The Location Advantage MOOC

Exercise

Understanding Market Opportunity

Section 2 Exercise 1

10/2017

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Understanding Market Opportunity

Instructions

Use this guide and ArcGIS Business Analyst to reproduce the results of the exercise on your own.

Note: Business Analyst is a dynamic mapping platform. The version that you will be using for this course may be slightly different from the screenshots you see in the course materials

Time to complete

Approximately 30-45 minutes.

Technical note

To take advantage of the web-based technologies available in the Business Analyst web app, you need to use a fairly new version of a standard web browser, such as Google Chrome, Firefox, Safari, or Internet Explorer. Older web browsers may not display your maps correctly.

Note: For information on supported browsers, visit http://doc.arcgis.com/en/arcgis-online/reference/browsers.htm.

Introduction

During this week's lecture, you learned about market planning, including which parameters to evaluate and how location can be used to increase understanding and improve decision making. When you are performing market planning, there are numerous business questions to ask. You can answer many of these questions by using geospatial techniques to include location in your analysis.

Esri's ArcGIS Business Analyst is an application suite available through the ArcGIS platform. Business Analyst has tools for business problem solving, which will allow you to visualize business or demographic parameters all over the world and help you understand the differences between locations.

There are different implementations of Business Analyst, including a web app, desktop, enterprise, and mobile. Visit this page for more information:

http://www.esri.com/software/businessanalyst/get-started

Exercise scenario

Because of your excellent work and insightful story map about bank branch locations, you have been promoted to Global Market Planning Manager at the fictitious Sixth Consolidated Bank. Management would like to explore expansion into a nearby United States region, and you have been charged with finding and recommending the most suitable areas within the region, based on criteria. Which markets should you consider? What criteria or parameters should you look at? Also, where might your competition be located? These factors are all aspects of a market planning analysis.

In order to place the new branch in an area that has a high number of families with a need for banking services, Sixth Consolidated Bank has a number of expansion criteria for its new U.S. location:

- Average household size of three people or less
- Median household income of at least $35,000
- In a market with high population density
- Average savings account balance of $10,000
- An area with a low number of competing banks
- Close to the bank headquarters in Toronto (but in the United States)

In this exercise, you will use the Business Analyst mapping platform to perform these tasks:

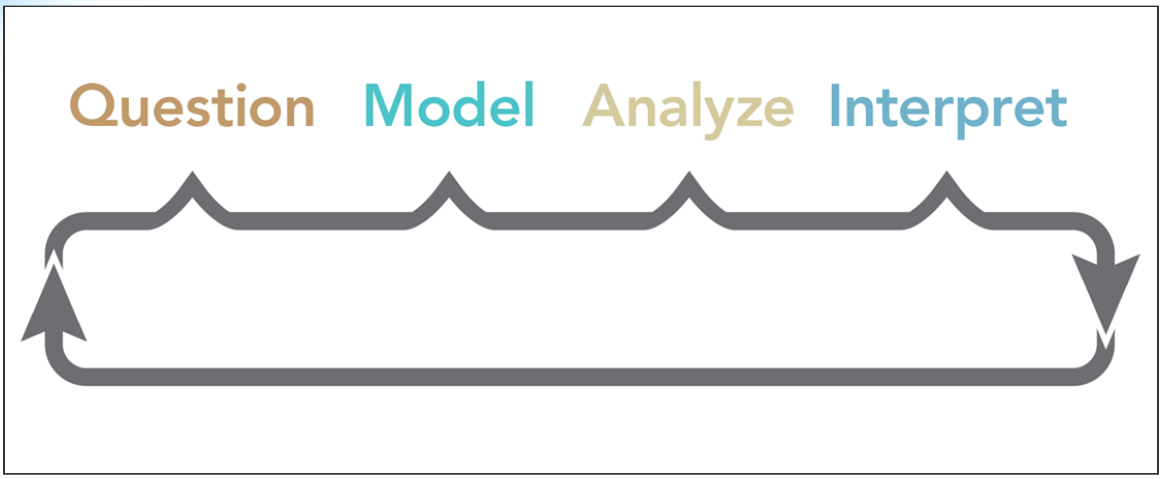
- Import a web map
- Create a web map with location information
- Search for possible competition in an area
- Share a map with an ArcGIS Online organization
- Create comparison reports

Note: Business Analyst requires a subscription. While you are enrolled in this course, you have access to Business Analyst at no cost.

If you would like to continue using Business Analyst after the course ends, you need to purchase it. For more information, visit www.esri.com/ba.

Approach

In this scenario, you will again follow the four-step question-model-analyze-interpret workflow for decision making.



Note: The Resources section in Udemy for this lecture includes a downloadable version of the four-step decision-making workflow with more explanation.

You have already used ArcGIS Online as part of your previous analysis to visualize some of the bank branch and demographic data on a map. Now, you will also use Business Analyst to consider additional factors in determining which areas within a region would be better to expand into than others. Business Analyst has tools for assisting with more specific business decisions like the scenario in this exercise. You will create a map to support market planning efforts.

First, you will look for a region in the U.S. located near the bank headquarters in Toronto. Then, you'll add additional information about the population in the region, such as population density, average household size, and the average size of the savings accounts of the people who live there, to the map. These factors represent the criteria that management has deemed most important in terms of locating the branch in an area with the most potential desirable customers. Doing so will ensure that the expansion is profitable and employees are able to sell the new banking services. Lastly, you will add a map layer to show where potential competition might already exist to help you make your recommendation.

Formulate the Question

For this scenario, you need to create a map with information to help support decision making and market planning efforts for bank expansion. As before, you must first formulate the business decision that you are facing as a question. You are evaluating this primary business question:

Where is the best place to expand your existing business into a new region?

Model the Solution

After identifying the question, the next step is modeling the solution. You can deconstruct the question based on the criteria for a new bank location.

What is the locational component?

For many business problems, a map showing where something is located or where something will be located is a useful tool for decision making. In this exercise, you will create a location map that shows the location of the bank headquarters to pinpoint the region for your planned expansion. The map will also show the population characteristics of the different areas within that region to see if they meet your desired criteria.

What data do I need for my map?

To create a map that shows market areas that meet the expansion criteria requirements, you will need several types of data:

- Street address information for the bank headquarters location in Toronto, Canada
- Demographic information about the population in the areas in the U.S. near the bank headquarters, including population density, average household sizes, and average savings account balances for consumers
- Information about the competition (other commercial banks) in the same areas

Where can I get the data I need?

Bank branch locations are available in the map you created in the previous section of this course; they originated in a spreadsheet that the bank maintains. Business Analyst provides access to demographic information and other consumer data, including information about competitors.

Which techniques will I use?

To inform your business decisions related to bank expansion, you will use a number of geospatial techniques, including visualization and geocoding to show the location of the bank headquarters on the map. You will also use the map to view the areas near the headquarters location, a Smart Map Search analysis to identify areas that meet the expansion criteria, and a competition search to find the location of competitors in the possible expansion areas.

Perform the Analysis

The analysis will provide you with the information you need to help answer business questions and make decisions related to the expansion. For this exercise, you will use visual analysis to identify areas in the United States that are located within a certain distance of Toronto, Canada. You will further refine the analysis by finding areas that meet certain criteria so that your results can be used to try to find the best location for the new bank branch.

Interpret the Findings

After modeling the solution and performing the analysis, you get tangible results in the form of multiple candidate areas to target and learn more about. Are they meaningful? Do they answer the question? Does the approach need to be modified, rerun with different data, or performed on a different geographical area? The findings can be used to support further discussions and market planning efforts. Business expansion (in this case, opening a new bank branch in a different geographical location) involves many decisions and questions. It is likely that further analysis would be needed before bank management would commit to a final decision.

Analysis Workflow Using Business Analyst

Step 1: Log in to Business Analyst Web

The Business Analyst Web app is a part of Esri's cloud platform that includes business and demographic data, along with different mapping and analysis tools.

a. Open a new Internet browser tab or window.

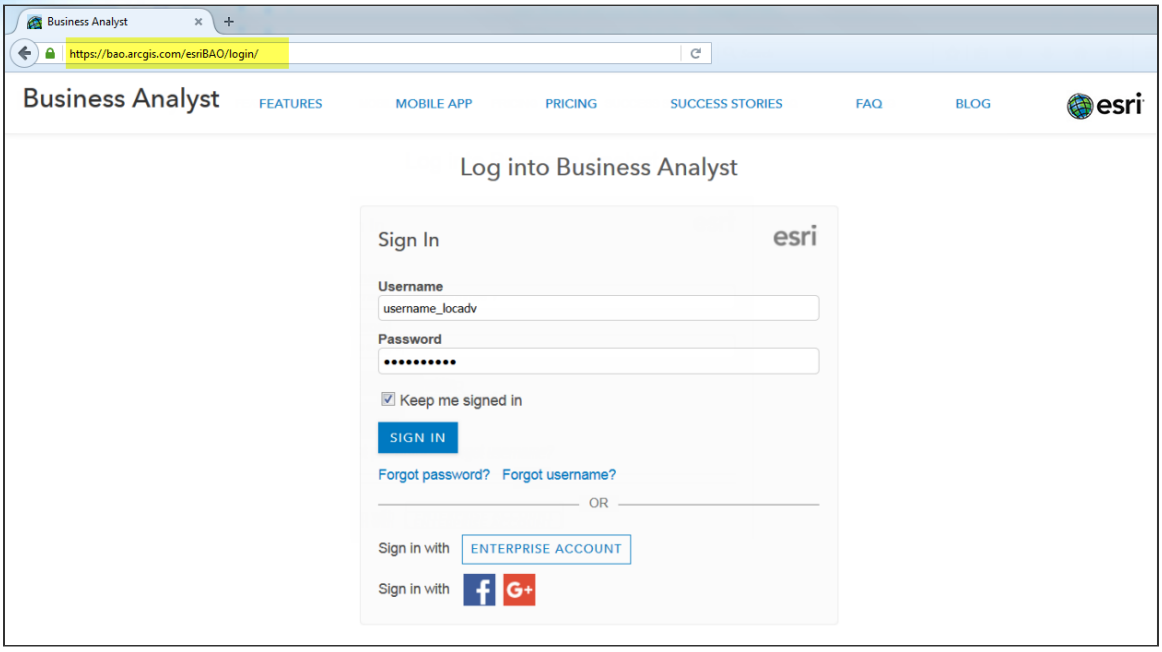
b. Sign in to Business Analyst Web using the same credentials you have been using to access ArcGIS Online for this course.

