

LOCATIONAL MARKETING ANALYSIS : A NEED TO BE

INFORMED FOR STRATEGIC DEVELOPMENT

John R Beaumont
Pinpoint Analysis Limited
Mercury House
117 Waterloo Road
London
SE1 8UL
England

INTRODUCTION

There is no dispute that disaggregated market information is a prerequisite for a successful company; it is an increasingly important source of competitive edge. Companies must react rapidly and locally to both competitive threats and consumers' needs. However, in spite of this growing awareness, it is fair to say that the majority of companies need to enhance their ability to generate, process and interpret available market information.

From our experience with clients in both the public and private sectors, the mapping of information provides an excellent way to present results and aid decision-making. However, it is unnecessarily restrictive to view digital mapping with the conventional cartographic perspective of printed maps; the real opportunities for informed locational marketing analysis arise from using available technologies to manipulate digitally-based spatial information.

Rather than the usual concentrations on database management and map presentation in discussions about geographic information systems, attention in this paper is focused on an integral analytic framework involving the conversion of spatial data into actionable information through the application of appropriate statistical methods of classification and spatial modelling.

Two important practical issues also underlie the discussions, specifically:

- . what type of information is required by marketing management;
- . how can this information be produced at an acceptable cost and level of effort.

CONTENTS

For locational marketing analysis, we consider theoretical and practical aspects of spatial data collection, spatial data analysis and results presentation. The basic tenet is that in locational marketing analysis, the manipulation of digital spatial data and the output of maps is a tool to assist, rather than replace, decision-making.

In terms of spatial data collection, reference is made to the accuracy and availability of data and to the appropriateness of particular spatial units.

Potential effects of spatial scale on the results and therefore on any interpretations are noted.

In terms of spatial data analyses, experiences in applying a range of approaches, including multivariate statistical techniques, spatial analytic models and simulation methods are described. The basic aim of locational marketing analysis is to match demand and supply interrelationships over space. The problems arise because there is a varied demand for goods and services from different customer groups that can be supplied by competing branches.

For results presentation, by providing direct and clear messages, maps can help remove a reluctance to apply sophisticated analytic methods in marketing; they are usually much clearer than a hundred sheets of computer printout! Thus, mapping has direct implications for educating management about the potential benefits of locational marketing analysis. As maps improve the scope for application is evolving and growing. For instance, the power of using digital Ordnance Survey 1:1,250 maps demonstrates the enormous potential for flexible data integration in decision support systems for interactive analyses.

SPATIAL DATA COLLECTION

The essence of locational marketing analysis is the linkage of different geographic data sets. Computers permit the linkage of different data sets to produce new, actionable information - the product is greater than the sum of the individual data sets. The fundamental problem today arises from constraints on cross-referencing and aggregating data sets, because they are based on different spatial units.

For instance, in many marketing analyses, it is necessary to link socio-economic and demographic household data based on census Enumeration Districts with customer data by postal geography.

For marketing, especially direct marketing, the postal geography system is accepted and in widespread use. Thus, a cogent argument can be made for postcodes (containing an average of fifteen addresses) to provide the base for other data. However, postcodes do not represent a comprehensive geographic reference system; postcodes are a geographic reference, but their usefulness and flexibility is restricted because they lack a proper coordinate system.

In conclusion, for locational marketing analysis, some important data constraints exist, including:

- . the lack of national coverage of (1:1250) map data in a digital form (and the current Ordnance Survey timescale to complete this task, beyond the turn of the century, is unacceptable);
- . the general demise of official statistics and their coarse spatial disaggregation.

SPATIAL DATA ANALYSIS

The value of an analysis is decided by whether it aids correct decision-making, not by its methodological criteria or sophistication. The success and relevance of locational marketing analyses are dependent on communication between technical analysts, who produce the results, and management, who use the results; failures to provide meaningful and actionable analyses are often more attributable to poor lines of communication than to any technical shortcomings per se. Mapping of results, therefore, can be especially helpful.

The demand-supply interface is the essence of much locational marketing analysis. It is appropriate to list some of the constituent elements common to many applications of locational market analysis:

- . demand:
 - sampling frames and designs;
 - catchment area definitions;
 - catchment area demographics;
 - catchment area expenditure estimates;
 - ranking local markets' potential;

- . supply:
 - number and size of branches in a network;
 - competitive position;
 - local marketing;
 - product range/merchandise mix;
- . demand-supply interface:
 - key performance indicators;
 - sales and market forecasting;
 - investment appraisal.

Three types of analytic approach are employed regularly:

- . multivariate statistical techniques;
- . spatial analytic models;
- . simulation methods.

