# U.S. Pat. No. 6,604,083

Marco’s Pizza

Retail Site Selection Based on Drive Time Areas

# U.S. Pat. No. 6,604,083

## Disclaimer

The information in this document is provided solely to help potential buyers evaluate any potential interest in the technology described in the patents available for sale. This document is subject to the confidentiality agreement, dated March 26, 2015, between Mr. G. William Bailey and Prism Technologies, LLC. This document and any other communications with the inventor or Singh Law, PLLC ("SLP") should not be construed to express any opinion regarding the use of the patented technology by any product or company mentioned. This document does not constitute a legal or professional representation regarding infringement, validity, or valuation. Each potential buyer by accepting and using this information acknowledges that it is the potential buyer's responsibility to perform full and complete due diligence concerning this patent portfolio, particularly, with respect to the validity, infringement, and market application of the patents in this patent portfolio. SLP represents Mr. G. William Bailey only and no attorney-client relationship exists with respect to the potential buyers.

# U.S. Pat. No. 6,604,083

(12) **United States Patent**
**Bailey**

(10) **Patent No.: US 6,604,083 B1**
(45) **Date of Patent: Aug. 5, 2003**

(54) **MARKET DETERMINATION BASED ON TRAVEL TIME BANDS**

(76) Inventor: **G. William Bailey**, 16 Fairfield Dr., Newark, DE (US) 19711

( * ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/095,802**

(22) Filed: **Jun. 11, 1998**

**Related U.S. Application Data**

(60) Provisional application No. 60/049,448, filed on Jun. 12, 1997.

(51) **Int. Cl.**[7] ..... **G06F 17/60**
(52) **U.S. Cl.** ..... **705/10**; 701/201
(58) **Field of Search** ..... 705/1, 10, 14; 700/200, 201; 707/10; 701/201

Klosterman, Richard et al. "Retail Impact Analysis with Loosely Coupled GIS and a Spreadsheet" International Planning Studies, vol. 2, No. 2, 1997, starting on p. 175.*
Fung, D. et al. "Geographic Information Systems Technology for Business Applications" Journal of Applied Business Research, vol. 13, No. 3, summer of 1997, starting on p. 17.*
"Retooling: Mapping" Marketing Tools, Mar./Apr. 1996, starting on p. 40.*
Lang, L., Fox, S., 'Getting There with Software Maps', Mar. 1993, PC World, v11, n3, p. 182(7), Dialog File 47: Gale Group Magazine DB ™.*
Beiser, K., 'CD–ROM Report: Evoloving Search Interfaces', Feb. 1995, Database (DTB), v18, n1, p. 88–92; Dialog File 484: Periodical Abstracts Plustext. Dialog Information Services, Accession # 02246255.*
Pallatto, J., 'PCs and Mapmaking: Cartographers have just begun to explore the potential of microcomputers', Mar. 18, 1986, PC Week, v3, n11, p. 57; Dialog File 275: Gale Group Computer DB ™. Dialog Information Services, Accession # 01176036.*

