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August 1996

TravInfo Evaluation:
Value Added Reseller (VAR) Study
Phase 1 Results

Technology Evaluation
Working Paper No. 1

March 1996

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ABSTRACT

TravInfo is a Field Operational Test (FOT) in advanced traveler information systems (ATIS) for the San Francisco Bay Area sponsored by the Federal Highway Administration (FHWA). The project involves a public/private partnership which seeks to compile, integrate and broadly disseminate timely and accurate multi-modal traveler information through commercial products and services. This working paper is part of the Technology Element of the TravInfo evaluation. It presents the results of the "before" wave of the Value-Added-Reseller (VAR) study, in which 17 TravInfo registered VARs and 16 non-registered VARs were interviewed. Interviews followed a semi-structured format, and covered the following issues: 1. Company profile; 2. Assessment of Current and Planned ATIS Products; 3. Assessment of the TravInfo Concept; 4. Perception of the ATIS Consumer Market and 5. Perception of TravInfo. From the interviews, it is clear that TravInfo has been effective in stimulating VAR business opportunities, that VARs support the project and intend to disseminate TravInfo information through their products. However, the future is uncertain. VAR participation will depend on their satisfaction with TravInfo's operations and data and on their perception of the size of the market for ATIS products and services.

EXECUTIVE SUMMARY

TravInfo is a Field Operational Test (FOT) of advanced traveler information systems (ATIS) for the San Francisco Bay Area, sponsored by the Federal Highway Administration (FHWA). The project involves a public/private partnership which seeks to compile, integrate and broadly disseminate timely and accurate multi-modal traveler information through commercial products and services. The public sector component will center on the Traveler Information Center (TIC), which will collect and integrate both static and dynamic traveler information. The TIC is scheduled to be operational in the spring of 1996. Private sector participation includes "Value-Added-Resellers" (VARs), who will refine the information and broadly disseminate it to end users.

The evaluation of TravInfo consists of four major elements: (1) institutional, (2) technology, (3) traveler response, and (4) network performance. The VAR study is part of the technology evaluation element. The first wave is intended as a "before" study, to document the state of the VAR industry prior to the date when the TIC begins operation. A second wave of the VAR study will be conducted in 1997 to document how the industry actually responded to TravInfo.

Managers, responsible for products and/or marketing, at 17 of 20 registered VAR participants (registered as of July, 1995) along with 16 non-registered VARs were interviewed in the fall of 1995. The interviews followed a semi-structured format, and covered the following areas: 1. Company profile; 2. Assessment of Current and Planned ATIS Products; 3. Assessment of the TravInfo Concept; 4. Perception of the ATIS Consumer Market and 5. Perception of TravInfo. From the interviews, it is clear that TravInfo has been effective in stimulating VAR business opportunities, as well as in resolving the issue of potential competition with the private sector. In addition, the VARs support the project and intend to disseminate TravInfo information through their products and services.

At the same time, the future is uncertain. VAR participation will depend on their satisfaction with TravInfo's data and operations. Furthermore, many of the participants are involved primarily to test the ATIS market. Hence, the continued participation of VARs will depend on the size of the market they find for ATIS products and services.

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1. INTRODUCTION

TravInfo is a Field Operational Test (FOT) in advanced traveler information systems (ATIS) for the San Francisco Bay Area, sponsored by the Federal Highway Administration (FHWA). The project is organized as a public/private partnership. Much of the project direction has come from a steering committee that includes strong participation from Value-Added-Resellers (VARs), companies that intend to develop ATIS products and services (Hall et al, 1995b).

The objective of TravInfo is to collect, integrate and broadly disseminate timely and accurate multi-modal traveler information through a range of products and services, with different prices and capabilities, to meet consumer needs. The public sector component includes the Traveler Information Center (TIC), which will collect and integrate both static and dynamic traveler information, and the Traveler Advisory Telephone System (TATS), which provides information to travelers through touch-tone telephones. However, the unique aspect of TravInfo is its open-access database and architecture that allow VARs to retrieve the data free of charge and re-package it for its ultimate dissemination to travelers via their commercial products and services.

The TravInfo partners intend to make the results of the project accessible to others across the nation who may wish to engage in similar enterprises. To achieve this aim, California PATH was commissioned to perform an independent evaluation (Hall et al, 1995a). The evaluation consists of four major elements: (1) institutional, (2) technology, (3) traveler response, and (4) network performance. The objective of the technology element is to assess the performance of the TIC (TIC study) and to evaluate ATIS industry trends and TravInfo's effect on the latter (VAR study).

This working paper provides results from the first wave of the VAR study. It documents interviews with VAR managers, responsible for products and/or marketing, held in fall of 1995 prior to the start of TIC operation. The second wave of VAR interviews will be executed in the summer of 1997, a little more than a year after TravInfo has been in operation. The VAR study assesses TravInfo's effectiveness in stimulating and supporting the deployment of a wide variety of ATIS products and services and evaluates entrepreneurial responses to improved travel information (two of TravInfo's goals). The purpose of the first VAR wave is to document the extent to which VARs plan to use the TIC and to evaluate the industry's preparation for TravInfo operation. The second VAR study will evaluate TravInfo's impact on the ATIS industry in terms of actual products that have been introduced. The two VAR studies will thus provide a before and after analysis of TravInfo's effect on the ATIS industry and of entrepreneurial responses to improved travel information.

The paper begins by briefly discussing the methodology for data collection and analysis in Section 2. The results of the VAR interviews are presented in Section 3. Section 4 offers a profile of non-registered VARs (those not active in the TravInfo project) and discusses differences from registered VARs. Finally, conclusions in Section 5 are based on the synthesis of information from the VAR interviews and on observations of private sector participation at meetings of the TravInfo steering and advisory committees.

2. STUDY DESIGN

Interviewees were divided into two groups: registered VARs and non-registered VARs. As of July 1995, 20 companies had signed the TravInfo Participant Agreement to become registered VARs. The person responsible for TravInfo activities (generally a manager overseeing products and/or marketing) was contacted at each of these companies. Most of the interviews were conducted in person by PATH evaluator Dimitri Loukakos. Four of the interviews were conducted by former PATH evaluator Brian Pfeifle. Up to four attempts were made to reach the VAR in October of 1995, and a total of 17 VARs participated (see Table 1 for a list of interviewed registered participants).

The interview was divided into five sections of pre-selected, mostly open-ended, questions, covering: 1. Company profile; 2. Assessment of Current and Planned ATIS Products; 3. Assessment of the TravInfo Concept; 4. Perception of the ATIS Consumer Market and 5. Perception of TravInfo (see Appendix 1 for a list of questions). Interviews lasted 45-60 minutes.

Interviews with the non-registered VARs were conducted during the months of November and December 1995. The VARs were selected from a variety of sources including the ITS America Exhibitor Directory, GPS World and referrals from industry specialists. The interviews were generally held with product or marketing managers responsible for ATIS activities at their companies and conducted by phone. The interview format was similar to that used for the registered VARs, with less emphasis on the sections pertaining directly to TravInfo (the same survey was used for non-registered VARs, aside from Section 3 which did not include the rating of concepts). Interviews were held with representatives of 16 companies, out of a total of 30 contacted (Table 2). Up to four attempts were made to contact each potential interviewee, and interviews lasted about 30 minutes.

The interview data were analyzed by collating answers into simple percentages, by calculating averages and by summarizing open-ended responses. Some responses were also organized according to the firm's interests, their participation in the project or their company size.

3. REGISTERED VAR INTERVIEW RESULTS

The following sections follow the interview format specified in Section 2.