The complete URL to access Business Analyst for the purposes of this course is https://bao.arcgis.com.

The user name and password are the same as for the ArcGIS Online organizational site for this course. Because Business Analyst Web is available as an extension to ArcGIS Online, it uses the same login information, although it has its own web address.

If you have more than one ArcGIS Online account, **be sure to use the account created for this course**. You can only access the maps and data for the exercises if you are signed in to the ArcGIS Online organization created for the course.

Note: The Section 1 Exercise 1 PDF explains how to determine your ArcGIS Online credentials (username and password) for this course. If you have trouble signing in, email GIStraining@esri.com for assistance.



Note: Check the Keep Me Signed In check box to stay logged in longer.

Step 2: Create a project

In this step, you will create a project to contain the location map of the headquarters and branch locations of Sixth Consolidated Bank and further analysis. A project-based structure means more integration with ArcGIS Online, a more similar structure to Business Analyst Desktop than ever before, and easier sharing with your organization.

a. After logging in, click the Get Started Now button.

b. On the Projects page, click Create Project.

c. In the Create Project dialog, type **Sixth Consolidated Expansion<_first name last name>** and click Save.

Note: Adding your first and last name to the project title will ensure that you can later find your project. The Save button will not be enabled until you enter a name that does not already exist.

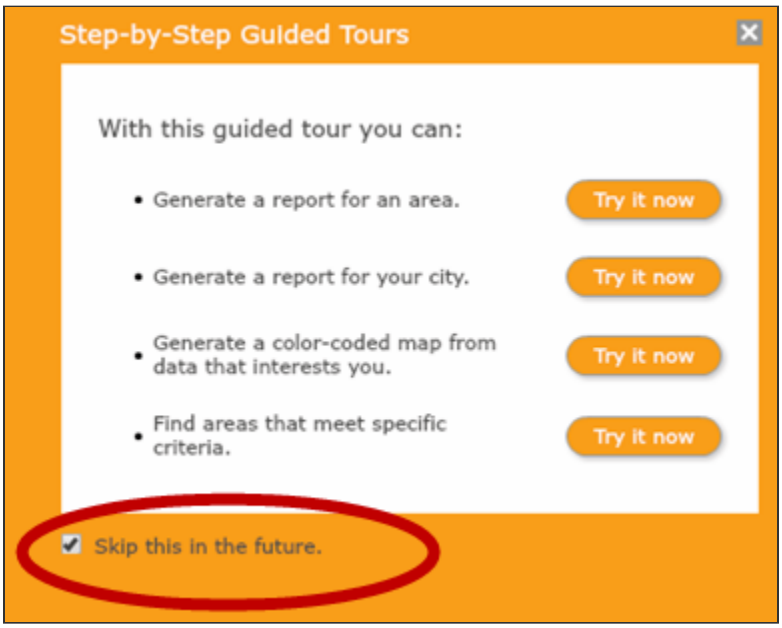
Creating a project in Business Analyst Web automatically creates a group with the same name in your ArcGIS Online organization. This requires publishing privileges in your ArcGIS Online organization, such as a Publisher role. Your Student role for this course includes publishing privileges.

d When the project has been created, click OK.

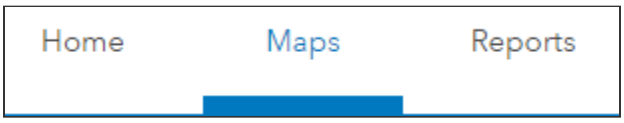
e In the Project page, check the box to skip this page in the future. This will open the Maps tab with the most recently opened project next time you log in.

f Hover your mouse pointer over the thumbnail for your project and click Open. The Project Manager pane will open.

If you see a Step-by-Step Guided Tours pop-up, you can optionally click through the four Try It Now buttons for a quick primer. Before you close the pop-up, check the Skip This In The Future check box in the bottom-left corner.



The Maps tab should be selected by default.



g If necessary, close the Project Manager pane.

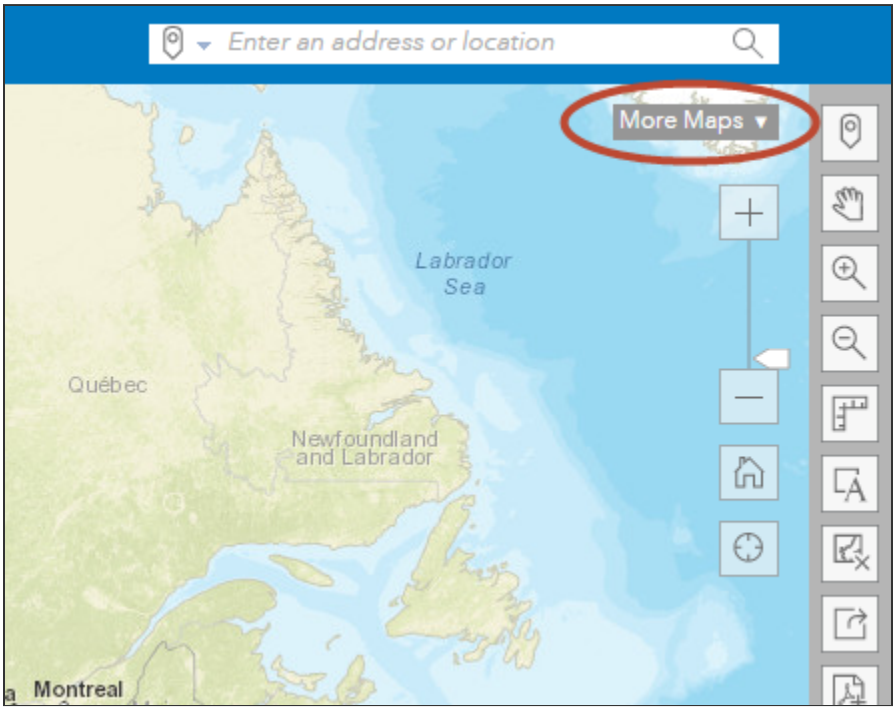
The Project Manager is used to access any sites you have saved in the past. You can access the Project Manager any time using the Project Manager icon, at the top left.

Note: If you ever lose your map, or have to log out and log back in, you can still access your latest work. Click the Project Manager icon and then hover over the project and click Manage Items. This area contains all of your recent sites, polygons, and other layers, saved automatically every time you make an update.

Step 3: Import a web map

You will add the bank branch location map you created in Section 1 from ArcGIS Online. Business Analyst is configured in a way that is tightly integrated with ArcGIS Online, and allows you to share maps and map layers back and forth. If you did not complete the exercise in Section 1, a web map will be provided for you.

a. At the top right of the page, click the More Maps button.

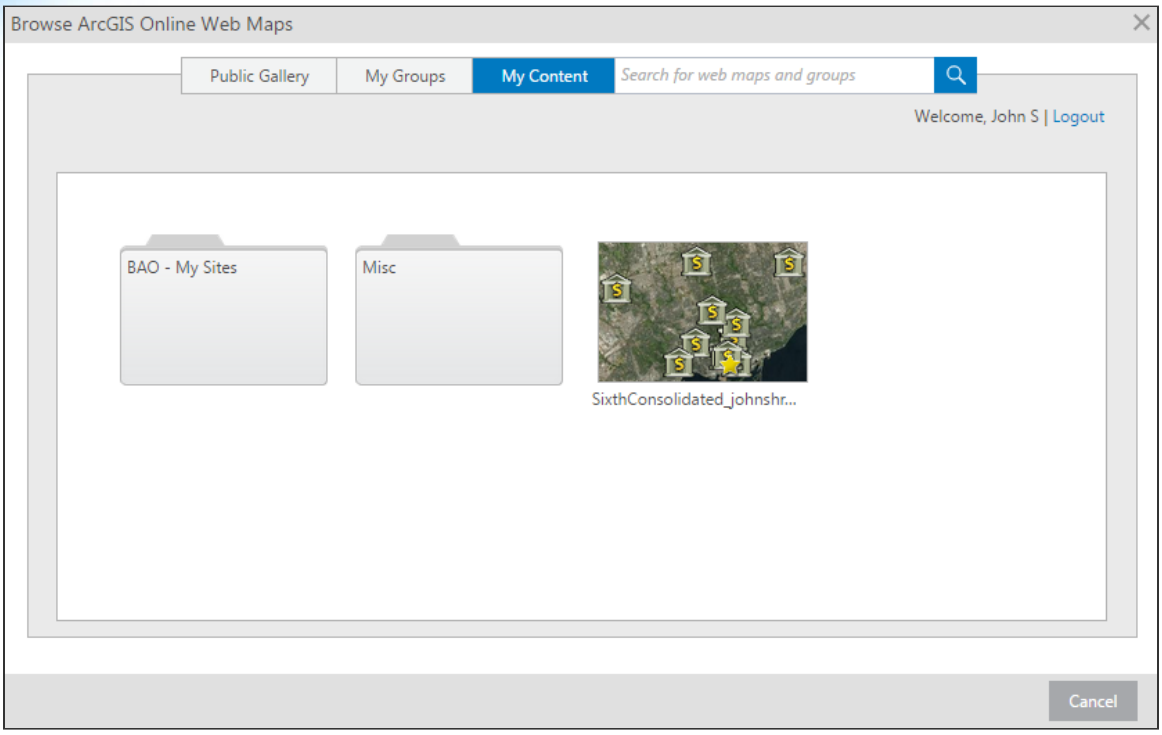


b. In the dialog that opens, click Web Maps, and then click Browse ArcGIS.