* cited by examiner

# U.S. Pat. No. 6,604,083

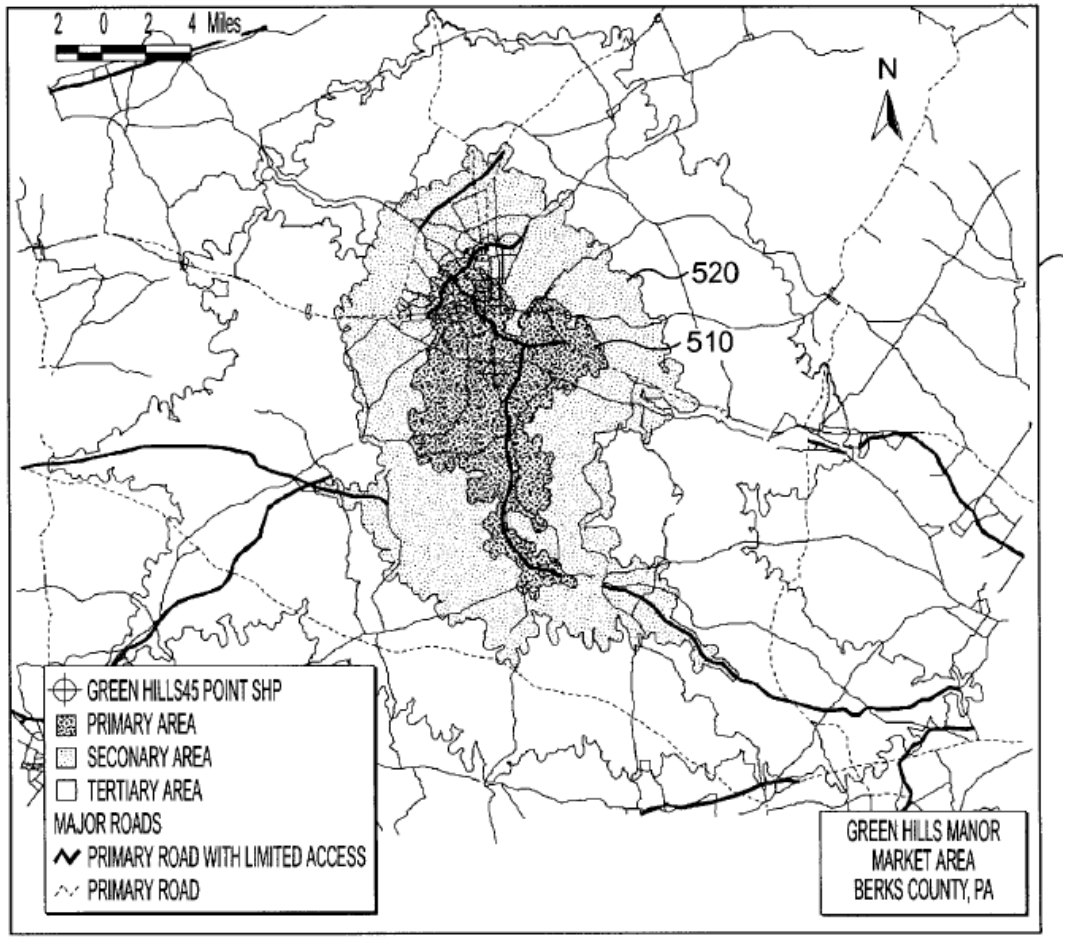
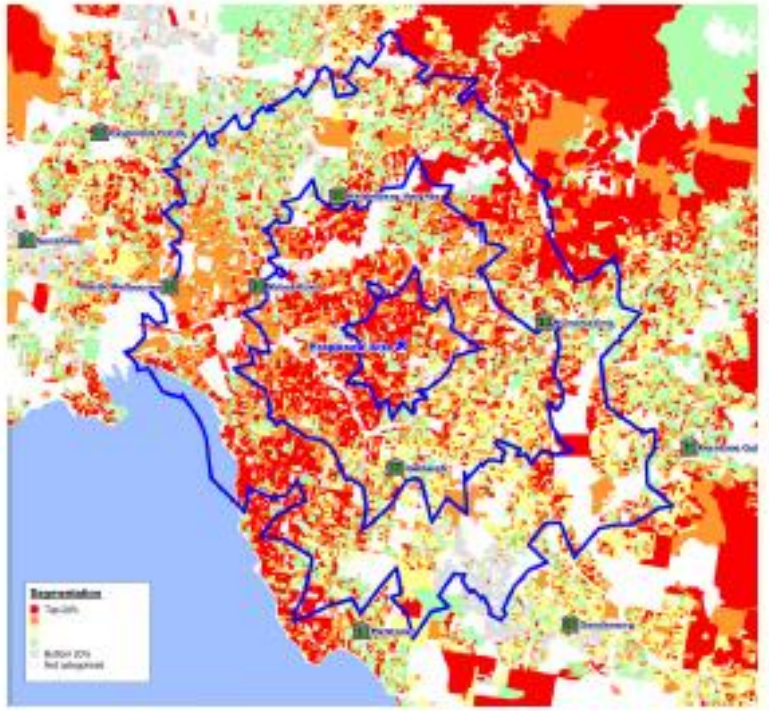



***FIG. 5b***

Drive-time analysis is another location intelligent capability that is powerful for retailers. It simulates geographic catchments of travelling times. This help a business factor in travel convenience as a parameter in retail network modelling.