Table 1: Registered Participants

Companies Interviewed

Company	Interviewee	Title
Clarion	Ed Tanaka	Advanced Technology Specialist
Differential Corrections Inc.	Bruce Noel	President of Marketing
Etak	Larry Sweeney	Vice President, General Manager
Fastline	Steve Wollenberg	President
Gardner-Rowe Systems Inc.	Craig Gardner	President
InfoBanq	Richard Enlow	President
KGO Radio	Ken Berry	News Director
Liikkuva Systems Int.	Channing Boucher	Vice President
Metro Dynamics Inc.	Ivan Dei Rossi	Systems Administrator
MetroTraffic Control	Joan Ravier	Director of Information Services
Motorola Inc.	Steve Brendle	Director of OEM Products
Navigation Technologies	Diane McQuarrie	Marketing Manager
RIDES	John Hirten	Executive Director
RoadWise Corporation	William Birdsey	President
SEI Information Technology	Matt Stearns	Business Development Manager
Shadow Broadcast Services	John Davison	General Manager
SmartRoute Systems	Stephen Crosby	Chief Executive Officer

Companies that Did Not Participate

Sony, Yang Associates and Zexel.

Table 2: List of Interviewed Non-Registered Companies

Advanced Research Corp.

Amerigon

C-COR Electronics Inc.

Coast-Com

Digital Matrix Services Inc.

Environmental Systems Research Institute

ETE Inc.

Marconi Communications Inc.

Mark IV Industries, LTD.

Maxwell Laboratories

Navigation Data Systems Inc.

Orbital Sciences Corp.

Scientific Atlanta

Siemens

Transportation Management Solutions Inc.

3-S Navigation

3.1 Company Profile of VARs

Registered VARs cover a range of company sizes. A little more than one third have less than 25 employees, several of which were started by individuals who saw a business opportunity in exploiting TravInfo's database. Almost one-third are big companies with more than 500 employees, and the remaining third have between 25 and 500 employees (Figure 1).

Figure 1: Number of employees at registered VARs
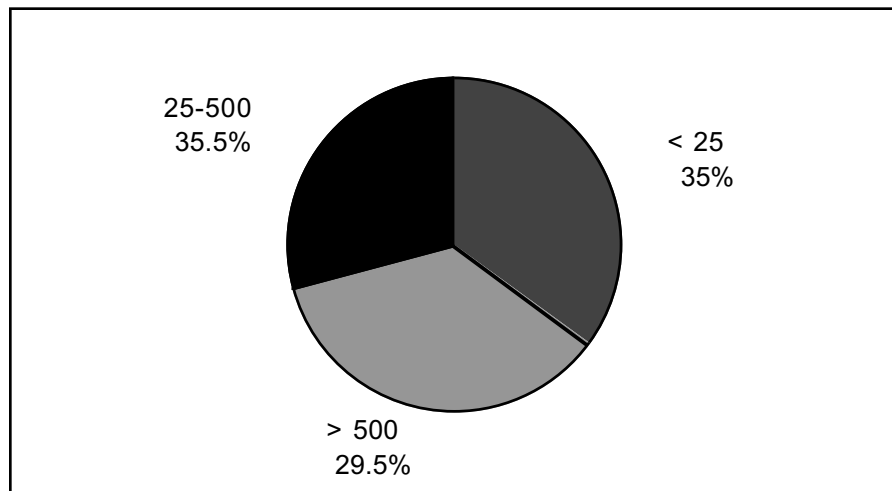
More than 80% of the VARs do not have parent companies. Thus, most of the companies cannot command resources aside from their own. This places significant pressure on them to finance product development and to market profitable products. Of the 3 VARs who had parent companies, total employment of the parent varied from 1500 to 20,000, with total annual sales from $1.5 to $10 billion. The great majority of VARs did not specify their annual sales, often because they were private companies and did not wish to divulge this information. However, total revenues for the U.S. ATIS market as a whole were $5 million in 1995 and are forecast to increase to $150 million by the year 2000 (Owen and Frost and Sullivan, 1996). Most of the VARs stated that their mission was to bring products to the market.

Most VARs also face significant competition. 83% cited one or more competitors and 23.5% cited three or more competitors. In two instances, VARs identified one another as competitors.

The profiles of VARs also differ according to their line of business and their intended participation in TravInfo. Analysis of the VARs' missions and products, based on answers to questions in Section 1 and 2, reveals that they are mostly involved in the following areas:

1. Collection and sale of traffic data both to end-users and VARs.

2. Navigable digital map databases.

3. Provision of information on alternative commute options, such as carpooling or biking.

4. Broadcasting of traffic information.

5. Development of a data fusion network.

6. Development of ATIS software products and services, some designed to access the TravInfo database.

7. Development and testing of in-vehicle devices or traveler information services.

3.2 Assessment of Current And Planned ATIS Products

From the interviews, it is clear that VARs are already active developing and selling dynamic and multi-modal ATIS products.

Major products and services of registered VARs include:

• Traffic reports, customized real-time traffic and mobility information.
• Value-added traveler information services.
• GPS (Global Positioning System) land navigation and information systems.
• Roadway-to-vehicle communication systems.
• AVL (Automatic Vehicle Location) products and services.
• In-vehicle navigation technology.
• Navigable digital map databases.
• Software services for real-time traffic display and transportation network analysis.
• Transportation systems engineering services.
• Ridesharing and alternative commute options services.

73% of the VARs currently have ATIS products/services that allow for the input and display of dynamic information. About 80% of these VARs state that the dynamic features of their current products/services are functional on some existing markets. Generally, however, the dynamic capabilities of current products/services are not yet fully exploited on the market.

The type of information provided is quite varied and includes: traffic and transit conditions (speed, flow), road construction, special events, accidents, ride-matching and routing. There are multiple communication media: radio, FM sub-carrier, modem, telephone, television, and kiosks. The interface depends on the type of medium being used. For television, radio, and telephones the interface is open and simply corresponds to

Table 3: Planned TravInfo Products/Services of Registered VARs

Company	Products/Services
Clarion	In-vehicle navigation equipment.
Differential Corrections Inc.	Differential GPS correction service, real-time traffic information.
Etak	Automotive navigation technology and software, digital map databases.
Fastline	Value-added traveler information services.
Gardner-Rowe Systems Inc.	Software products for real-time status display, transportation network modeling/analysis.
InfoBanq	Data gathering, conversion and distribution services.
KGO Radio	Traffic reports.
Liikkuva Systems International	GPS land navigation and information system.
Metro Dynamics Inc.	Bay Area wide transportation demand management/rideshare on-line system.
MetroTraffic Control	Traffic reports, real-time traffic and mobility information.
Motorola Inc.	Cellular and paging based vehicular communication.
Navigation Technologies	Navigable digital map databases.
RIDES	Information on alternative commute options such as ridesharing and biking.
RoadWise Corporation	Roadway-to-vehicle communication system.
SEI	Software information services for information providers.
Shadow Broadcast Services	Traffic reports and traffic reporting technology.
SmartRoute Systems	Value-added traveler information services.

the medium itself. In the case of modems, the interface depends on the system specified by the company or organization providing the services.

