.

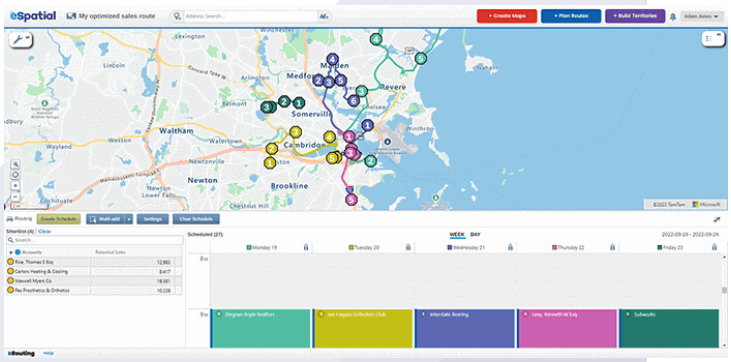
The number of people you want to share and collaborate with within your team or organization impacts your assessment. You will need to look at the quality of the collaboration and sharing tools –how easy is it to set up and administer groups and users, can maps be shared quickly, is the collaboration interactive, does the system have world-class notification methods?

Feature requirements

In the second chapter, we outlined fundamental mapping concepts. Understanding these will help you identify the features you need. When you have identified your desired outcomes, you will then be able to list the features that you need to help you assess which software to use. A complete list would take several pages, but the following table sets out some more important ones.

Mapping features

- Create regional and hotspot heatmaps
- Analyze data with color-coded, pin, or bubble maps
- Choose an ideal location for an office or rep with proximity maps
- Layer multiple datasets
- Job allocation
- Advanced styling
- Analyze drive time
- Secure sharing
- Integrates with CRM

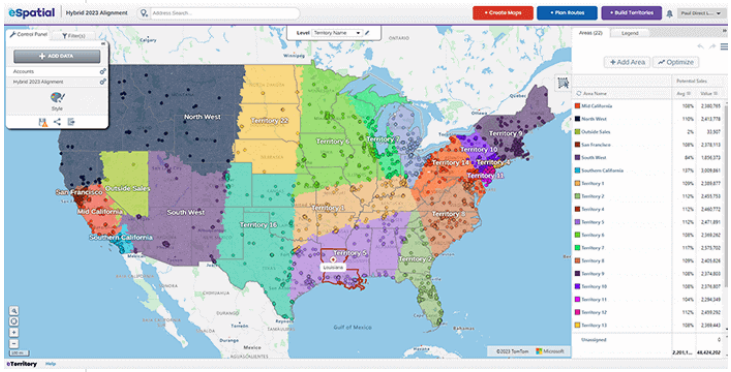


Routing features

- Optimize sales and services routes
- Mobile ready
- Easily re-optimize when you get a cancellation
- Share routes securely
- Get turn-by-turn travel instructions
- Lock priority appointments
- Advanced recommendations engine
- Calculate and compare mileage
- Analyze route plans

Territory features

- Create, realign, merge, and close territories with ease
- Analyze territories for overlaps
- Identify inefficient territories
- Identify new opportunities to add territories
- Easily move accounts between territories
- Lock priority accounts
- Use heatmaps, pin, and color-coded maps to analyze data



Getting started - Training

As part of your overall selection process, emphasize the supplier's training programs and onboarding process. As a minimum, your supplier should offer different levels of training, depending on your previous usage of mapping software. Look for an onboarding process that starts with understanding your desired outcomes and your current skill level in using mapping software. The table below outlines four recommended steps to getting started on mapping software.

1. Understanding your desires, outcomes, and workflows

What business outcomes are you trying to achieve? What are your workflows?

2. Focus on the key features you need to know

The supplier delivers a tailored course, ensuring you know the key features to get mapping successfully.

3. Review your progress after 30 days

Supplier checks in with you after 30 days to review your progress and deliver appropriate coaching.