http://www.mapinfo.com/wp-content/uploads/2014/03/New-Location-Perspectives-in-Retail-In-The-Zone_Thought-Leadership-Paper_Pitney-Bowes-Software-Australia.pdf

# U.S. Pat. No. 6,604,083

Claim 5

A method for preparing a market study comprising:

defining a geographic area around a selected location, the geographic area corresponding to a market based on a selected maximum travel time;

defining a plurality of bands based on increasing travel time from the location;

selecting geographic units in the bands;

defining market-related variables for the market;

calculating values corresponding to the market-related variables for each of the selected geographic units; and

calculating a net demand for a service or a commodity in the market based on the values.

CASE STUDY

## Marco's Pizza

"PITNEY BOWES MAPINFO HELPS US DEVELOP SOLID GROWTH PLANS USING STATE-OF-THE-ART LOCATION INTELLIGENCE TECHNOLOGY."

Jack Butorac, Jr., President, Marco's Pizza

PIZZA RESTAURANT PRIORITIZES REGIONAL AND NATIONAL TERRITORIES FOR EXPANSION WITH LOCATION INSIGHT.

### Challenge

Marco's Pizza needed to accurately and efficiently determine the number of supportable stores within a market, region and national level so that it could value territories and prioritize sites and markets for expansion.

### Solution

Marco's Pizza chose Smart Site Solutions®, a Predictive Analytics model that works on Pitney Bowes MapInfo's AnySite® software platform, to provide them with a means to evaluate sites and markets for deployment. The results of Smart Site Solutions market studies are delivered securely to Marco's Pizza using AnySite® Online.

http://www.pbinsight.co.in/files/resource-library/resource-files/MarcosPizza_CaseStudy.pdf

# U.S. Pat. No. 6,604,083

Claim 5

A method for preparing a market study comprising:

defining a geographic area around a selected location, the geographic area corresponding to a market based on a selected maximum travel time;

defining a plurality of bands based on increasing travel time from the location;

selecting geographic units in the bands;

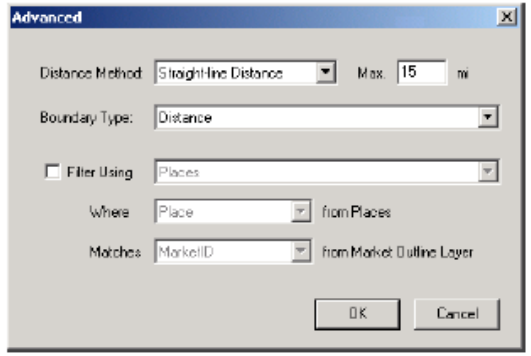
defining market-related variables for the market;

calculating values corresponding to the market-related variables for each of the selected geographic units; and

calculating a net demand for a service or a commodity in the market based on the values.

## Advanced Options

Clicking **Advanced** in the Capture Method dialog opens the Advanced dialog. This lets you change the method of how AnySite creates your capture boundary. It is important that you understand fully the settings of this dialog. It is also recommended that you try several different settings until you find one that meets your specific analysis needs.




### Distance Method

To create the capture boundary AnySite will take the closest object in the capture layer going from closest out until the threshold value is attained. Currently there are three methods for determining the distance between your site and the objects from the capture layer. These are:

- Straight-Line distance – Uses a straight "as the crow flies" measurement of the distance between your site and the surrounding objects in the capture layer.
- Drive-Time distance – Calculates an estimated drive time from your site and the surrounding objects in the capture layer.
- Drive distance – Calculates an estimated drive distance between your site and the surrounding objects in the capture layer.

In general, straight-line distance will disregard any geographic features on the map (for example, rivers, lakes, and so on) Drive-Distance and Drive-Time distance will be influenced by the underlying road network and therefore will, in some cases, be affected by geography.