All of the VARs plan to release new products/services in the coming year (see Table 3 for a list of planned products; Appendix 2 provides a more detailed description of products and companies). The great majority (80%) state that they will introduce some new ATIS products/services that allow for the input and display of dynamic information. About half the VARs, however, plan products/services that do not differ appreciably from current

ones. They are expansions on or refinements of current products/services. Another half plans similar products/services with the addition of one or two new products or services. About two thirds of these VARs state that the dynamic features of the new products/services are not functional on any existing market.
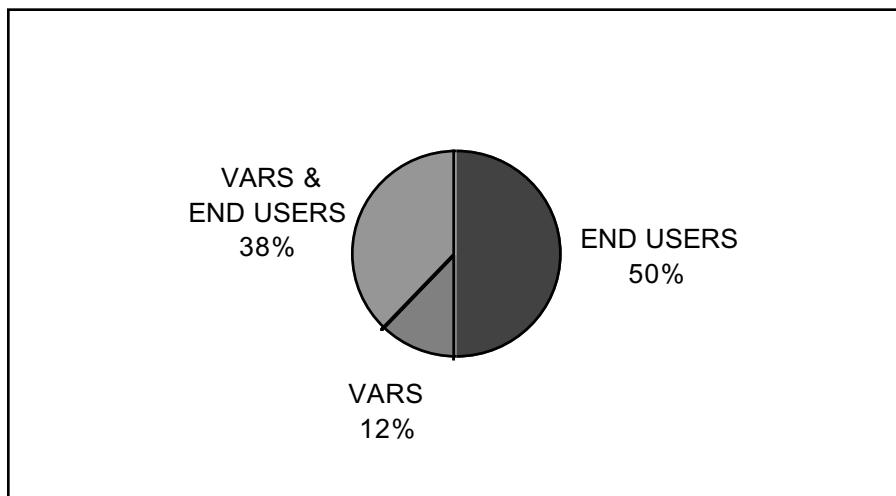
The VARs state that their planned products/services will answer the needs of single drivers, carpoolers, transit users, business travelers, tourists, traveler information providers and the trucking business. The VARs plan on serving markets in the following areas: commuting, business traveling, commercial vehicle operation, inter-town travel, traffic management centers, fleet management, geographic information systems, route guidance and traveler information distribution. A little less than a third (29.5%) of the VARs gave estimates of the retail cost of their products. The latter ranged from $100 to $8000 a system depending on the complexity and versatility of the product. 59% of the VARs stated that they did not know the retail cost of their product/service. For 80% of these VARs, this result can be explained by the fact that they are offering mostly services, such as traffic reports, rather than products and hence it is difficult to estimate a retail cost. Another 11.5% of VARs stated they did not wish to divulge any cost information on their planned products/services.

The communication media and interfaces of the planned products/services are generally the same. The type of information provided is similar to that provided under current products/services and includes: traffic and transit conditions (speed, flow), information on alternate routes, incidents, road construction, special events, ride-matching and routing.

Despite these similarities, there seem to be two key differences between current and planned products/services. First, the "new" information will be updated more often than the information currently provided. Second, the planned products/services will target smaller populations than current ones.

All of the VARs, aside from one, plan to access the TravInfo database directly to obtain both dynamic and static data. Figure 2 shows that most VARs plan to disseminate the data to end users, but many will also disseminate to intermediate VARs (or both VARs and end users). Companies that planned to distribute data to intermediate VARs stated that the latter would participate in the TravInfo project in the following ways: distribution of traveler information to end-users, route guidance and fleet management services, provision of navigable digital maps and production of end-user in-vehicle equipment.

Figure 2: Dissemination of TravInfo information from VARs

65% of the VARs state that TravInfo has not influenced the design of an existing or planned product/service. The remaining 35% say TravInfo has influenced designs by leading them to delay product/service development in order to take advantage of the TravInfo information. Two thirds of these state that TravInfo has led to the development of new products/services (such as value-added services greatly dependent on the TravInfo information) or that it has stimulated new designs capable of using the TravInfo database.

Finally, the great majority of VARs (81%) believe that TravInfo's two-year operating commitment is sufficient for product/service development. However, there is a caveat: all interviewees stated that TravInfo must go beyond the two-year period if the commercial viability of products/services is to be tested and if profits are to be gained.

3.3 Assessment of The TravInfo Concept

This section assesses attitudes of VARs toward the TravInfo concept. Their perception of TravInfo's potential impact on their business operations is covered in Section 3.5.

The main thing VARs would like to see contained in the TravInfo database is a wide variety of dynamic information (cited by all of the interviewees). However, the specific type of information varies depending on the VARs' line of business. Examples of the type of dynamic information VARs are interested in are: traffic flow, road closures, accidents, congestion factors on specific arterials, vehicle occupancy data, special events and transit conditions. One VAR expressed the need for more dynamic information. Two VARs specifically stated that they would have liked more loop detector data so as to increase the dynamic scope of the TravInfo database and allow them to offer more customized information.

There is also considerable interest in wireless broadcast of information. 47% stated that they would take advantage of wireless broadcast information in the design of their products, 41% stated they would not and the remaining 12% said they did not know. Half of the companies that stated they would use the wireless broadcast have less than 25 employees.

Most VARs are satisfied with TravInfo's landline interface standard (V.32bis and freefield text). The great majority of the VARs say their existing or planned products will be able to access TravInfo information (Figure 3).

When asked whether TravInfo should adopt other interface standards, one third responded yes (two VARs mentioned ITIS standards), one third responded no and one third did not know. The large "did not know" response may reflect the fact that some of the interviewees were non-technical.

Interviewees were asked to rate the importance of five different ATIS features on a scale from 1 to 4, with 4 being best. This was intended to assess which generic features of TravInfo and ATIS are most important to VARs.

VARs (especially smaller VARs) were very positive toward*: centralized databases for all types of traveler information within a metropolitan region*, with an average rating of 3.7. Furthermore, 61% of the VARs believed that the establishment of centralized databases for traveler information would be helpful to their competitive position in the marketplace.

Figure 3: Will any of your existing or planned products be capable of using TravInfo information?
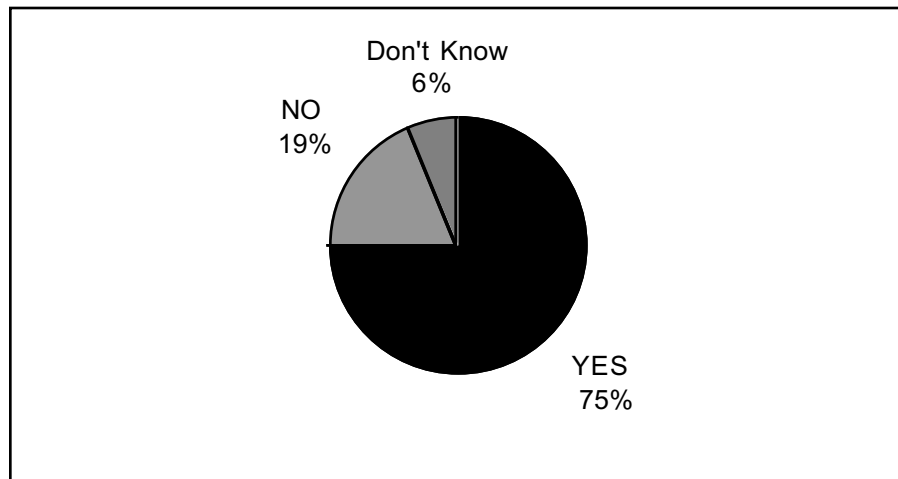
Another 23% thought it would be detrimental to their competitive position (the remaining 16% thought it would have no effect).

VARs believed it was less important to provide: *open access information from databases of individual agencies*, which was rated 2.8 on average. Regarding the perceived effect of such a service on the VARs' competitive position, the breakdown was identical to that for centralized databases: 61% said it would helpful, 23% said it would be detrimental and 16% said there would be no change.

VARs were supportive of establishing: *nationwide interface standards for access to traveler databases,* which was rated 3.1 on average. A strong majority (69%) stated that this would help their competitive position in that it would increase efficiency, spur the development of the ATIS industry and create a level playing field. 23% said it would hurt their position and 8% did not know.

The lowest average rating went to: *provision of wireless data broadcasts of traveler information by public agencies*. The average rating was just 2. However, two thirds of the scores were at the two extremes of the score range (1 and 4) indicating that the provision of wireless data broadcasts differs in importance depending on the VAR. Indeed, just as many VARs thought this would be detrimental as thought it would be helpful (38.5% for each, remainder being no change) to their competitive position.

The average score for *low cost access to a traveler information database* was 3.5. A little less than half (45%) said this would be helpful to their competitive position; 27.5% said it would be detrimental and an equal number stated there would be no change.

