

Title: Trip: Traveler/Retailer Information Program

Course:

Year: 1993

Author(s): E. Buescher, T. Daim, J. Kuzmack, A. Sandoval and J. Teeter

Report No: P93052

	ETM OFFICE USE ONLY
Report No.:	See Above
Type:	Student Project
Note:	This project is in the filing cabinet in the ETM department office.

Abstract: Today's travelers are faced with perplexing decisions when traveling unfamiliar highways. At some time during their trip, they will need to get fuel, eat, and find a place to rest or sleep. But which exit should they take? Which gas station has the lower prices or offers mechanical services? Which restaurants offer what type of food and what is today's special? Is the best hotel the one right off the highway? What are the rates and which one has vacancies? Travelers guess at the answers to these questions, since timely and accurate information is usually not available.

PROJECT PROPOSAL

FOR

TRIP

TRAVELER/RETAILER INFORMATION PROGRAM

Prepared by

Ed Buescher Tugrul Daim John Kuzmack Al Sandoval James R. Teeter

for

Dr. Richard Deckro Professor of Engineering Management 510 Department of Engineering Management Portland State University

June 1, 1993

.

TABLE OF CONTENTS

SUMMARYPAGE	1
PRODUCT MISSION STATEMENTPAGE	1
PROJECT/PRODUCT GOALSPAGE	1
MEETING THE GOALSPAGE	2
PRODUCT DESCRIPTIONPAGE	3
COMMUNICATION TECHNOLOGYPAGE	4
MARKETING PLANPAGE	8
MARKET SHAREPAGE	8
PRICINGPAGE	9
TEST MARKETPAGE	9
PROMOTIONPAGE	10
SERVICE ASSESSMENTPAGE	10
BUSINESS ASSESSMENTPAGE	10
IMPLEMENTATION SCHEDULEPAGE	12
APPENDIX IPAGE	13
APPENDIX II	17

-

SUMMARY

Today's travelers are faced with perplexing decisions when traveling unfamiliar highways. At some time during their trip, they will need to get fuel, eat, and find a place to rest or sleep. But which exit should they take? Which gas station has the lowest price or offers mechanical services? Which restaurants offer what type of food and what is today's special? Is the best hotel the one right off the exit or is it the one that you can't see from the highway. What are the rates and which one has vacancies? Traveler's guess at the answers to these questions since timely and accurate information is usually not available.

PRODUCT MISSION STATEMENT

The Traveler/Retailer Information Program, TRIP, provides a service that aids both travelers and retailers by giving travelers the latest local retailer information while being cost effective for the retailer.

PRODUCT/PROJECT GOALS

- 1 No cost to travelers to use service
- 2 Easy method for retailer to input and update information
- 3 Get to market quickly with minimum investment
- 4 Recover investment and be profitable within one year
- 5 Identify long term possibilities

MEETING THE GOALS

- 1 The traveler should have the means of receiving the local retailer information without having to purchase or rent any equipment. Localized broadcasting to the traveler's car radio satisfies this requirement. Therefore, the traveler simply needs to tune to the correct "station" to receive the desired information.
- 2 Retailers can input or update their information by calling the Central Office using a 1-800 telephone number. Information can be transferred via voice message or fax or transmitted data file. The Central Office takes this information and relays it through the local telephone company's cellular network at the right time. The Central Office tracks the retailer's messages for billing purposes. The retailer is billed according to the number of times the message is played.
- 3 As with most new concepts, market acceptance is relatively unknown. Although customer surveys may or may not indicate product interest, results are often questionable as the customer is trying to anticipate using a service with which he is unfamiliar. Surveys are costly and may delay time to market. Therefore, the product's viability will be tested by initially offering it only in the Portland/Seattle markets. A limited number of sites was chosen and equipment and vendor services will be contracted in order to minimize the investment.
- 4 The TRIP project is planned to start 3Q93 with service available in 4Q93. Revenues and start-up and operational costs are summarized in the following table with detail available in Appendix II.

CALENDAR YEAR		3Q93	4Q93	1Q94	2Q94	3Q94
REVENUE	INCREMENTAL	0	47	70	117	163
	CUMULATIVE	0	47	117	234	397
COST	INCREMENTAL	149	98	46	44	45
	CUMULATIVE	149	247	293	336	381
PROFIT/(LOSS)	INCREMENTAL	(149)	(51)	24	73	119
BEFORE TAXES	CUMULATIVE	(149)	(191)	(167)	(94)	25

PROFIT/LOSS SUMMARY (Amounts in thousands of U.S. dollars)