This area shows you maps that you can add from either the public or your ArcGIS Online organization.

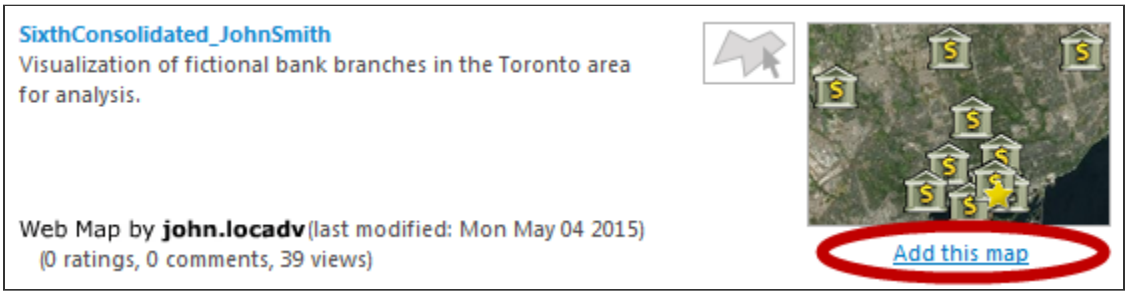
c. At the top of the Browse ArcGIS window, click the My Content tab to access your ArcGIS Online content.

d. Find the SixthConsolidated_username web map you created in Section 1.



Note: If you did not complete the exercise in Section 1, click My Groups instead of My Content. Click the group named Section 2, and add the Section1_Step 9 Results from there instead.

e. Hover over the map, and below the thumbnail image, click the Add This Map link.



Note: If you receive an error stating that any layers cannot be added to the map, click OK. You only need the bank branch location points for this exercise.

f. Click More Maps again and then click the Basemaps tab.

g. Select the Topographic basemap.

Management wants to analyze areas that are located within a certain distance of the bank headquarters in Toronto. Next, you will look for a region in the U.S. near the bank headquarters.

Step 4: Visualize nearby regions

The market plan includes expansion into a region in the neighboring United States, but still somewhat near the headquarters location in Canada for logistical reasons. You can think about the area that is within a few hundred kilometers of the bank's headquarters. The ideal U.S. region is located across Lake Ontario to the southeast.

a. Zoom out and pan the map to view the region in the United States, to the east and south of Toronto (down and to the right on the map).

Because the bank wants to expand in the United States and stay somewhat close to Toronto, the best areas are here, in upstate New York in the United States.

As an initial result of modeling the solution, you can see the region of the U.S. within a few hundred kilometers distance that will be under consideration for the location of the new branch.

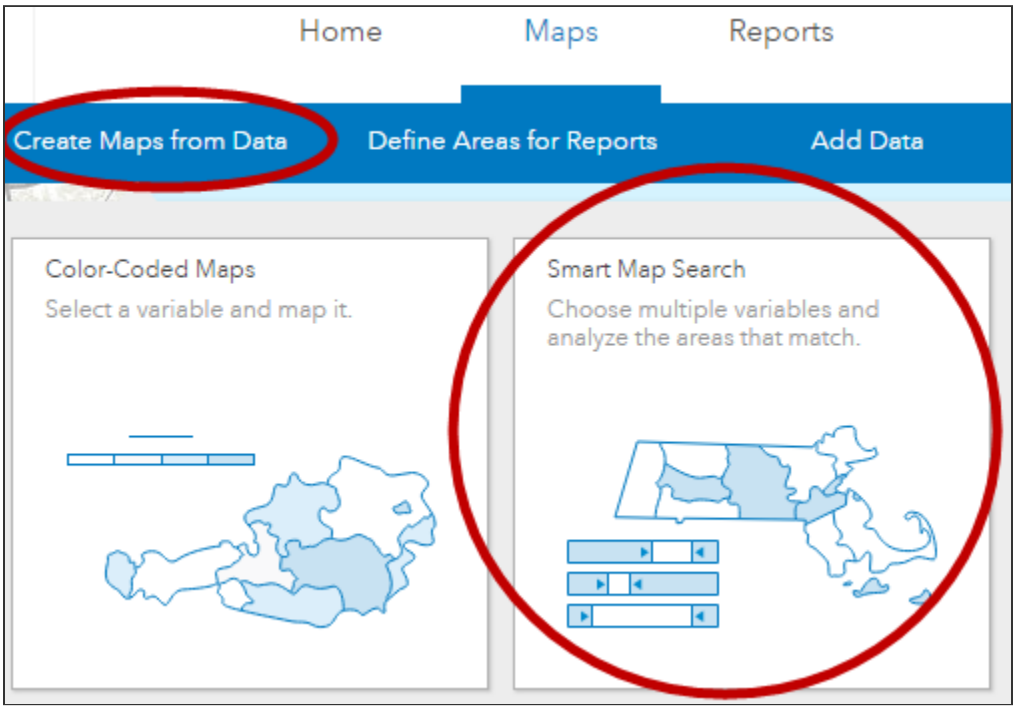
Your expansion plan includes additional parameters or criteria for this new branch location. You will use the Business Analyst Smart Map Search tool to add data variables representing these criteria to the map.

Step 5: Start a Smart Map Search

The Smart Map Search tool can show you up to five data variables on a map. It also provides the ability to filter each one so you can change the minimum and maximum values that are displayed. This filtering is useful for narrowing down a region to find areas that match all of your desired criteria.

a. At the top right of the Business Analyst window, verify that the dataset that your analysis will use is for USA. If necessary, click the drop-down arrow and update it.

b. At the top of the Maps tab, click Create Maps From Data.



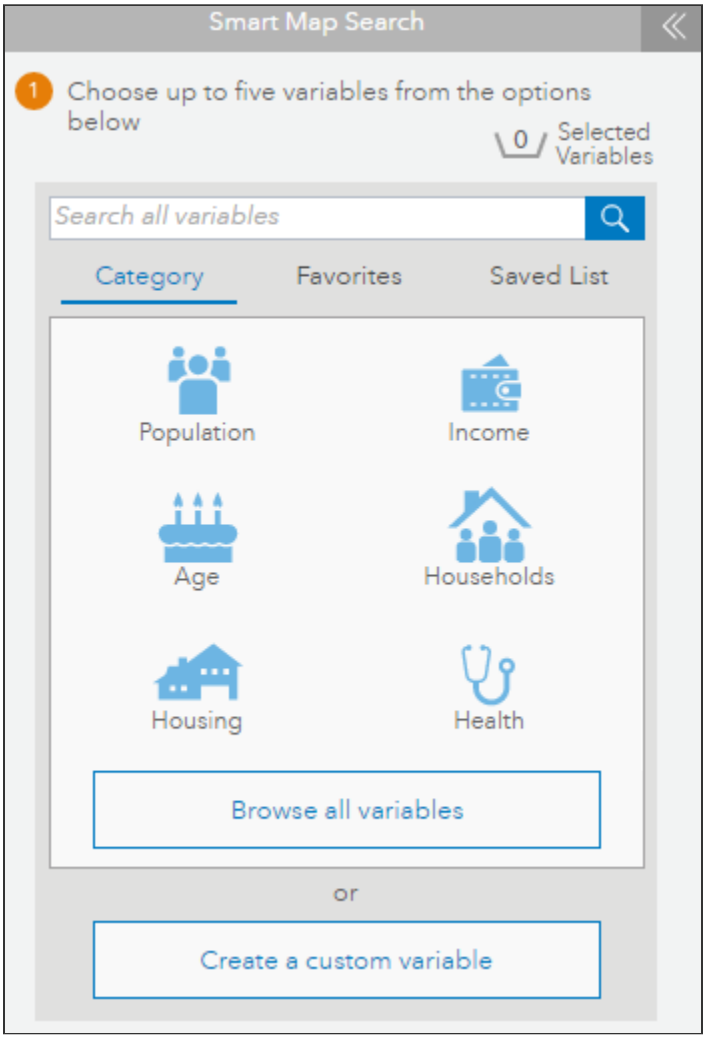
c. Click Smart Map Search.

Next, you will add the variables that represent your criteria for expansion areas.

Step 6: Add data variables

As part of the market plan, you have identified a number of criteria to help determine the best location for the new bank branch. Of particular importance is demographic information, which shows the characteristics of a population. Ideally, the new branch location will be located in an area with similar neighborhoods and customers to your branches in the Toronto metropolitan area.

a. In the Smart Map Search pane, if necessary, click Get Started to start searching for data.