Finally, the VARs also grant some importance to *availability of devices to access the data by a consumer*, which received an average rating of 3.1 (Interviewees were not surveyed on competitive position).

In summary, from the VARs' perspectives, the three most important features, in descending order, are: 1. centralized databases for all types of traveler information within a metropolitan region; 2. low cost access to a traveler information database and 3. nationwide

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interface standards for access to traveler databases and availability of devices to access the data by a consumer. The two top-rated features are central to the TravInfo concept, whereas the third might be considered an extension to the TravInfo concept.

Despite these high ratings, a few VARs worried about TravInfo's impact on their competitive position. While no objections were raised, two VARs, both of which already gather, fuse and disseminate data, thought TravInfo could potentially become a competitor.

## 3.4 Perception of the ATIS Consumer Market

Most (71%) VARs have conducted their own ATIS related market research. Those who have not have either obtained third party research or already identified their markets. Of the VARs who have conducted market research, 90% state that market research is important to them and that they have responded to the results of market research by changing their products, services or marketing strategy. Types of market research include: direct mail, phone and in-person surveys, focus groups and setting up web sites. Interviewees were reluctant to reveal specific results of their market research efforts.

A majority of VARs (59%) plans to conduct ATIS market research in the future. Almost all of these have conducted market research in the past (none of the VARs that had no previous market research planned future market research). Of those who plan to conduct future market research, about 60% plan to use TravInfo for market research or product development/deployment and 70% also say they plan to incorporate TravInfo-related products/services as part of their market research efforts.

3.5 Perception of TravInfo

50% of VARs said that TravInfo has positively affected their outlook on ATIS, and none said that TravInfo had a negative effect (Figure 4).

Figure 4: How has TravInfo affected your company's outlook on ATIS?
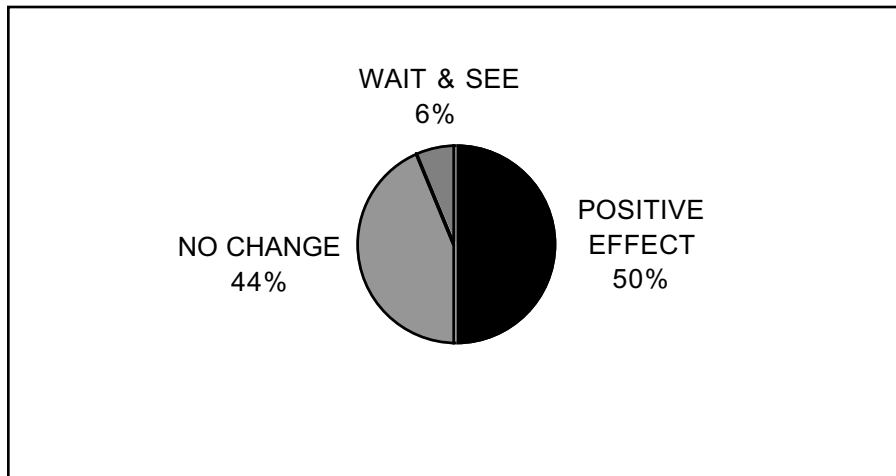
Of those who said TravInfo had a positive effect on their outlook on ATIS, 37.5% saw it as a roadmap to the future or a catalyst for the ATIS market; 25% stated that TravInfo had increased awareness of the ATIS market within their company and 12.5% credited it for attracting them into the ATIS market.

Slightly more than half of the VARs believe TravInfo will affect their business operations or strategy, either on a short-term or long-term basis. The rest are equally divided: 23.5% say that it potentially will and the other 23.5% say it will not. Of those who say TravInfo will definitely affect their business operations or strategy, 62.5% believe it will be both on a short-term and long-term basis; 25% believe it will be mainly in the short-term. Of those who believe TravInfo will potentially influence their business operations or strategy, three fourths said it will be in the long-term. According to VARs, TravInfo's main impact will be in providing more business to the VARs and in allowing them to test the ATIS market.

The great majority of the VARs do not see TravInfo as a competitor, testimony to the fact that the TravInfo organization effectively resolved this public/private issue. Only two out of the 17 VARs (12%) perceive TravInfo as a potential competitor.

More than 75% of the VARs believe there should be a public sector commitment to ensure that TravInfo continues past the period of the FOT. Most of the VARs, however, do not know what form this commitment should take. A few VARs would like TravInfo to be self-sufficient and for a private company to run the TIC. In all cases, though, the feeling is that the public sector should ensure the continuation of TravInfo.

Almost 2/3 of the VARs say they have benefited or foresee a benefit from signing the TravInfo Participant Agreement. Another 25% foresees a potential benefit. The benefits are varied and include: publicity for the company, more business opportunities, information on the ATIS market and industry, the possibility to test products and to set up business partnerships. For 80% of the VARs, signing the Participant Agreement has not provided an impetus for new ATIS-related research or development.

A little less than a third (29.5%) of the VARs thought that their obligation under the Participant Agreement was to cooperate with all parties involved and add value to the project. Close to a quarter (23.5%) of the VARs stated they did not know what their obligation was; 12% said they had no obligation; 12% believed that the agreement asked them to provide products or services for the TravInfo FOT; finally another 12% stated that the agreement called for them to participate in the evaluation of the project. Of the remaining two VARs, one stated that the obligation was to serve the public and the other said it was understanding that TravInfo was not liable in any way for data or project deficiencies.

When asked whether there was anything that they wanted to change in the Participant Agreement, close to two thirds (62.5%) of the VARs stated that they were not familiar enough with the agreement to propose any changes. A little less than a third (31%) had no changes to suggest. Only one VAR proposed a change to the agreement the latter being that TravInfo be made responsible for the quality of the data output.

A majority of VARs (62%) expect that TravInfo will meet their company's operation performance requirements. Just one interviewee stated TravInfo would not meet its requirements.

Most VARs (80%) identify other government sponsored projects that have affected their organization. A variety of projects was named and no single project was named by a majority of VARs. Atlanta Showcase was cited most often, but only by three VARs. The key distinction between TravInfo and other projects is that the latter are generally based on closed proprietary systems. Many of the VARs perceive TravInfo as an open and more sophisticated project, which some see as the roadmap to the future.

Finally, the desired TravInfo changes, in descending order, were:

1. "Would like to see it happen" (40%)
2. "Would like TravInfo to have more data or breadth" (20%)
3. "ITIS standards should be applied" (13%)

4. NON-REGISTERED VAR INTERVIEW RESULTS

Many of the responses of the non-registered VARs (hereafter referred to as VARNs for VAR non-registered) coincide with those of the registered VARs (hereafter simply referred to as VARs). The key distinguishing feature was that only one of the VARNs knew about the TravInfo project. Hence, they could provide little comment on the TravInfo concept and none on the project's execution (see Table 2 for a list of interviewed companies).

4.1 Company Profile of Non-Registered VARs

VARNs were similar in size to VARs, as measured by the number of employees. 28.5% have less than 25 employees and 36% have more than 500 employees. 35.5% have between 25 and 500 employees.

More than 85% of VARNs do not have parent companies. Like most of the registered VARs, the great majority of VARNs must finance independently their product development. A majority of VARNs did not specify their annual sales often because they were private companies and did not wish to divulge this information. However, 44% of the VARNs (7 out of 16) did specify their sales. The average annual sales for these companies was $1 billion. This is not representative of most VARNs though. Indeed, 5 out of the 7 VARNs who reported their annual sales were large companies with more than 500 employees. Most of the VARNs stated that their mission was to develop and market products and/or services.

The VARNs seem to perceive slightly less competition than VARs. 67% of the non-registered companies cite one or more competitors and 20% cite three or more competitors.