Max (distance or time): If the threshold is not met within the maximum distance, or time, the capture study area is not generated.



http://reference.mapinfo.com/software/anysite/english/8_8/reference/AnySite_Reference_US_CAN.pdf

# U.S. Pat. No. 6,604,083

Claim 5

A method for preparing a market study comprising:

defining a geographic area around a selected location, the geographic area corresponding to a market based on a selected maximum travel time;

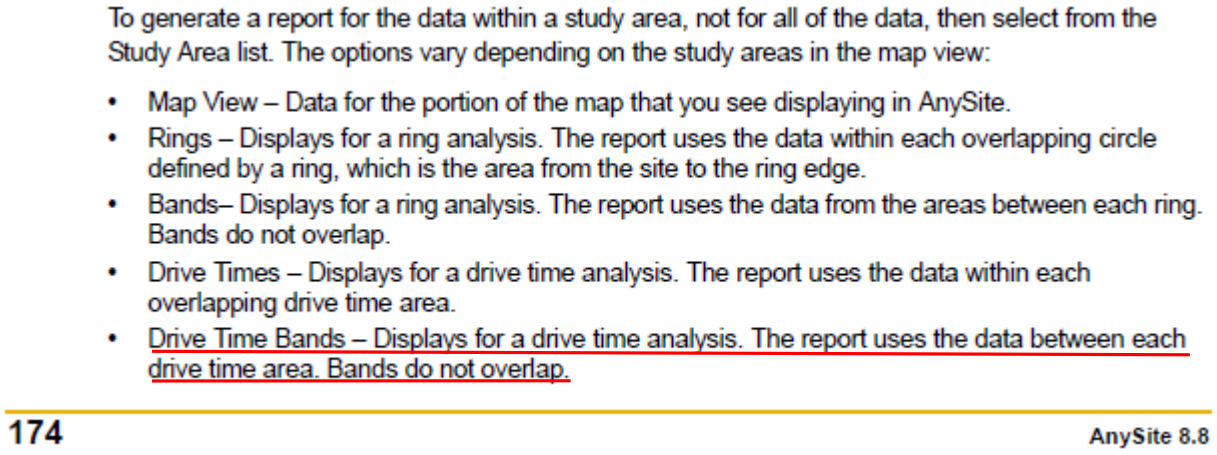
defining a plurality of bands based on increasing travel time from the location;

selecting geographic units in the bands;

defining market-related variables for the market;

calculating values corresponding to the market-related variables for each of the selected geographic units; and

calculating a net demand for a service or a commodity in the market based on the values.



To generate a report for the data within a study area, not for all of the data, then select from the Study Area list. The options vary depending on the study areas in the map view:

- Map View – Data for the portion of the map that you see displaying in AnySite.
- Rings – Displays for a ring analysis. The report uses the data within each overlapping circle defined by a ring, which is the area from the site to the ring edge.
- Bands– Displays for a ring analysis. The report uses the data from the areas between each ring. Bands do not overlap.
- Drive Times – Displays for a drive time analysis. The report uses the data within each overlapping drive time area.
- Drive Time Bands – Displays for a drive time analysis. The report uses the data between each drive time area. Bands do not overlap.

174 AnySite 8.8

http://reference.mapinfo.com/software/anysite/english/8_8/reference/AnySite_Reference_US_CAN.pdf

# U.S. Pat. No. 6,604,083

Claim 5

A method for preparing a market study comprising:

defining a geographic area around a selected location, the geographic area corresponding to a market based on a selected maximum travel time;

defining a plurality of bands based on increasing travel time from the location;

selecting geographic units in the bands;

defining market-related variables for the market;

calculating values corresponding to the market-related variables for each of the selected geographic units; and

calculating a net demand for a service or a commodity in the market based on the values.