Multivariate statistical techniques are used to describe market segments and identify potential customers. In future, as address-based customer data become more readily available, attention will be given to the development of bespoke geodemographic discriminators, derived explicitly from the important socio-economic and demographic household characteristics of the specific problems of interest. There is no such thing as a single classification either for a particular data set or for all problems.

For management, spatial analytic models that optimise specified objectives against constraints are increasingly being applied in studies of branch location, sales territory delimitation and distribution management. While many of the methods have a relatively long history in Operational Research, their use will be facilitated for locational marketing analysis by suitable decision support system developments to permit interactive computing. Attention should not be restricted to the optimum results; insights into trade-offs and conflicts between alternative aims and the implications of selecting "sub-optimal" solutions are especially useful for management. What is the efficiency of our existing network?

In a similar applied spirit, assuming model calibration has been completed correctly, "what if" simulations provide management with a comprehension of the implications of alternative actions. For instance, what will be the "cannibalisation" effects on existing branches of new developments?

In conclusion about analytical methods, it is helpful to use dichotomies as a way of seeing future trends:

- . objective, rather than subjective, methods;

- . causal, rather than extrapolative, models;
- . bespoke, rather than general-purpose, approaches.

Such predictions are seen as conditional, rather than unconditional, because there is an economic imperative forcing change; without appropriate information, no manager can be expected to fulfill his function in a business environment of changing competitive positions, rapidly evolving technological developments and modified regulatory situations.

RESULTS PRESENTATION

It has been argued already that often results presented in the form of a map can be more useful, and, in the remaining sections, this theme is developed for the future.

For completeness, it is emphasised that results are also presented in other forms, including:

- . names and addresses for direct targeting by post;
- . street listings for leaflet distributions.

FUTURE ISSUES

From recent experiences, it is clear that the handling of spatial data not only generates useful and relevant information for management, but also is creating new, more sophisticated demands from existing users. Unfortunately, today, some of these requirements cannot be satisfied effectively. The issues raised are of a practical and developmental rather than research, orientation. The value of existing technology is proven. However, developmental coordination is a basic requisite because of the multidisciplinary and scattered independent interests in handling geographic data.

The future of digital mapping will see a shift in the driving force from the map producers, cartographers, to the users, including marketing management. Moreover, while maps will continue to be used to provide an inventory of spatially distributed phenomena of interest, the spatial data analyses and results presentation will be more application-orientated.

Effective use of maps in decision-making depends on discarding irrelevant data and showing only what matters. The cartographer's conventional view and his long experience of high quality printing are of little relevance. The move towards geographic information systems will permit the selection of just those features relevant to a particular problem. In fact this is a difficult decision dependent on trial and error so the ability to produce simple maps very rapidly will be of increasing importance.

As technology in this area improves, it becomes possible to use maps interactively. Many of the problems discussed earlier are so inherently geographic that decision-making and "what if" analyses may as well take place in front of a map which constantly changes to reflect the choices made so far. We know this can be done; we are still learning how to do it cheaply and how to trade off better decision-making against time.

If hard copies are only printed as required, then output maps on a dot matrix printer have cost attractions for users, such as leaflet distributors, who do not require very high quality output for their daily work.

Finally, to the extent that maps provide locational referenced information, marketing management is often not interested in spatial patterns per se. For instance, having defined neighbourhood types for direct targeting by say a leaflet drop, it is not sufficient to know their configuration. With computer storage of data in a digital form (and possibly the development of "Knowledge Based Systems"), answers to the following practical questions can be derived directly:

- . how many distributors are required to complete the coverage in three days before the campaign?
- . what are their optimum routes?
- . what is the best allocation of distributors to distribution routes to minimise the overall travel time of distributors from their home?

For management, limitations of data on printed maps is often their static nature - out-of-date. The opportunities to up-date information and also to add information, using perhaps company-specific data, are likely to be more easily satisfied by databases maintained in digital form.

However, to suggest the demise of printed maps would be wrong. Indeed, as the applications develop, maps use, particularly customised ones showing only the relevant information, is likely to expand. A map has the inherent advantages of portability and practicability (as compared with even so-called "portable" computers!)

CONCLUDING COMMENTS

Management are becoming aware increasingly of both the practical relevance and usefulness of locational marketing analysis and the associated power of mapping to present information. Criticisms of existing approaches arise because too much emphasis is placed on the mere presentation of raw data. A systematic analysis of the demand/supply interactions over space can transform this raw data into actionable information. Indeed, future data collection by itself, without explicitly considering relationships between consumers' behaviour, branch location and competitive position, does not provide the required firm foundation for future decision-making; information overload is a real danger to efficient and effective marketing.