Like the VARs, the VARNs differ according to their line of business. Analysis of their missions and products, based on questions in sections 1 and 2, reveals that they are involved in areas similar to those of VARs (see section 3.1). In addition, a few companies were involved in Advanced Transportation Management Systems (ATMS) with applications to the ATIS industry.

4.2 Assessment of Current And Planned ATIS Products

Even more so than VARs, the great majority (86%) of VARNs state that some of their existing products allow for the use dynamic information on travel conditions. The products and services varied among companies, including:
• GPS land navigation and information systems.
• AVL products and services.
• In-vehicle navigation equipment.
• Fleet management systems.
• On-line traffic information services.
• Wireless communication systems.
• Value-added traveler information services.
• Traffic systems integration services.

The type of information provided by the VARNs does not differ from that provided from the VARs and includes: traffic and transit conditions, events, accidents, routing and construction. The communication media are essentially the same as those employed by the registered VARs.

Compared to VARs, a somewhat smaller percentage (60%) of VARNs plan to release new products/services in the coming year. All of these non-registered companies state that their products/services allow for the use of dynamic information. Excluding those companies which interpret simple GPS positioning as a form of dynamic information, about 70% of the VARNs who plan to release products/services state that these will allow for the use and display of dynamic information on travel conditions. Generally, most of the VARNs' planned products and services are similar to current ones and belong to one of the aforementioned categories.

4.3 Perception of the ATIS Consumer Market

Approximately 70% of the VARNs have conducted their own ATIS related market research, a proportion roughly equal to that for registered VARs. Generally those who had not conducted their own market research had either obtained research from other organizations or already identified their markets. Most of the VARNs stated that market research had allowed them to define or alter their market strategy and/or to change their products and services. The market research methods of VARNs did not differ from those of VARs.

Like the VARs, a majority of VARNs (60%) plans to conduct ATIS market research in the future. 80% of these companies are VARNs who conducted market research in the past. None of the VARNs, except for one, plans to use TravInfo as market research or for product development/deployment. This result probably reflects the fact that fifteen of the sixteen VARNs interviewed did not know about the TravInfo project.

4.4 Perception of TravInfo

The responses of the non-registered companies suggest interest in the TravInfo concept. Like the VARs, most of the VARNs are very interested in dynamic information. About half the VARNs stated that they would like to see dynamic information of all types contained in the TravInfo database. The other half stated that they did not know or that it was not relevant to them, more a reflection of their unfamiliarity with the TravInfo project than a lack of interest in dynamic information. Approximately 42% of VARNs state they would take advantage of a wireless broadcast of information if they were to participate in the project. About half say they might actually use TravInfo to obtain traffic information. Of those, about 60% would disseminate the data to end-users and 14% to intermediate VARs (the remaining one fourth did not specify).

A little over half the VARNs (53%) state that TravInfo will possibly affect their business operations or strategy. For most of them this would be in the long-term and in the form of more business opportunities (only one of the VARNs mentions TravInfo as a potential competitor). Most of the VARNs (86%) thought that TravInfo's two year operating commitment was enough if they were to develop product/services. Finally, fewer VARNs (67%) than VARs (80%) identify other government sponsored projects that have affected their organizations. The project cited most often was the Atlanta Showcase, cited by 25% of the VARNs.

5. CONCLUSIONS

The results of the first wave of VAR interviews suggest that TravInfo has been effective in stimulating VAR business opportunities, as well as in resolving the issue of potential competition with the private sector. The registered VARs support the project and intend to disseminate TravInfo data through their products and services. This represents a significant difference from results obtained one year ago, which revealed reluctance on the part of VARs to commit themselves to business plans based on the TravInfo database (Ygnace et al 1995).

About one third of the VARs state that TravInfo has influenced the design of an existing or planned product/service. About half the VARs also believe that TravInfo will affect their business operations or strategy, either in the short-term or long-term. Another quarter believe TravInfo will potentially affect their business operations or strategy in the long-term. While these results do not represent an overwhelming majority of VARs, they are nonetheless significant in that they show that TravInfo has managed to stimulate product/service development and create business opportunities for VARs.

Most of the VARs do not perceive TravInfo as a competitor. This was not always the case. In the initial phase of the project, there was much concern on the part of the private sector that TravInfo would create competition and encroach upon its markets (Hall et al, 1995b). The fact that only 2 out of 17 VARs perceive TravInfo as a potential competitor indicates that the great majority of private sector participants no longer feel that this is an issue.

Furthermore, a majority of VARs have a positive perception of the TravInfo project in general and virtually all plan on participating. Most are satisfied with the TravInfo concept and state that their existing or planned products will be capable of using the TIC information. Almost two-thirds of the VARs state that they expect TravInfo will meet their company's operations performance requirements. As far as use of the TravInfo information is concerned, virtually all the VARs plan to access the database directly to obtain both static and dynamic data. The registered participants plan on disseminating the information both to end-users and intermediate VARs.

Finally, the TravInfo project, distinguished by a centralized, free and open-access database for static and dynamic traffic information, is the only ATIS project of its kind. While most of the registered and non-registered VARs mention other ATIS government sponsored projects affecting their organizations, no single project is identified by more than one fourth of the respondents. Finally, none of the non-participating VARs expressed dissatisfaction with TravInfo. In almost all cases, they simply were unaware of the project.

Although these results are encouraging in terms of TravInfo's potential impact on the ATIS industry and in terms of VAR product/service development, it must nonetheless be said that the future is uncertain. Indeed, VAR participation will depend on their satisfaction with TravInfo operations and data. One-third of the VARs state that they do not know whether TravInfo will meet their company's operations performance requirements. Furthermore, many of the participants are involved in order to test the ATIS market. Hence, the continued participation of VARs will depend on the size of the market they find for ATIS products and services.

REFERENCES

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Owen, S., and Frost and Sullivan (1996). "Forecast of the U.S. Advanced Traveler Information Systems (ATIS) Market," Frost and Sullivan, preprint paper presented at the Intelligent Transportation Systems 1996 Annual Meeting.

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APPENDIX 1: Survey Instrument

Scripted Introduction

The University of California is conducting interviews of product managers to assess the effects of TravInfo on the traveler information industry. Information that you provide will be used to improve TravInfo, but will be kept confidential.

Before we begin, how would you rate your familiarity with TravInfo:

  1. Very familiar
  2. Somewhat familiar
  3. Not at all familiar

If (3), then read description of project.

If (2), ask whether interviewee would like to hear description of project

Description of Project

The TravInfo project is an Intelligent Transportation Systems (ITS) field operational test, funded by the Federal Highway Administration (FHWA), involving a partnership of public agencies and private concerns, which seeks to test and evaluate its effectiveness in providing high-quality traveler information to Bay Area residents. The physical core of TravInfo, the Traveler Information Center (TIC), will be operational in Spring of 1996. The Traveler Information Center will gather and disseminate both static and dynamic data. The data will be assembled from a variety of private and public sources: examples include loop detectors, Highway Patrol reports, public transit schedules, private company traffic reports. It is hoped that TravInfo will improve transportation conditions in the Bay Area and stimulate the ATIS industry.

[NOTE: WHERE APPROPRIATE, SUBSTITUTE "SERVICES" for "PRODUCTS"]

Objective 1. To develop a company profile.

To determine the mission, size and products of the interviewees business unit and parent company.

a. What is the name of your business unit?

b. What is the mission of your business unit?
c. What is the size of your business unit?

                    employees   _____
                    annual sales   _____

Ask d-g if applicable

d. What is the name of your parent company?

e. What is the mission of your parent company?

f. What is the size of your parent company?

       employees   _____

       annual sales _____

g. In ATIS, who are your major competitors?

Objective 2. Assessment of Current and Planned ATIS Products.

To determine existing and planned ATIS products, whether these products receive dynamic travel information, and any special requirements.

a. What are your company's major products/services on the market today, including ATIS related products?

Your business unit:

Parent company:

b. Do any of these products use dynamic information on travel conditions?

