A PICTURE IS WORTH A THOUSAND WORDS AND NUMBERS

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BACKGROUND:

New Years Day, 1984, came and went without much more than the usual fanfare. There was a big parade in California, Miami beat Nebraska in the Orange Bowl, UCLA beat Illinois in the Rose Bowl. Most Americans did not realize that as the ball dropped over Times Square in New York City a monumental change took place in the Telephone Industry. Deregulation was a reality. Years of proceedings in Judge Green's courtroom suddenly forced the stable Telephone Industry into the highly competitive telecommunications industry.

Telephone companies now had a marketplace instead of a regulated territory. For example, General Telephone of Florida's operating area was basically clustered on the west coast of Florida around Tampa Bay and extending east toward Orlando. Deregulation had forced General Telephone Company of Florida and the GTE corporation to look beyond these old boundaries. New market strategies for local as well as corporate goals had to be developed. New business opportunities sought. It was no longer business as usual in a protected environment.

The word "competitors" was heard more and more in corporate board rooms. Although competition has always been around, before deregulation it was controlled, and a "fair" return on investment guaranteed by state public service commissions. Now in the open market arena, anyone and everyone could compete for its share of the communications market.

GTE began extensive residential analysis, opportunity analysis, market share projects, affiliation analysis, consumer analysis, and psychographics in an effort to define its marketplace.

The necessity of redefining the marketplace, and meeting the challenge of competition gave rise to the marketing systems and graphics procedures developed by GTE DATA SERVICES in Tampa, Florida. Working with both corporate planners and local telephone operating company marketing staffs, several on-line systems and numerous reporting procedures were developed to help answer questions about our marketplace and plan our marketing strategies.

This session highlights these systems and discusses the graphic mapping procedures used. Early attempts at digitizing and mapping telephone company boundaries, database collection and interface, types of display, and the development of on-line mapping systems are discussed.

EFFORTS TO MEET NEW CHALLENGES:

A marketing philosophy labeled "BUSINESS MARKET SEGMENTATION" was developed in order to meet the new challenges. Simply put, this strategy subdivides the marketplace into subsets of customers and/or potential customers, where any subset may be selected as a target market. Both corporate and local operating company market views had to be taken into account. GTE Data Services was given the task of developing a system that would maintain the integrity of the individual market segments, but at the same time allow corporate planners to "aggregate" the segments for a complete picture of the marketplace.

Using RAMISII as a database manager, several applications were developed to track and store specific marketing information:

- DEMOGRAPHICS
  Contains census and demographic data for both GTE franchise territories and those areas outside of the franchise area.

- COMPETITORS
  Tracks competitors in any several potential bypass technologies.

- CUSTOMERS
  Maintains customer specific data.

- POTENTIAL BUSINESS ESTABLISHMENT CUSTOMERS
  Holds 1.7 million records containing data on business establishments.

- POTENTIAL EDUCATION ESTABLISHMENT CUSTOMERS
  Over 200,000 records containing data on educational establishments.

PROBLEMS ENCOUNTERED:

With the establishment of these database systems GTE was data rich but still found itself information poor. Two major
problems hindered the effective use of these databases:

1. Lack of database interfaces,
2. Glut of data.

To solve these two problems, something had to tie every record defined to an actual geographic location somewhere in the United States. This approach allows the telephone company specific geography, central office data and exchange data to be utilized. The result of tying data records to geographical data means that for a specific area, the market analyst can layer marketing data onto a geographical area to present a complete picture of the market area.

The glut of data produced another problem --- paper. The amount of data available for reporting produced gigantic reports. A stack of paper six feet high was not unusual. Since the market analyst was interested only in a specific market segment or geographical area, the physical location allowed all the databases to be "windowed" and limit the amount of data processed and printed. The paper stack had the potential of being managed.

THE MOVE TO SAS:

There was initially two factors that led to SAS becoming the mechanism for database reporting.

1. Size of databases,
2. Limitations of RAMISII REPORTER.

The databases had grown too large. Users were not happy with a response time of 38 minutes for a "simple" request. A survey found that while the files were built for corporate level reporting only 2% of the actual usage was at the corporate level. The majority of the usage was at the operating telephone company level. For example, General Telephone of California was not interested in data specific to General Telephone of Florida. As the system was first structured, it was necessary to wade through some of the Florida data before the California data was accessible.

The solution was to segment the database by company boundaries. One very large file was replaced by several smaller company specific files. Access time was shortened dramatically from 30 to 5 minutes.

User requests now became a problem. The need for statistical and analytical type reports could not be met by the RAMISII REPORTER. Since development time was a critical factor, the reports could not be written in a third generation language such as COBOL. With the "built-in" process available in SAS, the development time was very short and the customer deadlines were met.

The one problem SAS did not solve was the size of the reports. They were still HUGE and extremely difficult to interrupt. How could the data be utilized and display analyzed results? Since the data records all contained geographic coordinators and SAS provided numerous mapping procedures, why not migrate as many of the report procedures to display the results graphically? As a result, a single piece of paper showed clearly the results of a multi-page report.

Starting with the SAS provided base maps, MAPS.STATES and MAPS.COUNTIES, we began to produce "graphic sandwiches". Data values would be mapped on a state map overlayed with counties for that state. Since geographic locations were crude, we were limited to regional points as opposed to specific site points. Crude attempts were made to annotate the site locations onto regional maps. This proved too cumbersome and time consuming to be practical.

Outside vendors were contracted to provide digitized polygons for GTE specific areas. Working from engineering maps the vendors did a fair job. Even though some cleanup and redigitization was necessary, the GTE polygons could be used with the SAS provided maps. The next step was to purchase zip code polygons from another vendor.

The breakthrough came with the release of SAS Version 5 and the ANNOTATION feature. It was not possible to annotate site data on a map using actual latitude and longitudes from the databases. Multiple data values and/or user comments could be placed on a map. The user now had the ability to window from an area the size of the United States to an area as small as a zip code.

A decision support mechanism was fast becoming a necessity. The problem was that users could not spend the time building the procedure and producing the output. Most did not even have the equipment to generate their own output. As is typical with most end users, the only thing of interest was end result — not what it took to produce it.
THE FUTURE OF MAPPING:

Currently, on-line systems that will produce maps with a limited amount of user interface are being developed. The only user involvement is to select the desired data, choose statistical and/or graphic routines, and define his geographical area.

Applications are still restricted to specific database files. Any attempt at combining data from several sources is still considered a "CUSTOM" application and is done in our shop in Tampa. In the future, it will be possible to retrieve and analyze data from several sources and databases.