First, bank management would like to strategically locate the new branch in an area of medium to high population density to better serve a larger segment of the population.

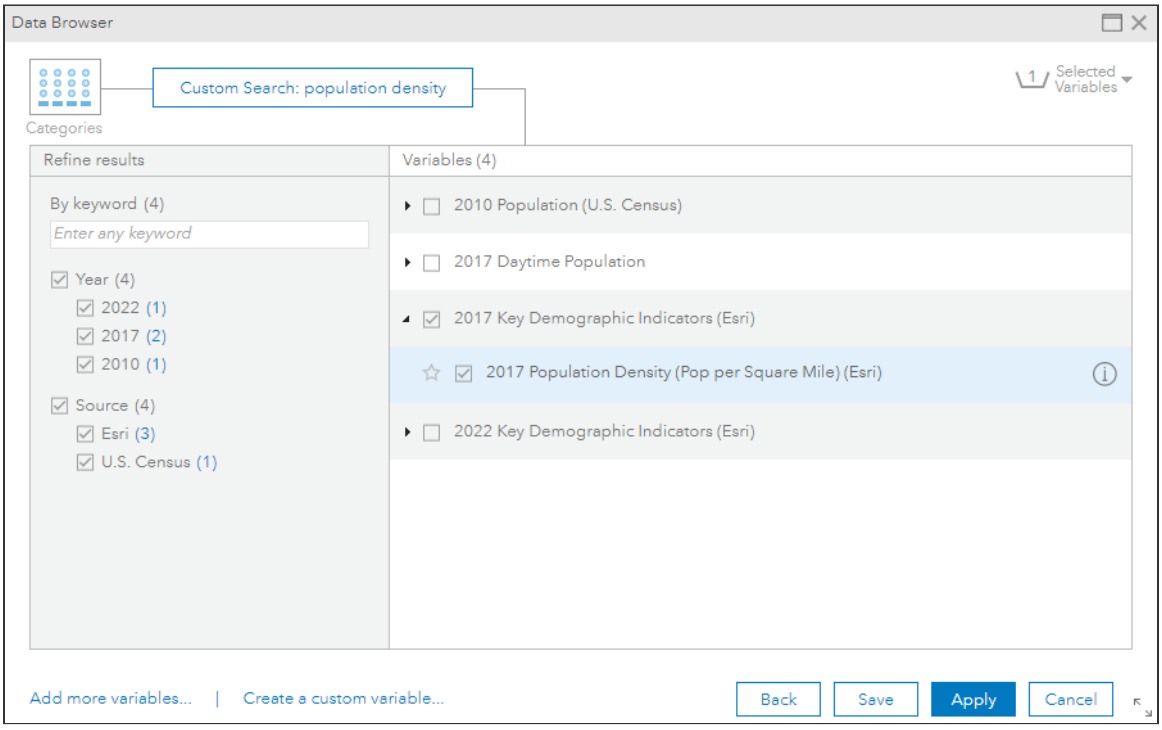
b. In the search field, type **population density**.

c Click the Search button, or press Enter.

d In the Data Browser dialog box that opens, expand 2017 Key Demographic Indicators (Esri).

Hint: Click the arrow to the left of the variable name to expand it.

e Check the box next to 2017 Population Density (Pop Per Square Mile) (Esri).

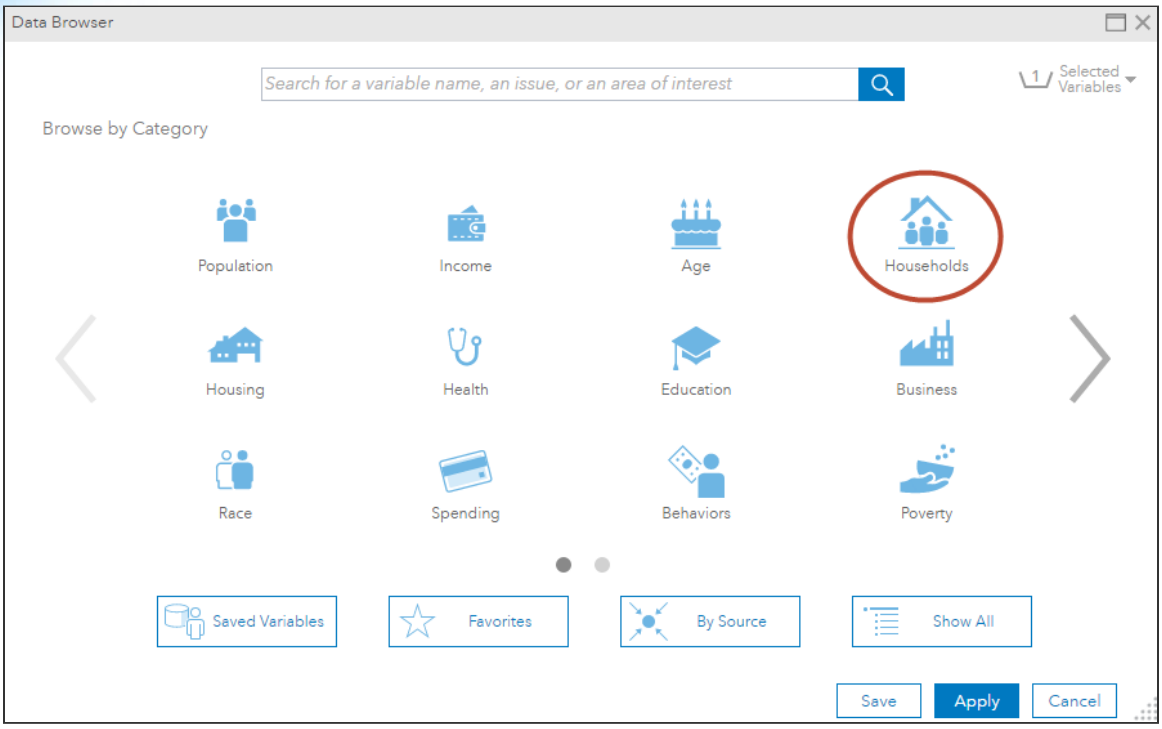


You will see the Selected Variables count at the top right of the Data Browser dialog box increase from 0 to 1.

The bank is also interested in locating the new branch in an area where the size of the households is (on average) three people or less. Management would like to reach more young singles, the target market for the new banking services the bank wants to promote.

f In the Data Browser dialog box, click Back.

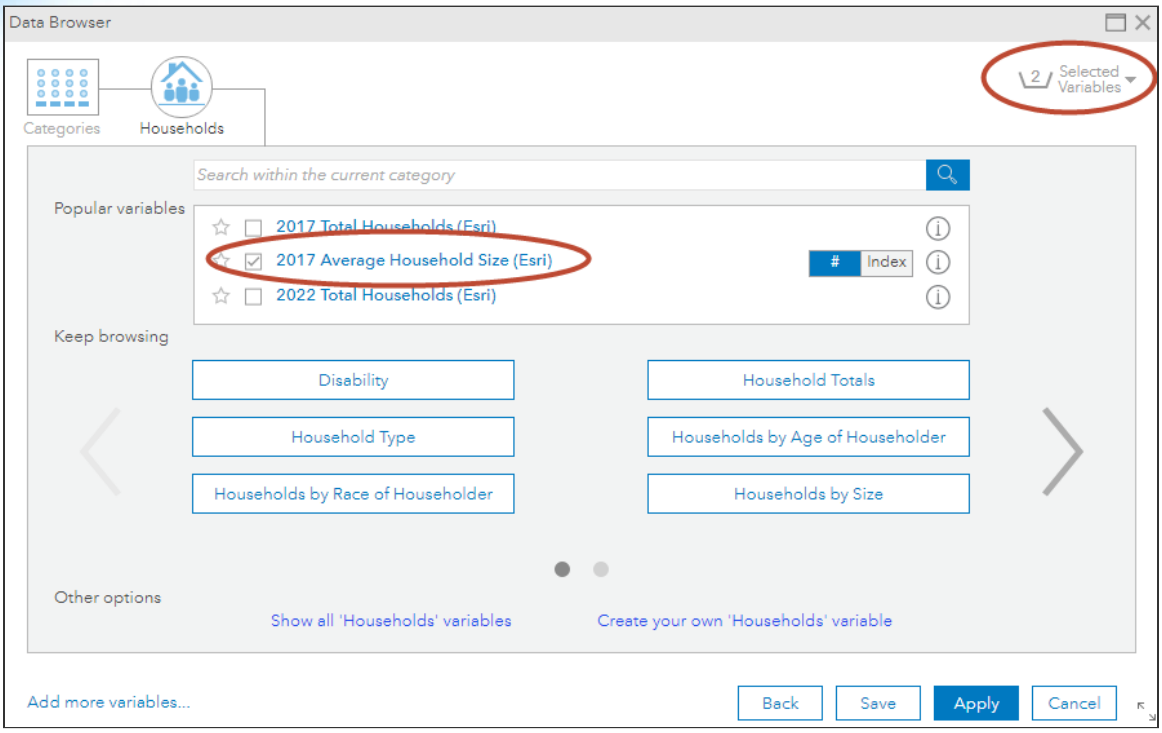
Note: Be sure to click the Back button in the Data Browser dialog box. Do not use the browser's Back button or you will lose your work.



g Click Households.

h In the next pane, check the box next to 2017 Average Household Size (Esri).

The Selected Variables count at the top right should increase to 2.