If yes:

   What type of information?

   What is the communication medium?

   What are the interface requirements?

   Are the dynamic features functional in any existing market?

     If yes, where?

If no: Describe the function of the product:

c. In the area of traveler information, does your company plan to release any products in the coming year?

If yes: What needs will be these products fill?

                    What is their estimated retail cost?

                    What market will these products serve?

If no: What about any prototypes you are working on (do same questions here as for yes answer)

d. Will any of these products (planned or prototype) utilize dynamic information on travel conditions?

If yes:

          What type of information?

          What is the communication medium?
          What are the interface requirements?
          Are the dynamic features functional in any existing market?

               If yes, where?

If no: Describe the function of the product:

e. When TravInfo becomes operational, do you plan to use it to obtain dynamic or static traffic information (directly/indirectly)?

If yes: Do you plan to disseminate information directly to end-users or rather to intermediate VARs?

               (If applicable) How would this intermediate VAR participate in the FOT?

f. Has TravInfo influenced the design of an existing or planned product? (If yes, how?)

h. Is TravInfo's two year operating commitment versus an open-ended time frame sufficient for your product/service development?

If no, how long of a commitment would be sufficient?

Objective 3. Assessment of the TravInfo Concept.

To assess the value of a centralized regional database to the ATIS industry.

TravInfo is intended to be a centralized source of dynamic traveler information for the San Francisco Bay Area, with open interfaces to private companies.

EXPLAIN DATABASE

a. What would you like to see contained in the TravInfo database and why? (**If the VAR wants additional data** ask: How would you use that additional data? and: Why is it important to you?)

b. If TravInfo provides a wireless broadcast of information, would you take advantage of it in the design of your products (and how)?

c. TravInfo has adopted the following as its landline interface standard: V.32bis and freefield text (with colon and curly-bracket delimiters). Will any of your existing or planned products be capable of using TravInfo information? (If so do you plan to use TravInfo information in your products?)

If you do not plan to access TravInfo directly, have you considered it? (If so, why did you decide not to access TravInfo directly?)

d. Are there other (or additional) interface standards which you believe TravInfo should adopt?

e. Please rate the importance of each of the following on a scale from 1-4 (being best) and comment:

 i. Centralized databases for all types of traveler information within a metropolitan region.

ii. Open access information from databases of individual agencies.

iii. Nationwide interface standards for access to traveler databases.

iv. Provision of wireless data broadcasts of traveler information by public agencies.

v. Low cost access to a traveler information database.

vi. Availability of devices to access the data by a consumer.

For i-v, would establishment of the service be helpful or detrimental to your competitive position in the marketplace and why?

i.

ii.

iii.

iv.

v.

Objective 4. Perception of ATIS Consumer Market.

To determine the extent of current and planned ATIS market research efforts and extent of understanding of the ATIS market.

a. Has your company conducted any ATIS related market research?

      Is there anything that you learned that you could share with PATH?

      If none, are you aware of such studies by other companies or the public sector?

b. How has your company responded to results of market research?

c. Do you plan to conduct any ATIS market research in the future?

If yes:
      What methods do you plan to employ?

Do you plan to use TravInfo as market research or for product development/deployment?
Do you plan to incorporate TravInfo-related products/services as part of your market research efforts?

If no, why not?

Objective 5. Perception of TravInfo.

To assess the general perceptions of TravInfo.

a. How has TravInfo affected your company's outlook on ATIS?

b. Do you believe TravInfo will affect your company's business operations or strategy, either on a short-term or long-term basis? Why?
(Probe carefully if applicable: Do you see TravInfo as a competitor?)

c. If TravInfo is continued beyond the FOT, what do you believe the commitment of the public sector should be? (i.e. how long and how strong a commitment?)

 d. FOR NON-REGISTERED COMPANIES

Do you know about the TravInfo Participant Agreement?

If yes, why have you not signed it? Do you plan to sign it?

  FOR REGISTERED PARTICIPANTS

Have you benefited from signing the Agreement, or do you foresee a benefit?

What do you believe is your obligation under the Agreement?

e. Has signing the Agreement provided an impetus for new ATIS-related research or development by your company?

f. Is there anything in the Participant Agreement which you would like to change?

g. Can you identify any government sponsored project in ATIS that has affected your organization? If yes, how has it affected your organization?

How does this project compare to TravInfo?

h. Do you expect that TravInfo will meet your company's operations performance requirements?
Why or why not?

i. What changes would you like to see in TravInfo?

[REQUEST BROCHURES ON EXISTING PRODUCTS]

Company information

Company name: _____

Name of interviewee: _____

Title of interviewee: _____

Address: _____

Telephone: _____

APPENDIX 2: VAR Profiles And Products[*]

CLARION

Clarion is a manufacturer of mobile electronics products. Clarion has been working with Differential Corrections Inc., Etak, MetroTraffic Control and TravInfo to prepare for participation in the upcoming TravInfo project by incorporating a message alert system into the Clarion product. Clarion will be supplying its in-vehicle navigation equipment to strategic end-users; providing technical support to maintain the in-vehicle navigation equipment; and conducting technology and marketing studies. Clarion Navigation equipment is designed to decode traffic message data disseminated over the wireless data broadcast medium (DBS) and alert the drivers with a prompt by highlighting the road segment affected by congestion/incidents or construction on the displayed map, describing the nature of the problem in a text form, and voice message/routing instruction. Clarion's system features adaptive pathfinding, which aids travelers by automatically assigning the best route to any selected destination according to real-time traffic conditions and allowing them to avoid the congestion. The system includes a point-of-interest and business directory with database function to provide travelers with a tool to find, locate and reach any destination in the directory with ease.

DIFFERENTIAL CORRECTIONS INC. (DCI)

Differential Corrections Inc. (DCI) uses FM subcarriers for transmission of information and the radio data system (RDS/RBDS) technology for message standardization to provide global positioning system (GPS) subscribers a solution to the problem of locating stationary objects and moving vehicles to an accuracy of within one meter. The use of the RDS technology by DCI allows conventional FM radio broadcasts to carry digital data, including traffic and GPS corrections in standard formats, "piggy backed" on an inaudible 57 MHz subcarrier. There are two types of receivers: pagers and in-vehicles devices.

DCI also works with its FM broadcast stations to supply additional services such as traffic information over its networks. These services will be on the market towards the end of 1995. DCI plans to obtain both static and dynamic traffic information from TravInfo and will disseminate it directly to end-users.

ETAK

Etak Inc. provides automotive navigation technology and software; digital map databases and related software for map retrieval and display, geocoding (finding locations from addresses or street intersections), pathfinding and route guidance. Etak also supplies geocoded digital yellow pages and related georetrieval software for finding businesses based on location (e.g., find all of the French restaurants downtown) and proximity (e.g., find the five closest hotels to the convention center).

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[*] The following descriptions represent information provided by the VARs to the Metropolitan Transportation Commission ("Participant profiles," MTC 1995) and to PATH evaluators.

For TravInfo, Etak is working with a number of other companies to provide products and services that integrate and deliver real-time traffic, public transportation, and ride-sharing information with digital maps, digital yellow pages, and digital tourist guides for in-vehicle navigation systems; home, office and portable PCs; and other on-line services.

Etak also is providing its database and software to the TravInfo Traveler Information Center and to other TravInfo participants.

FASTLINE

Fastline intends to apply value-added traveler information to a multitude of products and services, including audiotext telephone information services, on-line services, mobile computing platforms, and interactive multimedia kiosks. Fastline plans to obtain both static and dynamic traffic information from TravInfo and will disseminate it directly to end-users. Fastline's dynamic content will include real-time incident, congestion, link-time, and delay information. The static content will include point-of-interest information, mapping and route guidance information, and multimodal public transportation route, fare, and schedule information.   This information will be disseminated in conjunction with existing and emerging communications carriers and product and service provider partners.