- 5 The following options will be examined dependent on the product's success in the marketplace.
 - * Expansion of existing service within pilot marketplace
 - * Expansion of existing service to other marketplaces
 - * Use advanced technology to grow service to include:
 - locality selection: receiving information from other than the traveler's immediate area
 - trip routing and navigation

PRODUCT DESCRIPTION

TRIP provides a means for businesses to direct advertising at the users most likely to need their products. Information about local gas stations, restaurants, hotels, and other businesses are available to the traveler whenever he needs it. In order to provide service to the traveler at no cost, the technology for receiving the information must be readily available and easy for a mobile traveler to use. In order to provide service to retail businesses, the cost of sending information to the traveler must be competitive with existing means of communication such as billboards, radio, and newspaper. Simplicity of use for the retailer is also a consideration as is the type of information and type of businesses being considered. This need for a simple cost effective service along with the type of information that is provided becomes the driving force for determining which technology to use. If the type of information aimed at the traveler is large and complex, then a sophisticated transmit and receive system is necessary. For a simple information format, the technology becomes simpler.

Alternatives for information flow, system design, and communication paths for implementing this product are presented in Appendix I. Following is a description of the major technical elements chosen to implement TRIP.

COMMUNICATION TECHNOLOGY

Two paths of communication are necessary to provide service. First, businesses need to be able to send information to the Central Office (Path 1). Second, the Central Office needs to relay the information to the mobile user (Path 2). The following section describes these paths which are shown in Figure 1.

RETAILER TO CENTRAL OFFICE

The information that retailers send to the travelers will be in a format similar to standard radio advertising. In order to keep the business' costs competitive with other advertising, additional costs such as hardware and maintenance must be avoided. The most obvious choice for transferring the retailer's information to the Central Office is the telephone system. All businesses have a telephone and many have FAX machines and modems. Therefore, there is no additional hardware installation, maintenance costs, or other start-up fees for the business.

CENTRAL OFFICE TO TRAVELER

Delivering the retailer's information from the central office to the user is complicated. The traveler is mobile and needs timely information wherever he is. The obvious way for sending this information to the traveler is by radio. In order to determine which receiver technology best suits the traveler, the typical traveler's situation must be reviewed.

The driver of an automobile is concentrating upon watching the road and traffic around him. Therefore, the traveler's safety may be impacted if the received information requires the driver to look at some type of display. To be valuable to the traveler, the information must be timely in that the user needs it as he approaches the next exit. Using the car's standard radio as the information receiver would not interfere with driving and would make the information available to the traveler at no additional cost.

CENTRAL OFFICE

The Central Office receives information from the retailers via the telephone system. Businesses can input their message either by voice, fax, or data file transfer using modems. This information is processed immediately and each retailer's message is encoded to include number of times played, when played, and which Roadside Transceiver(s) will relay the message. The messages are broadcasted from the Central Office to each Roadside Transceiver via cellular telephone technology.

CELLULAR TELEPHONE NETWORK

The cellular telephone company provides the media and switching capabilities which simplifies the design and implementation of the service. Since each transceiver has its own individual address (telephone number), the Central Office calls each transceiver and transfers the appropriate information.

ROADSIDE TRANSCEIVERS

In the case of standard radio advertising, a traveler hears an ad but is not concerned because the location of the business is not known and/or close to the travelers position. If the information

Page 5 of 19

delivered to the traveler contains exit numbers and driving directions, the traveler can locate the businesses that are in his immediate area.

Roadside transceivers would receive the information sent via cellular telephone company from the Central Office and relay it to the traveler by using an FM transmitter. The traveler can receive this information on his FM radio by tuning to the proper frequency. Each transceiver consists of a cellular telephone receiver with a unique telephone number and a low power FM transmitter.

FIGURE 1

BLOCK DIAGRAM OF COMMUNICATIONS SYSTEM



PRICING

TRIP service will be priced competitively with existing advertising media. A comparison of current prices for advertisements on the highways with TRIP pricing follows:

Radio:	\$120 for 30 seconds air time or
	\$4 per second of air time
Billboards:	\$2,000 per month
TRIP:	\$0.15 per second of air time

TRIP is priced 26 times less expensive than standard radio!

TEST MARKET

Getting to market quickly with a minimum investment is an important project goal. To facilitate this, the local Portland and Seattle markets have been chosen as a pilot area for testing TRIP's viability. This area was chosen because of its proximity to the company and familiarity with the existing macroenvironment (laws, regulations, taxes, advertising rates and procedures, retailers, etc.). Forty-four exits lie along the Interstate 5 corridor from Portland to Seattle. Availability of gas, food and lodgings has been identified at each exit. Although there are certainly many more businesses near each of the exits, only those that are registered with the American Automobile Association (AAA) have been identified so far. These are shown in the following table.