Another criterion for consideration that will help find the best areas, with people who may be interested in the new banking services, is how many people on average have savings accounts, within the population in the identified areas.

i. In the Data Browser, click Back.

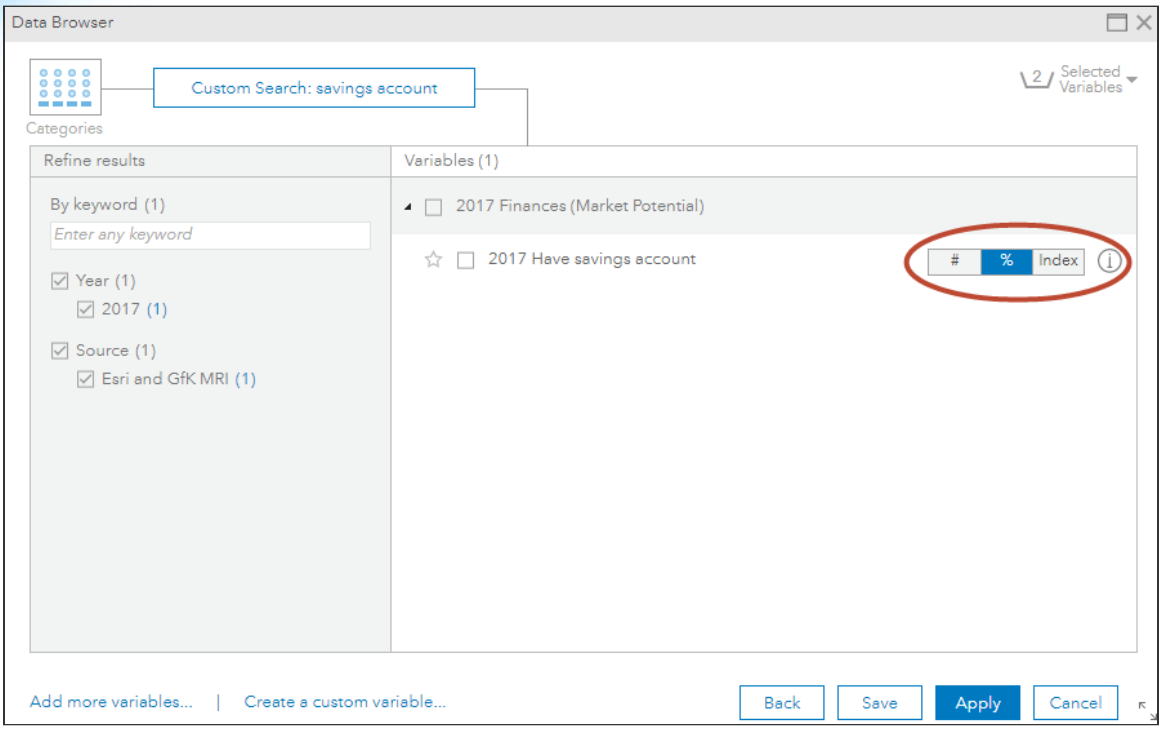
j. In the search field, type **savings account**.

k. Click the Search button, or press Enter.

l. If necessary, expand the 2017 Finances result, and find 2017 Have Savings Account.

Since the bank is interested in the percentage of people in the area's population who have savings accounts, you will need to change the form of the variable to a percentage before selecting it.

m. Click the Percent button to the right of the variable to change the form of the variable.



Note: If you selected the Have Savings Account variable before changing to percent, you can modify the form later.

n. Check the check box to the left of the variable name to add it to your Selected Variables list.

The Selected Variables count at the top right should increase to 3.

Lastly, the bank needs to target people with some disposable income so they can take advantage of the new banking services. You will add a median household income variable.

o. In the Data Browser, click Back.

p. In the search field, type **disposable income**, and then click the Search button or press Enter.

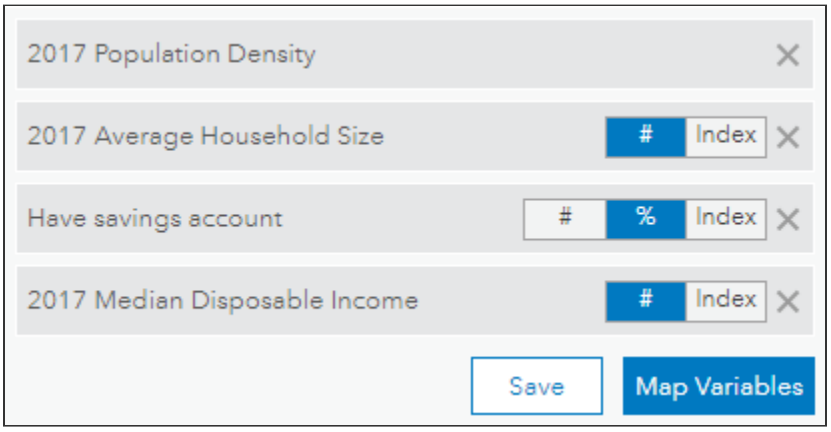
q. In the results, expand the 2017 Disposable Income (Esri) result.

r. Select 2017 Median Disposable Income (Esri).

The Selected Variables count at the top right should increase to 4.

s. At the top right, click the Selected Variables count to see the data variables you have added.

The variables representing the criteria you have selected appear in this pop-up window. If you added a variable before changing the variable from number to average, you can fix it here. You can also delete a variable by clicking the X to the right of the variable name.

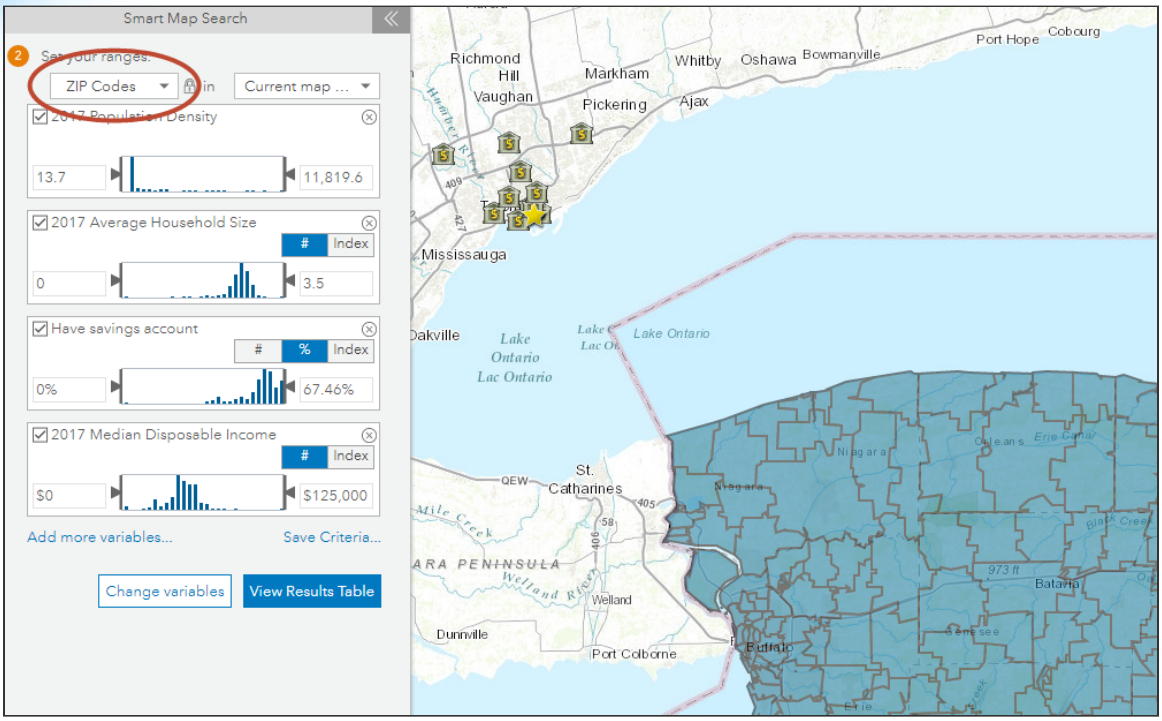


t At the bottom right of the pop-up window, click Map Variables to begin the analysis.

You could alternately close the pop-up and use the Apply button to run the analysis.

You will see all of the United States areas in the map masked with a blue fill symbol. You may need to pan or zoom the map to see the U.S. areas. Notice that the Canadian provinces are not masked. Although Business Analyst has data for more than 135 countries, it performs analysis with one country's dataset at a time.

u If necessary, zoom in one level so that the data level changes from Counties to ZIP Codes.



Note: Your map and data ranges should look similar to the map above but may not be exactly the same because of frequent data updates or your map extent.

Next, you will add filters to the Smart Map Search to further narrow the criteria and filter out the less desirable areas.