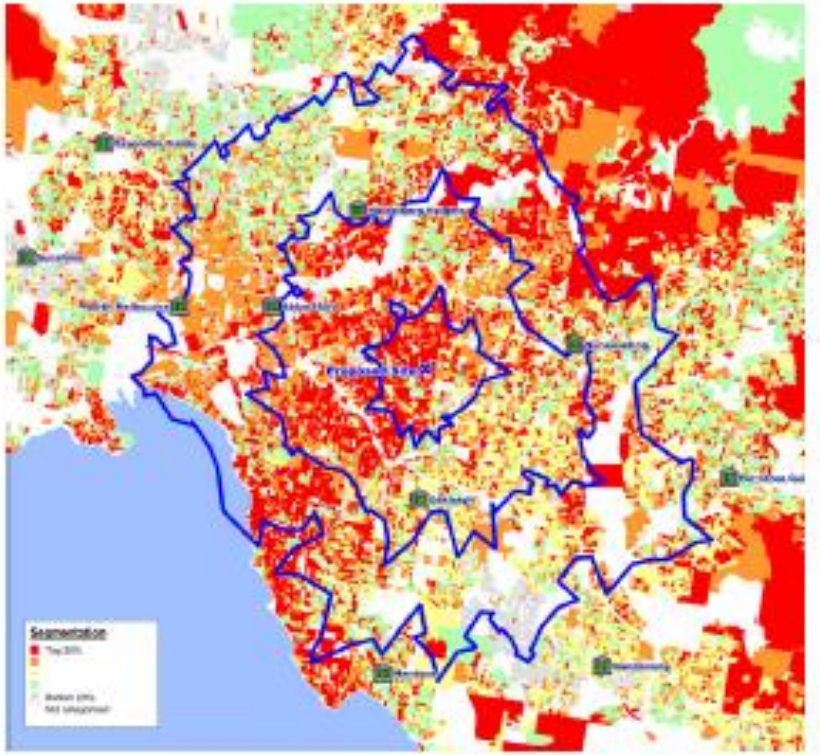



*Figure 4: Consumer lifestyle segmentation data is displayed in relation to a potential retail site. It also shows 5, 10, 15 minute drive time catchment boundaries around the site.*

*Comment: Catchment boundaries are exemplary drive time bands.*

http://www.mapinfo.com/wp-content/uploads/2014/03/New-Location-Perspectives-in-Retail-In-The-Zone_Thought-Leadership-Paper_Pitney-Bowes-Software-Australia.pdf

# U.S. Pat. No. 6,604,083

Claim 5

A method for preparing a market study comprising:

defining a geographic area around a selected location, the geographic area corresponding to a market based on a selected maximum travel time;

defining a plurality of bands based on increasing travel time from the location;

selecting geographic units in the bands;

defining market-related variables for the market;

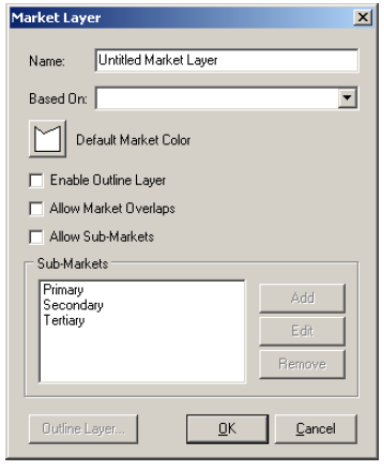
calculating values corresponding to the market-related variables for each of the selected geographic units; and

calculating a net demand for a service or a commodity in the market based on the values.

| | |
|---|---|
| Index Report | Summary Report that has a benchmark study area and calculated index values. It lets users compare the demographics for a location's study area against the data of a predefined geographic area.<br><br>The First Column displays the aggregated data from the geographic objects, such as blocks, block group, and census tracts, that fall within a defined study area. This data is then indexed against a pre-defined area created through the Index manager, such as the United States, Orange County, or any custom trade area created in AnySite. This is the benchmark. An Index is then created by comparing the study area value to the benchmark. An Index of 100 is average. Data that populates an Index report can be retrieved from ASDE only. |

Reference 393

4. The Market Layer dialog opens.




In this dialog:

- Type the market layer name in the **Name** box.
- In the Based on list, click the geography on which the market will be based. Standard geographies include block groups, ZIP codes, census tracts, counties, and states.

Reference 107

http://reference.mapinfo.com/software/anysite/english/8_8/reference/AnySite_Reference_US_CAN.pdf

# U.S. Pat. No. 6,604,083

Claim 5

A method for preparing a market study comprising:

defining a geographic area around a selected location, the geographic area corresponding to a market based on a selected maximum travel time;

defining a plurality of bands based on increasing travel time from the location;

selecting geographic units in the bands;

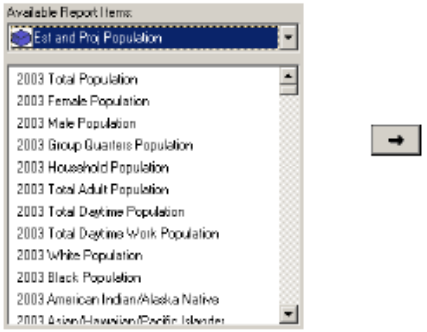
defining market-related variables for the market;

calculating values corresponding to the market-related variables for each of the selected geographic units;

and calculating a net demand for a service or a commodity in the market based on the values.