I-5 AREA	GAS	FOOD	LODGING	TOTAL BUSINESSES	TOTAL # EXITS
PORTLAND-VANCOUVER	6	7	7	20	7
VANCOUVER-OLYMPIA	19	17	8	44	20
OLYMPIA-SEATTLE	14	15	13	42	17
TOTALS	39	39	28	106	44

I-5 EXIT BUSINESSES

Page 9 of 19

PROMOTION

Acceptance of a new product or service consists of the following stages: awareness, interest, evaluation, trial, and adoption. Therefore, TRIP advertising should inform (and/or remind) the travelers and retailers of common traveler woes and frustrations. The message is that wasted time and effort can be eliminated through direct advertising to the service user. Once convinced to try TRIP, the customers will understand the advantages of direct advertising compared with existing advertising media.

The retailers in the pilot (test) area will be provided with brochures outlining the TRIP service and directly contacted by company sales representatives. Both travelers and retailers will learn about TRIP's advantages through rented billboard signs, standard radio advertising air time and newspaper advertising spots. Advertising of the service will be heaviest during the first two quarters, but will taper off with awareness and acceptance of the product.

SERVICE ASSESSMENT

In alignment with the company's Total Quality initiative, TRIP will be constantly improved. Valuable information in terms of customer feedback, retailer's reactions, and operational difficulties will be collected during the first six months of operation. This time frame should provide an adequate database for assessing the business. It is critical that TRIP provides a valued service that delivers measurable benefits to the customers.

BUSINESS EVALUATION

During the initial pilot/test market period, price, revenues, market share, and profits will be analyzed. This study will evaluate the reactions of competitors and be the basis for pricing strategy. Controls and plan monitoring procedures may be refined and re-evaluated following test market results. Data obtained will provide a basis for statistical analysis.



MARKETING PLAN SUMMARY

.

FIGURE 2

-

				TRI	P PR(6/1/9	OJE 93	СТ													
				2Q93		1	3	Q93		40	293		1Q94		2094	l	L	3	Q94	
1D 1	Task COMPLETE PROJECT PROPOSAL	Duration Od	Start 6/1/93	May	Jun	J		Aug Sep	Oct		ov Dec	Jan	Feb Mar	Apr	May	Jun	Ju	<u> </u>	lug	Sep
2	PROJECT APPROVAL	b0	7/1/93																	
3	IDENTIFY TRANCFIVER SITES	54	7/1/93																	
	CONTRACT/PERFORM SITE SURVEYS	201	7/8/03		****															
5	INITIATE SITE LEASES WITH LOCAL ACENCIES	200	8/5/03																	
		200	7// 02																	
		32/0	7/1/95																	
	START- UP ADVERTISING CAMPAIGN	900	//1/93																	
8	SIGN UP CUSTOMERS	312d	7/22/93																	
9	MEASURE /IMPROVE PRODUCT	261d	9/30/93									1								
10	TRANSCEIVERS	90d	7/1/93			-											1			
11	CONTRACT DESIGN	20d	7/1/93																	
12	CONTRACT MANUFACTURING	35d	7/29/93																	
13	CONTRACT INSTALLATION OF FIRST 5	10d	9/16/93																	
14	CONTRACT INSTALLATION OF SECOND 5	10d	10/21/93																	
15	SET UP CENTRAL OFFICE	60d	7/1/93																	
16	LEASE FURNISHED OFFICE	5d	7/1/93																	
17	NEGOTIATE TELEPHONE COMPANY'S SERVICES	10d	7/8/93																	
18	DEFINE/RECEIVE EQUIPMENT	35d	7/22/93																	
19	HIRE OFFICE CLERK AND TECHNICIAN	10d	9/9/93																	
20	TRIP SERVICE READY	DO	9/29/93																	
		<u> </u>		L	h ag							<u></u>	1999 - 1 99 - 199	J						
Project:	Critical		Progress					Sumi	nary	-			,							
Date: 6/1/93 Noncritical			Milestone	•				Rolle	d Up	\diamond										
				Pa	ge 12	of 1	9	****												

APPENDIX I

SYSTEM DESIGN ALTERNATIVES

INFORMATION FLOW

Major system elements shown with alternatives detailed.

MERCHANT TO STATION SEGMENT

- 1. point to point
- 2. multipoint to multipoint
- 3. point to multipoint
- 4. multipoint to multipoint

STATION TO MOBILE USER SEGMENT

- 1. point to point
- 2. point to multipoint
- 3. multipoint to point
- 4. multipoint to multipoint



Page 14 of 19

APPENDIX II

.

PRO FORMA

.

REVENUE SUMMARY COST SUMMARY

DETAIL

.

REVENUE COST

Page 17 of 19