Step 7: Filter search results

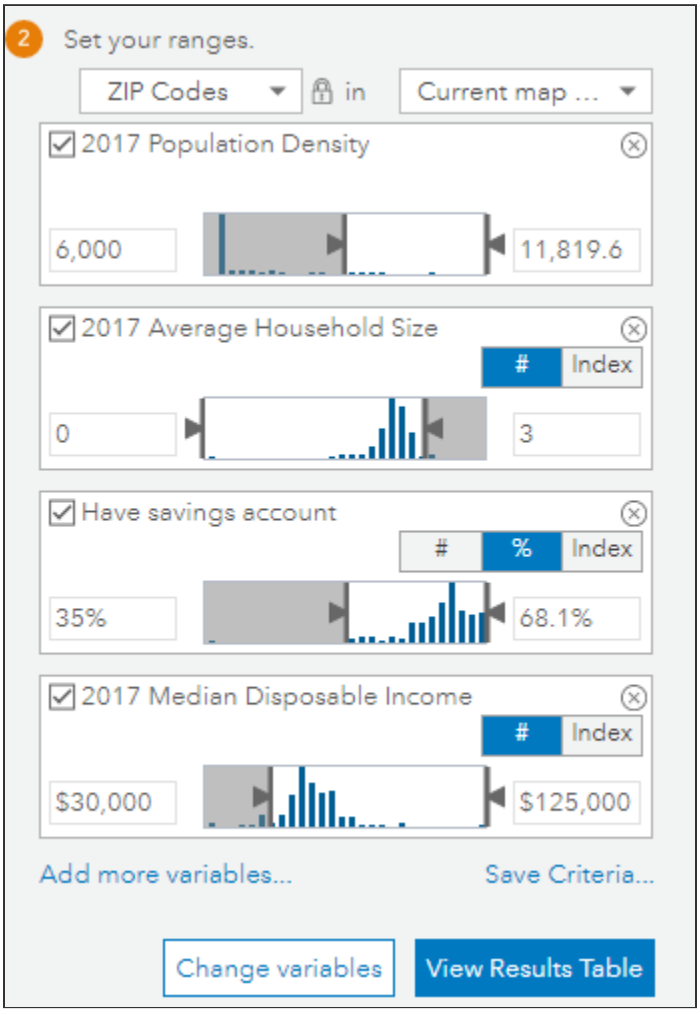
The bank's market plan includes information related to the target values for each of the criteria.

Now that you have identified the important variables in the expansion area search, you will adjust the Smart Map Search filter values to further narrow the results. This process will ensure that the identified areas within the region meet the target criteria values as closely as possible and that management has only the best areas to consider.

You want to find more densely populated areas, with smaller household sizes, similar to areas with successful branches in the Toronto region, and residents with savings accounts or disposable income who could utilize your banking services complete the description of your target market.

a. In the filters pane on the left, use the sliders or the text boxes to set the filters by adjusting the minimum or maximum values for each of the four data variables. Press Enter after each if you use the text boxes.

- Minimum Population Density: **6,000** people per square mile (text box on the left)
- Maximum Average Household Size: **3** (text box on the right)
- Have Savings Accounts: **35%** minimum
- Minimum Median Disposable Income: **$30,000**



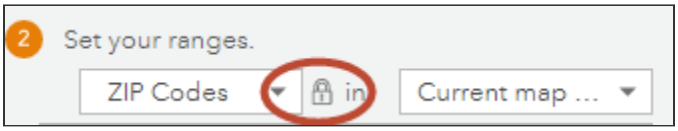
These parameters reflect the criteria that Sixth Consolidated requires in the new expansion area. You can see a few areas in the region that remain after the filtering, symbolized with blue shading.

Note: Your map should look similar to the map below but may not be exactly the same because of frequent data updates or your map extent.

These are the areas that meet all of your criteria and are worth examining in depth. They are near Buffalo, New York, to the west (to the left on the map), and near Rochester, New York, to the east.

Next, you will lock the area size divisions at the ZIP Code level. As you zoom in, Smart Map Search will change from states to counties, ZIP Codes, and even smaller divisions, redisplaying the data for the smaller units. You want to stay at the ZIP Code level so you can view information that is generalized to that level. Because you need the ability to zoom in and select individual ZIP Codes, you can lock the search to prevent them from being divided into smaller areas as you zoom in.

b. In the Smart Map Search pane, click the lock icon.



c. Zoom in and pan the map to view the Buffalo and Rochester areas.

Your analysis shows that these areas are the most promising locations, so you will analyze them further to consider more parameters. Management is also interested in what

competition is located in these areas. Next, you will perform a business search to find other commercial banks.

Step 8: Perform a search for competition

Business Analyst provides insight into another important locational component associated with business decisions: finding out where the competition is located.

a. If necessary, zoom out to view both the Buffalo and Rochester areas.

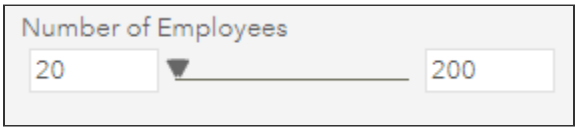
b. On the Maps tab, click Create Maps From Data, and then click Business And Facilities Search.

c. In the search field on the left, type **bank**, and click Go or press Enter.

The Business and Facilities Search shows you current data about real businesses. You can again perform filtering by refining your results to only show those that are most relevant to your analysis. You will show banks of similar size to Sixth Consolidated branches.

Note: If you do not see the results pane, click the orange double arrow tab at the top left of the Business Analyst window to expand it.

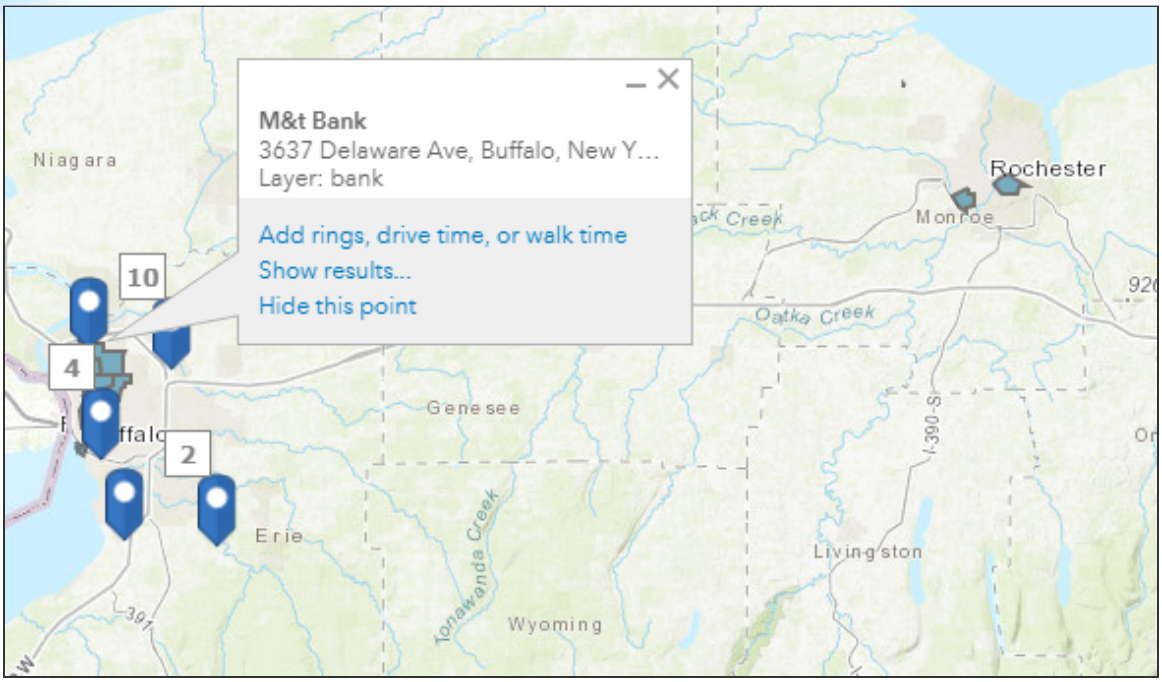
d. In the left pane, scroll down, and for Number Of Employees, change the minimum to **20** by typing in the left text box, and the maximum to **200**, and then press Enter.



Now you can see the areas that meet your criteria, and where the competition is located in relation to those areas.

e. Click the points on the map to view more information about each bank.

Note: Your map should look similar to the map below, but may not be exactly the same because of frequent data updates or your map extent.



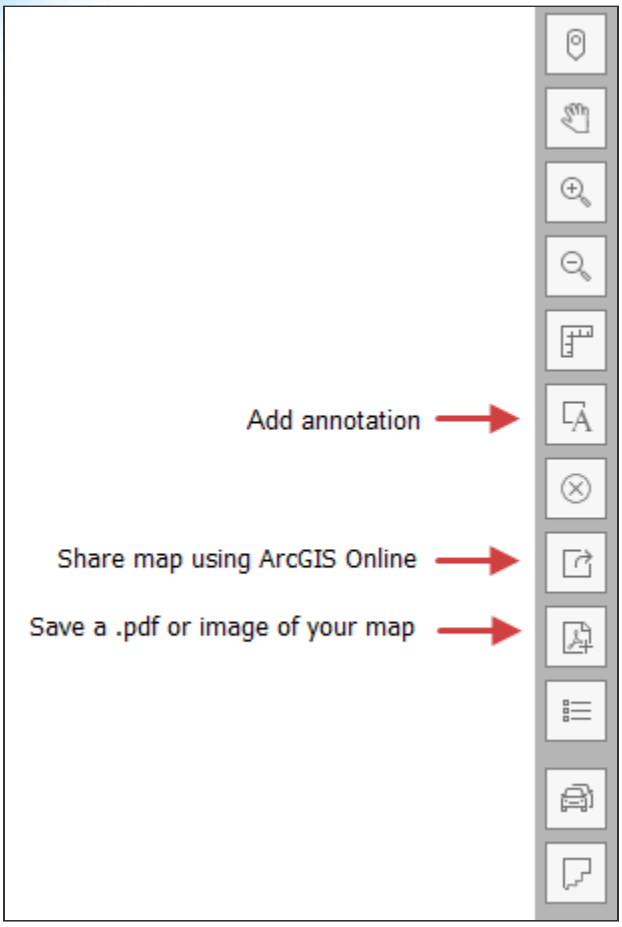
Now you can start considering how you would rank these areas, and which other variables you could analyze. You will soon gather some additional information to support your recommendation, but now, some of your colleagues who will be part of the expansion decision are interested in your findings.