Add a variable to the report by selecting the variable in the list and clicking the right arrow button, double-clicking on a variable will also bring it over into the list.

The Available Report Items list includes maps and charts to add to a report and includes report formatting. To select multiple variables, press the CTRL or SHIFT key when clicking variables.




The item appears in the Design View list, so they will appear on the report.


***Removing Variables from the Report (Design View list)***

You can remove a variable from the Design View and therefore the report by selecting the item and clicking on the left arrow. To remove an item, select it and then click **Delete**. Press the CTRL or SHIFT key when clicking items in the list to make multiple selections.

You can also create formulas using multiple variables.

***Adding a Custom Formula to the Report***

Formulas from Flat MapInfo tables must all come from the same data table. Formulas from ASDE groups can be defined across groups. To do this you click **New Formula**. This opens the ASDE Formula Editor dialog. Refer to Group Manager on page 352 for more information.



http://reference.mapinfo.com/software/anysite/english/8_8/reference/AnySite_Reference_US_CAN.pdf

# U.S. Pat. No. 6,604,083

Claim 5

A method for preparing a market study comprising:

defining a geographic area around a selected location, the geographic area corresponding to a market based on a selected maximum travel time;

defining a plurality of bands based on increasing travel time from the location;

selecting geographic units in the bands;

defining market-related variables for the market;

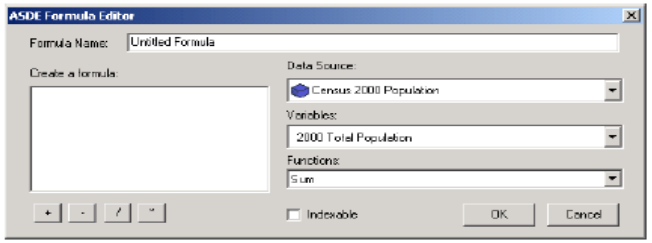
calculating values corresponding to the market-related variables for each of the selected geographic units; and

calculating a net demand for a service or a commodity in the market based on the values.

The AnySite Data Engine (ASDE) format compresses large data sets to conserve space and to increase speed and accuracy. Variables pulled from the ASDE can be aggregated from the block, census tract, ZIP Code, county, or state level as you choose.



**Index Reports**

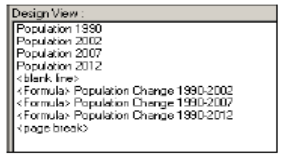



Type a name for the formula, and select from the following:

- Data Source – Lets you switch between multiple ASDE data sources.
- Variables – Lets you create the actual formula by selecting what data to use and the add/subtract/multiply/divide buttons for simple formulas.
- Functions – Lets you sum up a list of variables, calculate the median of a list of variables and access the area value to calculate density values.
- Indexable – Lets you use the formula in an index report.

After completing the formula and clicking **OK** the new item appears in the Design View list.

After creation, the formula will be available for use in the "USER DEFINED FORMULAS" data source. Formulas are designated by <Formula> in front of the name.






http://reference.mapinfo.com/software/anysite/english/8_8/reference/AnySite_Reference_US_CAN.pdf

# U.S. Pat. No. 6,604,083

Claim 5

A method for preparing a market study comprising:

defining a geographic area around a selected location, the geographic area corresponding to a market based on a selected maximum travel time;

defining a plurality of bands based on increasing travel time from the location;

selecting geographic units in the bands;

defining market-related variables for the market;

calculating values corresponding to the market-related variables for each of the selected geographic units; and

calculating a net demand for a service or a commodity in the market based on the values.

## Solution

Marco's Pizza chose Smart Site Solutions®, a Predictive Analytics model that works on Pitney Bowes MapInfo's AnySite® software platform, to provide them with a means to evaluate sites and markets for deployment. The results of Smart Site Solutions market studies are delivered securely to Marco's Pizza using AnySite® Online.