GARDNER-ROWE SYSTEMS INC.

Gardner-Rowe Systems Inc. provides a variety of related advanced traffic management systems (ATMS) and advanced traveler information systems (ATIS) services and software products. In connection with TravInfo, Gardner-Rowe intends to offer software products which will enable public and private organizations to easily access TravInfo information. PC and UNIX graphics workstation software will be offered for real-time status display, transportation network modeling/analysis, and decision support functions. The dynamic content will include real-time speed, incident and congestion data. Gardner-Rowe Systems also provides transportation systems engineering and data communication consulting services to local governmental agencies and private firms implementing ATMS and ATIS projects in the region.

In addition, Gardner-Rowe is part of the team that will run the TravInfo Traveler Information Center (TIC) when it becomes operational in April 1996.

INFOBANQ

InfoBanq will be providing traffic accident and congestion data gathering, fusion, conversion and distribution services to a variety of information distribution partners. TravInfo information will be incorporated into InfoBanq's real-time information database and redistributed, with additional value-added information services, to end-users and VARs.

InfoBanq is also planning to release distribution devices in the coming year to further disseminate its data.

LIIKKUVA SYSTEMS INTERNATIONAL (LSI)

Liikkuva Systems International (LSI) has developed a multipurpose GPS land navigation and information system integrating various technologies, such as GPS, wireless communications, route guidance, driver information, accurate maps and mapping software, voice interaction and graphic environments. LSI plans to use TravInfo to obtain both static and dynamic information and will disseminate it directly to end-users.

LSI is currently marketing the RETKI GPS land navigation system. This system is designed to be used on individual laptops, palmtops and pen-based units in a user-friendly Windows environment. The system allows end users to use their laptops/palmtops for everyday business activities, and then transform them into a land navigation and information resource.

LSI also is developing an optional multilingual communication environment. Using one way wireless and/or multipoint wireless communication, the user can make intelligent travel decisions based on real-time traffic congestion/incidents, parking information, transit route definitions and weather conditions. Users also would be able to supply short messaging information such as location, arrival time, and if needed, multiple vehicle data location, as a way of communicating with other travelers.

METRO DYNAMICS INC.

Metro Dynamics plans to provide the E-Line on-line system. E-Line is a Bay Areawide transportation demand management (TDM)/ rideshare on-line system combining electronic mail and bulletin board capacity as a pilot project developed by Metro Dynamics Inc. under contract with Caltrans. This program is in an advanced stage of development and in the last phases of beta testing by various employer worksites and agencies connecting via both networks and modem dial-ups. In a later phase, E-Line will provide access to the Internet.

The E-Line system allows employee transportation coordinators (ETCs), transportation systems administrators and others to electronically access information on commute alternatives via a computerized dial-in system. It can be operated for groups of local employers through a transportation management association (TMA) or similar local organization. This system permits ETCs to distribute, coordinate and present information about transit, ridesharing, air quality, bicycle commuting, and road/traffic conditions to many users without individually collecting and distributing hundreds of route schedules, maps, brochures, and program guides from various public and private commuter programs. Metro Dynamics plans on accessing TravInfo to obtain both static and dynamic traffic information. It will disseminate this information directly to end-users in addition to its on-line ridesharing system.

METRO TRAFFIC CONTROL

MetroTraffic Control currently provides traffic reports for approximately 40 radio stations and four television stations in the San Francisco Bay Area. Additionally, MetroTraffic Control provides customized real-time traffic and mobility information to a number of corporations and third-party vendors, and to GTE Mobilnet cellular subscribers in the Bay Area.

MetroTraffic Control leads the team that will run the TravInfo Traveler Information Center (TIC), which will be operational in April 1996.

MOTOROLA INC.

Motorola Inc.'s AutoLink™ project is developing a communications management center (CMC) service business to link relevant vehicular information from multiple sources to communications devices installed in vehicles.

Initially, the service will be based on one- and two-way paging technology as the messaging medium, due to the wide coverage of the service in populated areas and low cost/low battery drain of the communications hardware.

Motorola does not plan on using TravInfo to access traveler information.

NAVIGATION TECHNOLOGIES (NAVTECH)

Navigation Technologies (NavTech) provides navigable digital databases. These detailed databases are used for advanced transportation applications, including in-vehicle route guidance, fleet management, and personal navigation systems.

For the TravInfo project, NavTech will provide its Detailed City navigable digital database of the San Francisco Bay Area. NavTech's database is available for systems developers and value added resellers who wish to further enhance the TravInfo project by providing routing functionalities.

RIDES FOR BAY AREA COMMUTERS

RIDES for Bay Area Commuters is a private, non-profit organization, funded primarily by MTC, Caltrans and the Bay Area Air Quality Management District (BAAQMD), that serves Bay Area commuters and travelers. For the TravInfo project, RIDES will provide individuals with complete information on carpools, vanpools, biking and other commute options. RIDES information specialists also provide personalized service tailored to individual needs.

RIDES' services include facilitating carpool and vanpool formations; providing carpool/vanpool tips, etc., transit referrals, biking information, telecommunication information; park-and-ride lot and high occupancy vehicle lane (HOV) information, traveler help for transportation questions, and ground transportation information to San Francisco International Airport; and Commuter Check™ transit voucher program - complete information and packets.

Commuters and travelers are able to access this information by telephone, fax and mail.

ROADWISE CORPORATION

RoadWise offers a proprietary roadway-to-vehicle communications system. This system has been developed using microwave technology for transmitting messages from roadside beacons to vehicles. The system can be used for vehicle routing and navigation, vehicle locating and tracking, traveler information services, traffic management, real-time ride-matching, signal preemption, and mayday signaling. The RoadWise System is in compliance with the National ITS Architecture Development Program-Phase I submissions. RoadWise expects to use TravInfo-generated data and information as part of its development of this technology. Specifically, RoadWise hopes that the TravInfo data will allow the accurate and reliable determination of the travel times for linked roadway segments throughout the Bay Area. RoadWise will then disseminate this information to various vehicles through its communications system on a real-time basis. RoadWise also plans to provide useful traveler information based upon TravInfo material by means of telephone or land line interconnects.

SEI INFORMATION TECHNOLOGY

SEI provides software services to advanced traveler information providers. SEI Information Delivery Services' (IDS) EnRoute™ enables wireless and wireline online service providers to deliver turn-by-turn route guidance and personal travel information to end users. EnRoute™ technologies include remote access database engine communications protocol, and end user device API. Built on Navigation Technologies/European Geographic Technologies (NavTech/EGT) database, EnRoute™ enables customized driving directions and can be coupled with other databases. When it becomes available, IDS plans to incorporate TravInfo data to further optimize routes and supplement EnRoute™'s existing reservoir of data.

SHADOW BROADCAST SERVICES

Shadow Broadcast Services provides live, local-format-sensitive news, sports, traffic and weather updates to some 300 radio and television stations country-wide. The dynamic information includes CAD information from fire and police departments, traffic and congestion data as well as information from individual callers. In San Francisco, Shadow produces over 29,000 news, sports, traffic and weather reports every month. Shadow plans to use TravInfo to obtain both static and dynamic traffic information which it will then disseminate directly to end-users

SMARTROUTE SYSTEMS

SmartRoute Systems provides audio-text traveler information services and various types of ATIS and ATMS services to both the private and public sectors. SmartRoute Systems is considering the possibility of reformatting and enhancing traveler information produced by the TravInfo project for resale to various clients in the Bay Area. SmartRoute would obtain both dynamic and static traffic information from TravInfo and would disseminate it to both end-users and value-added-resellers (VARs), mainly through telephony.

SONY

Sony's first market entry into vehicle navigation is the NVX-F160 in-vehicle navigation system. The system will provide basic position and navigational capabilities, as well as information on local points of interest, restaurants, and hotels.