4. Regular reviews every 3 months

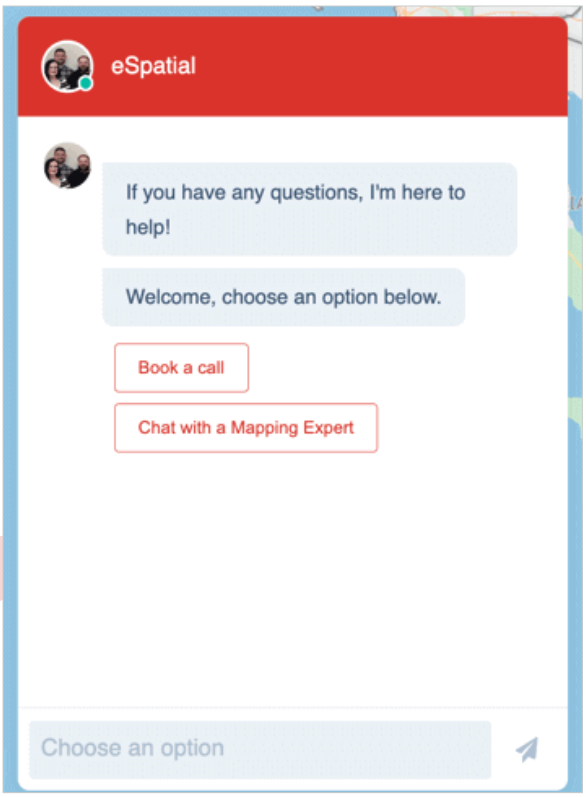
Every 3 months, your supplier has a regular review with you. Your supplier should offer any additional / refresher training where necessary.

Support requirements

When choosing which mapping software to purchase, ensure you understand what level of support you are entitled to as part of the cost.

Some mapping software suppliers only offer limited support. One of the critical factors to look for is the ability to get help when you most need it. Another is talking directly to someone who understands your business and what you are trying to achieve.

At a minimum, you should confirm that the following support requirements are included in your mapping software cost:



1. Direct access to Customer Success Managers/mapping expert
2. Telephone support
3. In-App Support and chat
4. Email support
5. Online Resources
   - FAQs
   - Blogs
   - Best Practice advice
   - Video tutorials

Out of the five listed above, In-App Support can be very powerful in solving problems quickly. With In-App Support, end-users can access mapping experts who can advise on solutions within seconds (rather than wait for email responses).

Total cost of ownership

It's not always easy to compare the cost of different solutions, mainly if mapping software options are available for various installation and licensing models. The two main options are:

Out of the five listed above, In-App Support can be very powerful in solving problems quickly. With In-App Support, end-users can access mapping experts who can advise on solutions within seconds (rather than wait for email responses).

You will pay an annual subscription (software as a Service or 'SaaS'). You need to consider some cost items when comparing ownership costs. The most obvious comparison will be between the upfront licensing fee for the desktop software and the annual subscription fee for the SaaS solution. Generally, SaaS annual subscription fee covers everything you need to be productive, but on-premise software will incur extra costs:

- Annual support & maintenance fees that most on-premise software will charge.
- Many on-premise solutions require yearly or semi-annual data updates, usually offered as a priced option. With SaaS, the data updates will be automatically available.
- You may need dedicated hardware, network, backup, and development systems to manage your on-premise software.

Consider whether you already have the required IT skills to manage databases, servers, firewalls, security, backup, and help desk resources. Will you have the resources to cover evening or weekend work to install emergency hotfixes, hardware repairs, or security issues? SaaS solutions will run on any computer with an up-to-date browser, so you will always have availability. The SaaS provider will manage all the updates and fixes and usually have a backup policy.

Upgrading on-premise software can be time-consuming and risky. The supplier will look after SaaSproduct updates –all you will see is the new version of the software. Whether you are comparing on-premise or SaaS solutions, you will also need to consider the following:

How easy is it to be productive with the software? You can consume many hours working with poorly designed software. Trialing the software before buying is an excellent way to assess this. Another option is to read any customer reviews you can find:

- Does the license or subscription include training, or is this a priced option?
- What level of support does your license fee or subscription cover?
- Does the software come bundled with worldwide data, or do you need to pay extra for additional countries or regions?
- What are your geocoding or data limits - will they meet your needs?

Other items to assess

There are a few other items you may also want to consider before you make your final choice:

- ✔ **Security** – can the supplier produce evidence that their system is secure – have they had any audits carried out on security?
- ✔ **Performance** – how does the system perform; what are map refresh times; how quickly can a thematic be run; can it handle extensive data volumes?
- ✔ **Scalability** – you might want to start with a small project but expect to scale your usage –will the system scale with your needs?

- **Future-proofing** – how often does the supplier make new releases; are they automatically available; are they keeping up to date with new technologies?
- **Application Program Interfaces ('API')** – does the system provide an API for data integration with your other business systems.
- **Mobility** - You can only access desktop solutions from a single workstation. They cannot be accessed from multiple devices while working from home or traveling. Modern web-based solutions are available securely anywhere from any device and are designed for productive modern ways of working.
- **Single Sign On** – If you currently use single sign-on to manage software users in your organization, it is essential to find out if the mapping software you choose will allow you to log in that way.

See how mapping software can help you

Sign up for a free 14-day trial

eSpatial