With continued record breaking chain growth, the increasing popularity and demand for franchises and aggressive plans to quickly more than double the size of their chain in the coming years, Marco's Pizza needed to find the best way to optimize the efficiency of their strategic real estate decisions, including: valuing franchise territories; choosing the most profitable sites and markets for expansion; planning and forecasting of growth to obtain financing; and ensuring that units and territories did not cannibalize or encroach on one another.

Marco's Pizza recognized that it needed location intelligence technology to accurately determine the number and placement of supportable stores in each market, region and across the nation. Marco's Pizza selected Pitney Bowes MapInfo based on its proven track record in helping leading retail and restaurant chains successfully grow their

Pitney Bowes MapInfo's Predictive Analytics team customized a Smart Site Solutions® model for Marco's Pizza that would help the real estate team identify the best markets for expansion, determining maximum build-out, positioning and ranking for viable target sites. Customized Smart Site Solutions models account for critical restaurant deployment issues such as trade area size, minimum required sales threshold and buffer distance between sister locations and also incorporate a specific customer demographic and lifestyle profile for the chain when evaluating sites and markets. Pitney Bowes MapInfo used the actual address-based customer data from Marco's Pizza to create a PSYTE® Advantage profile of its customers, which is used to help quantify demand in prospective locations (each PSYTE cluster can be weighted for its potential contribution to sales).

http://www.pbinsight.co.in/files/resource-library/resource-files/MarcosPizza_CaseStudy.pdf

# U.S. Pat. No. 6,604,083

Claim 5

A method for preparing a market study comprising:

defining a geographic area around a selected location, the geographic area corresponding to a market based on a selected maximum travel time;

defining a plurality of bands based on increasing travel time from the location;

selecting geographic units in the bands;

defining market-related variables for the market;

calculating values corresponding to the market-related variables for each of the selected geographic units; and

calculating a net demand for a service or a commodity in the market based on the values.

## Solution

Pitney Bowes Software's Predictive Analytics team customized a Smart Site Solutions model for Marco's Pizza that would help the real estate team identify the best markets for expansion, determining maximum build-out, positioning and ranking for viable target sites. The model took into account critical restaurant deployment issues such as trade area size, minimum required sales threshold and buffer distance between sister locations and also incorporate a specific customer demographic and lifestyle profile for the chain when evaluating sites and markets.

Smart Site Solutions takes the factors that affect demand for a given concept (trade area extent, in-profile customers, daytime populations, competition, sister store locations) and uses them to create a "demand layer" for the brand that identifies areas of high and low brand potential. The application then evaluates a series of seed points as potential sites according to user-defined parameters for sales volume and minimum buffer distances are maintained to mitigate cannibalization. Smart Site Solutions can evaluate existing markets for infill opportunities, or "greenfield" markets with no existing brand locations. Smart Site Solutions outputs the number, placement and priority of sites and indexes each for trade area sales potential. Studies can be conducted for any market size—local, state, regional or national. The result is a listing of realistic sites with high sales potential.

http://www.pitneybowes.com/content/dam/pitneybowes/us/en/legacy/docs/us/software/industry-pages/Retail/Location-Analysis-Strategy/PDFs/Marcos-Pizza-Case-Study.pdf

# U.S. Pat. No. 6,604,083

Claim 6

The method of claim 5, wherein selecting the geographic unit includes determining whether a centroid corresponding to the geographic unit falls within at least one of the bands.

The following system options can be set at any time:

| Option | Description |
|---|---|
| RTF Viewer | Sets the program you want to use to view reports. |
| RTF Printer | Sets the program you want to use to print reports. |
| DBF Viewer | Sets AnySite to send database files to a program such as Excel. |
| MapInfo Pro | Sets where MapInfo Professional is located. MapInfo Professional is not required to use AnySite, but can be used to enhance AnySite's functionality. |
| Calculate Demographics Using Centroids | This is used with data coming from flat MapInfo tables. Selecting this option directs AnySite to only sum the demographics for areas whose centroids are within the study area. |
| Launch Viewer for Exported Reports | Tells your system to open any exported report in the program specified above. |



http://reference.mapinfo.com/software/anysite/english/8_8/reference/AnySite_Reference_US_CAN.pdf