Note: You learned in a previous exercise that in ArcGIS Online, you need to manually save the maps that you create. In Business Analyst Web, maps are saved automatically, and you can find all of your recent work in the project, using the Project Manager. Maps are saved every time you make an update, such as zooming in or adding a layer. You can also save a map as an image, or share it with your ArcGIS Online group, organization, or the general public.

- Close any open informational pop-ups.

Step 9: Share your map

The map toolbar on the right includes functions to add additional shapes, graphics, or annotation (labels) to your map; share your map in ArcGIS Online; or save it as a PDF or JPEG.



Some of your colleagues who will be part of the expansion decision are interested in your findings, so you will create a static image file of the map results which can be easily included in a report, and share it in ArcGIS Online too.

a. From the toolbar, click Create PDF Or Image.

b. On the left, change the desired output from PDF to Image.

c. Check the Show Legend check box.

d. At the bottom right, click Save As Jpeg.

e. Define the location where you would like the image to be saved, and a file name, and click Save.

Note: If you are on a device that does not have local storage capabilities, you can opt for the PDF option. This will be saved online, in both the project in Business Analyst and My Content in ArcGIS Online, but the processing sometimes takes longer.

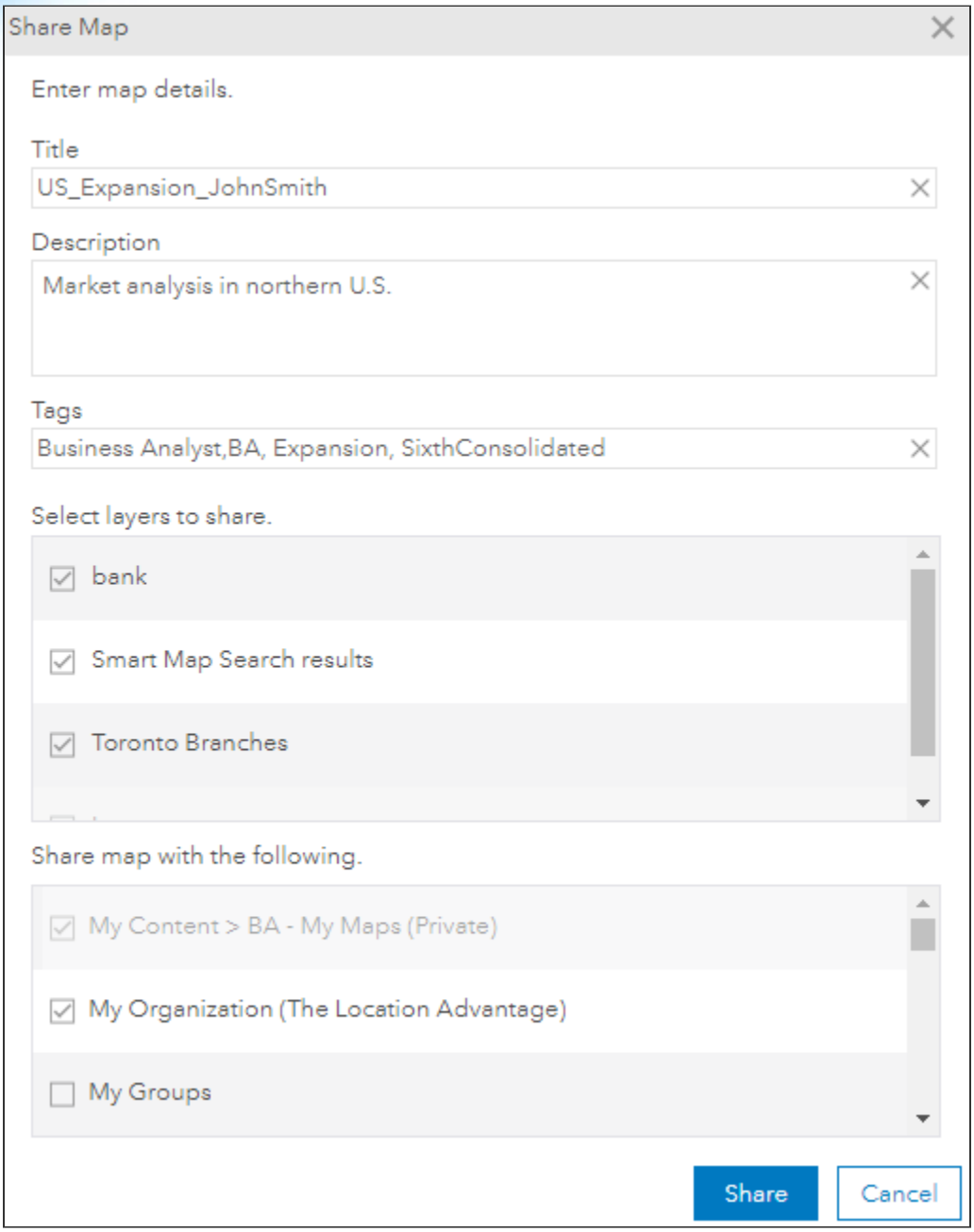
Finally, you will share your map in ArcGIS Online so that you could send links to this information to other coworkers, and so you or others could perform further analysis.

f From the toolbar on the right of the map display, click Share Map To ArcGIS.

g In the Share Map dialog:

- Type a title for the map, such as **US_Expansion_<firstname_lastname>**.
- Enter a description for the map, such as **Market analysis in northern U.S.**.
- Enter additional comma-separated tags, such as **Expansion** and **SixthConsolidated**.
- In the Share With area, check the organization name.

Note: The organization name for this course is The Location Advantage. Note that the map is already automatically shared with your My Content section in the ArcGIS Online organization.



h. Click Share.

i. If you see a message indicating the operation is complete or that the operation consumes credits, close it.

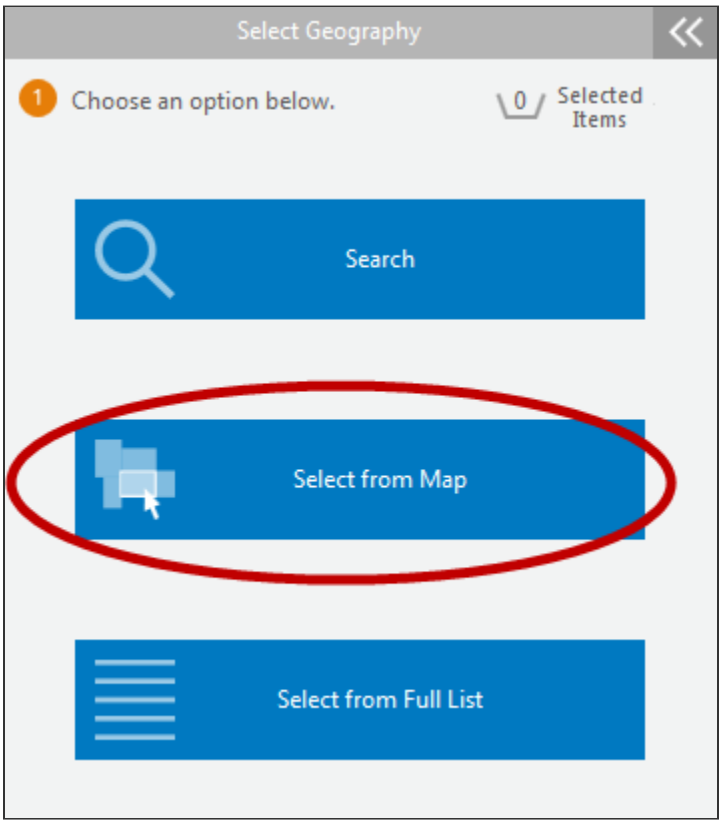
Because your results still include several good potential locations for the new bank branch, you decide that it would be helpful to compare the areas before making a final recommendation.

Step 10: Create a comparison report

Business Analyst includes report tools that you can use to get even more information on a location, or to compare two or more areas to give you a helpful side-by-side look. You will use the comparison tool to learn more about two of the areas under consideration.

a. On the Maps tab, click Define Areas For Reports, and then click Select Geography.