Future in-vehicle navigation systems will be able to incorporate real-time information from the TravInfo wireless data broadcast system (DBS) and display traffic and travel conditions.

ZEXEL USA

Zexel USA intends to use the traffic information that will be available from TravInfo DBS in its current in-vehicle navigation system. Zexel's system will most likely be able to display incidents and congestion on a map display of some kind, as well as to be able to re-route drivers around accidents and congestion.

APPENDIX 3: Participant Registration Agreement

This Agreement, dated _____, is entered into by the Metropolitan Transportation Commission ("MTC") and _____ ("Participant").

Background and Purpose

TravInfo is a Field Operational Test ("FOT") of an Advanced Traveler Information System (ATIS) financed in part with Intelligent Vehicle/Highway System funds from the Federal Highway Administration. MTC is the contracting agent for the TravInfo Management Board, which is composed of Caltrans District 4, California Highway Patrol and MTC. Operating in the San Francisco Bay Area, the TravInfo FOT expects to provide travelers with easy access to current and accurate information on traffic conditions and multimodal travel operation. The publicly funded Traveler Information Center ("TIC") is expected to be operational for a period of 24 months following its development, testing, and acceptance. No guarantee is made that this information will be provided on a continuing basis after the FOT period, although it is expected to be continued.

The TIC will gather and integrate information from a variety of sources, including (1) daily schedule updates to a transit database of routes, schedules, and fares for the region's public transit operators; (2) real-time data on the region's freeway system traffic conditions as collected by sensors operated by the California Department of Transportation (Caltrans); (3) California Highway Patrol (CHP) incident reports; (4) and other available sources of information. Multimodal ATIS information (also referred to in this Agreement as "provided data") will be made available to the general public, media, and commercial vendors to the extent feasible within the available funding. Access to the provided data is expected to be via a wireless broadcast medium and a public switched telephone service during the lifetime of the FOT.

Terms and Conditions

1. Public and private Participants are entitled to redistribute, enhance, repackage, or otherwise add value to the provided data while not degrading the accuracy or usefulness of the information to the consumer. Only registered TravInfo Participants are entitled to use the TravInfo trademark in conjunction with the Participant's product or service. This limited authorization shall not be cited or referred to as an assertion or implication that TravInfo, MTC, CHP, or Caltrans approves or endorses the Participant's product or service. Participant's intended service or product is described in Attachment A of this Agreement, which is not intended to limit or be all inclusive of the Participant's activities. MTC intends to publicize the Participant's involvement in the TravInfo FOT unless otherwise specifically requested by the Participant in writing. However, under the California Public Records Act, MTC is required to provide non-exempt MTC records relating to Participant, when requested by any interested party.

2. The management of TravInfo is committed to maintaining a cooperative working relationship with the Participants to maximize the benefits to the public. It is the intention of the TravInfo Management Board that the TIC will compile ATIS information from the best available sources and will provide a best efforts approach to the dissemination of such information.

An Advisory Committee has been established, with an open participatory policy, as one means for information exchange between the providers and consumers of the TravInfo information. Participant will receive notices of Advisory Committee meetings and other activities and will have access to information on TIC operational status, including system maintenance schedules. Reasonable efforts will be made by MTC to advise Participant in a timely fashion of both expected and unexpected changes in the operational status of the TravInfo system. Participants are encouraged to contact the TravInfo Project Manager or designated representative to report suspected system operational or maintenance problems.

3. Participants are expected to participate to the fullest extent possible with the FOT's evaluators in determining the TravInfo system's ability to meet its performance goals. Aggregated results of the evaluation will be shared with registered Participants.

4. Since the TravInfo FOT will undergo continuous changes and development, users are cautioned that information, signal availability, and data accuracy are all subject to change with little or no warning. All use of this system and its provided data is at the Participant's own risk. Participants are expected to agree to reasonable revisions to this Agreement necessitated by changes in the FOT.

5. If the Participant desires access to the TIC data system by a means other than that provided by the FOT, and such access is determined to be mutually beneficial to the TravInfo project, the Participant, and the public, special access means may be authorized. The Participant will be responsible for all costs, including capital, labor, and recurring communications charges, associated with establishing, maintaining, and, if necessary, disconnecting such special access means.

6. MTC and its suppliers make, and Participant receives, no warranty of provided data whether express or implied, and all warranties of merchantability and fitness of provided data for any particular purpose are expressly excluded. MTC and its suppliers make no warranty that the information will be provided in an uninterrupted manner or that the ATIS information will be free of errors. ATIS information is provided on an "as is" and "with all faults" basis, with this entire risk as to the quality and performance with the Participant.

In no event shall MTC or its suppliers be liable for any damages, claim or loss incurred by Participant, (including without limitation compensatory, incidental, indirect, special, consequential or exemplary damages, lost profits, lost sales or business, expenditures, investments, or commitments in connection with any business, or loss of any goodwill) resulting from loss of provided data or inability to use provided data irrespective of whether MTC and its suppliers have been informed of, knew of, or should have known of the likelihood of such damages, claim or loss. This limitation applies to all causes of action in the aggregate, including without limitation breach of contract, breach of warranty, negligence, strict liability, misrepresentation, and other torts.

Participant agrees to include disclaimers of warranty and liabilit equivalent to the above two paragraphs in all of Participant's agreement with lower tier recipients or users of the ATIS information.

7. Any confidential information obtained from the CHP's Computer Aided Dispatch System, which is exempt from disclosure under the California Public Records Act (Government Code 6250 et. seq.), will be deleted by the TIC before dissemination. Participants signing this Agreement will not be required to sign separate non-disclosure agreements with the CHP.

8. The Participant agrees to defend, indemnify, and hold MTC, CHP, and Caltrans, harmless from and against any and all liability and expense, including reasonable defense costs and legal fees, caused by any negligent or wrongful act or omission of the Participant, its agents, officers, and employees, in the use, possession, or dissemination of ATIS information made available from the TIC, to the extent that such liability may be imposed upon MTC, CHP, and/or Caltrans including but not limited to personal injury, property damage, injury to privacy or reputation. In addition, the Participant shall indemnify, defend, and hold harmless, against such liability and expense, the individualmembers of the TravInfo Management Board, the Advisory Steering Committee, the Architecture, Design, and Integration Consultant, the Technical Advisor, the Independent Evaluator, and other TravInfo related personnel.

9. Any and all disputes that may arise between the parties to this Agreement regarding its terms or regarding performance under this Agreement shall be submitted to final and binding arbitration in accordance with Sections 1280 through 1294.2 of the California Code of Civil Procedure. The arbitrator's award shall be final and binding on the parties and judgment may be entered upon it by a court of competent jurisdiction. Either party may demand arbitration by filing a written demand with the other party within 60 days after occurrence of the dispute. The costs of the arbitration shall be borne the losing party or in such proportion as the arbitrator determines.

10. This Agreement shall remain in force for the duration of the FOT and may be earlier terminated by either party with or without cause by 30-day prior written notice delivered to the other party of this Agreement. The termination of this Agreement does not release the Participant from the responsibilities, liabilities, or indemnification, outlined in this Agreement, that might result from the Participant's actions during the term of this Agreement. If the Participant has provided special equipment within a TravInfo facility for access to the provided data, MTC shall provide reasonable access for the Participant's retrieval of said equipment.

11. All questions pertaining to the validity and interpretation of this Agreement shall be determined in accordance with the laws of the State of California.

For MTC: For the Participant:

By_____   By:_____

Lawrence D. Dahms   Name:_____

Executive Director   Title:_____

Metropolitan Transportation Commission   Address:_____
Joseph P Bort MetroCenter   _____
101 Eighth Street   _____
Oakland, California 94607   _____
                                            Phone: _____

Attachment A

<Registered Participant inserts text here to
describe their project efforts utilizing TravInfo data>