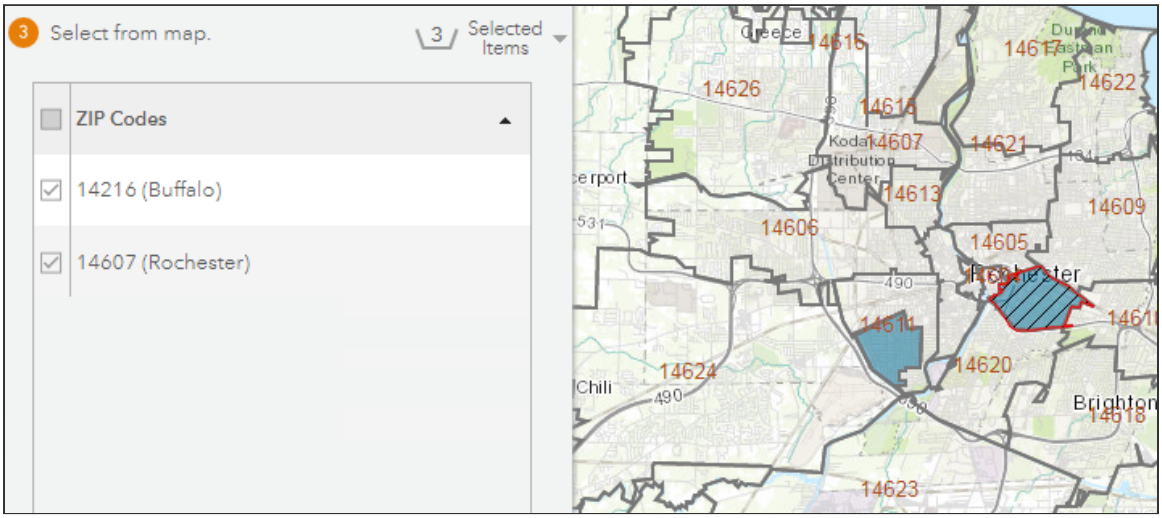
b. In the Select Geography pane on the left, click Select From Map.



c. In the next pane, click ZIP Codes.

d. Zoom in and pan the map as necessary, and click at least two blue shaded ZIP Code areas to add them to your comparison report.

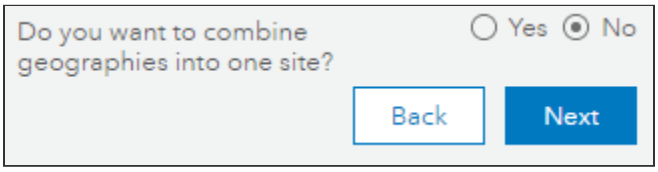
After you click the areas, they will receive a cross-hatch fill so you can tell they have been selected, and they will appear in a list of ZIP Codes in the left pane.



You can use the list in the left pane to deselect any areas that you do not want to include in your comparison report.

Note: Select at least two ZIP Codes for comparison reports.

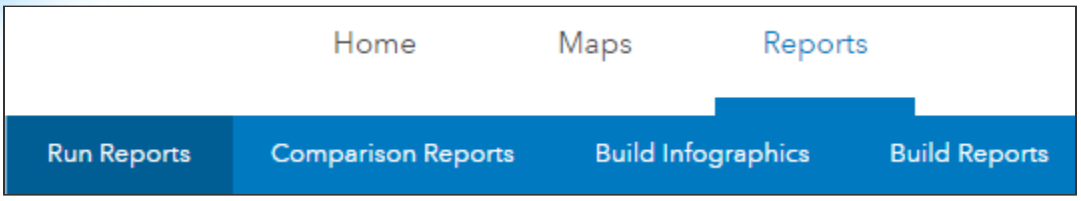
e. At the bottom of the left pane, change Do You Want To Combine Geographies Into One Site to No.



f. Click Next.

g. In the Select Geography pane, click Get Reports.

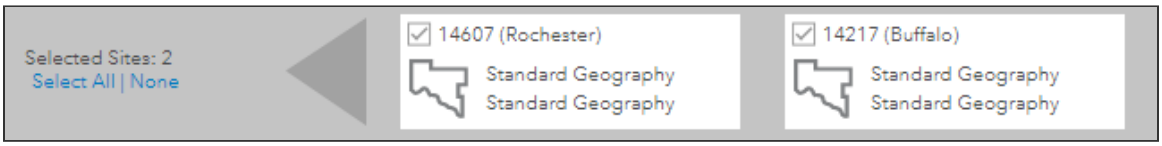
h. At the top of the window, from the Reports tab, click through and examine the four options for creating reports.



- Run Reports contains many pre-configured report templates on demographics, business, markets, traffic, and more.
- Comparison reports allow you to quickly identify differences in key criteria among two or more sites.
- Infographics are good for visualizing key facts about an area, with pre-configured templates and customizable options.
- Build Reports is where you can create and share totally customized report templates to contain just the details you need about an area. You can add sections of the pre-configured reports or any individual variable, and change the look and feel of the report as well.

i Click Comparison Reports.

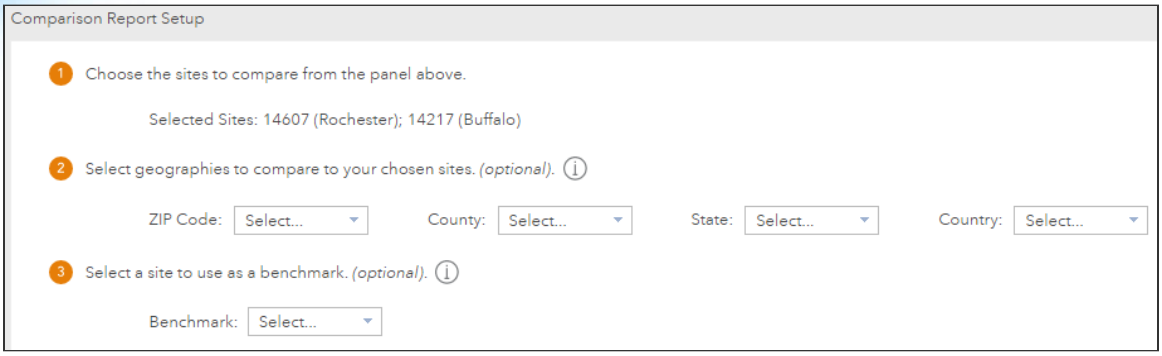
j Verify that only the sites you chose are selected.



Note: Your selected sites may differ from the sites shown in the screenshots.

k In the Comparison Report Setup area, leave the default settings for the first three steps.

Steps 2 and 3 give you more options for comparing your sites with other, standard geographies, or with benchmarks.

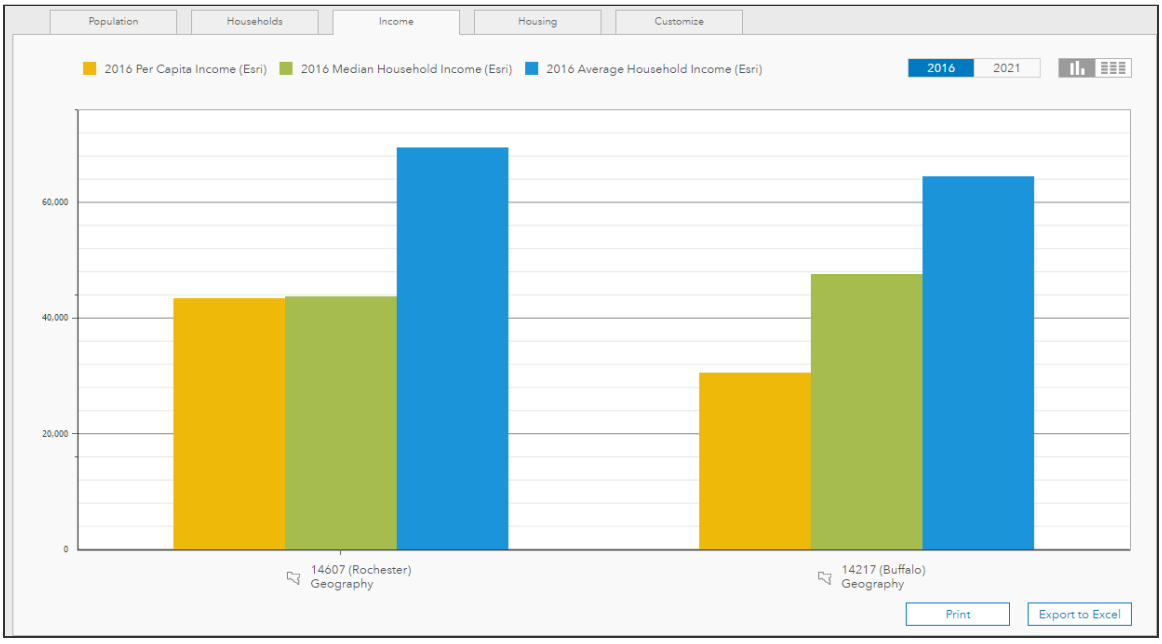


l For the fourth step in the setup, click Population.

After your comparison report is generated, you can see the comparison information for the two areas displayed in graphical form, allowing you to visually compare the different areas.

m Click the other data tabs at the top of the window that compare more demographic variables, like household information, income, and housing.

Your results will vary depending on which ZIP Codes you select.



For any of the data tabs, you can optionally print or export reports to Microsoft Excel. You can add these to the map image and results of the analysis you created earlier to share your findings with colleagues.

You now have a useful summary of relevant information that can be used to inform expansion decisions and support your recommendation.

A possible next step would be to compare more of the costs of locating in the different areas you found, such as construction costs, available labor, and the daily costs of doing business.

Step 11: Sign out of Business Analyst

When you have finished the activity and are done exploring Business Analyst Web, you can sign out.

a. At the top of the Business Analyst window, click your name, and then click Log Out.

Conclusion

Business Analyst provides insight into business information and demographics that can help you better understand your business, customers, and markets through analysis, reporting, and mapping.

In this exercise, you looked at the relationship of geography and business in performing market planning to narrow down areas within a region for a commercial bank expansion. You can apply the techniques you used to other situations, anything from locating a new business to expanding an existing product line to entering new territories.

As you think about the market planning scenario, consider additional questions that could be asked. What additional variables might be important to examine in a scenario like this one? What additional geographies could be good possibilities, for example, could you locate farther from the Toronto headquarters? Feel free to explore on your own. If you have time, investigate and create a map using different variables. Examine and interpret the results. Think about how these additional scenarios could be included as part of the report to bank management to help them make more informed decisions.