F-FS 5

INPUT

FIELD SERVICE PLANNING INFORMATION PROGRAM

FIELD SERVICE BRIEF

CENTRALIZED DISPATCH
AND VOICEBANK

JULY 1980

FIELD SERVICE PLANNING INFORMATION PROGRAM

OBJECTIVE: To provide senior field service managers with basic information and data to support their planning and operational decisions.

DESCRIPTION: Clients of this program receive the following services each year:

- Field Service Briefs - Six reports which analyze important new technical and management issues within the field service areas. Reports focus on specific issues that require timely attention by senior management.
- Major Planning Reports - Three reports that will present an in-depth analysis and recommendations of a major technical or management issue that will assist in the formulation of major policy alternatives in the planning of field services.
- Annual Report - This report will summarize major activities in the field services industry during that year in order to determine major trends and their effect on the establishment of future field service planning. Forecasts will be provided of the likely technical and management changes that may occur in order to meet the future requirements of users of these services.
- Annual Presentation - INPUT staff will make an annual in-house presentation to field service executives to summarize the results of the previous year's research and to formulate jointly the strategic guidelines for the research program for the current year. These presentations will occur in the Spring of each year.
- Consulting Support - Individual consultation with INPUT research staff on an as-needed basis through telephone inquiries and visits.

RESEARCH METHOD: INPUT carries out extensive research in computers, communications and associated fields:

- Research topics are selected by INPUT based on discussions with client representatives.
- Research for this program includes professional interviews with users, vendors, universities, industry associations, and other analysts.
- Conclusions derived from the research are based on the judgement of INPUT's staff.
- Professional staff supporting this program have 20 or more years of experience in data processing and communications, including senior management positions with major vendors and users.

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FIELD SERVICE BRIEF

CENTRALIZED DISPATCH AND VOICEBANK

JULY 1980

CENTRALIZED DISPATCH AND VOICEBANK

ABSTRACT

This brief presents a discussion of centralized dispatch with a new product offering - Voicebank - providing an example of a new centralized dispatch service. Voicebank, an offering from a subsidiary of Exxon Enterprises, includes a central, high-reliability computer with procedures for handling dispatch, and producing management reports. Voicebank is presented as an alternative available to field service management in the area of dispatch techniques.

F-FS5
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INPUT

CENTRALIZED DISPATCH AND VOICEBANK

TABLE OF CONTENTS

CENTRALIZED DISPATCH AND VOICEBANK

LIST OF EXHIBITS

1 INTRODUCTION

I INTRODUCTION

A. RELEVANCE TO MANAGEMENT

- In the course of conducting research for the Field Service Program, INPUT identifies products and services that may be of interest to field service management. However, INPUT's presentation of this information does not imply an endorsement of that product or service. Evaluations of products and services must obviously be made based on an individual company's requirements.

- One prime focal point for research is the issue of productivity; one aspect of field engineer productivity is the dispatching function.

  - The difficulty in providing fast response while at the same time achieving minimum field engineer idle time is well understood.

  - What to do about it is not well understood.

  - A semi-automated dispatch service such as VoiceBank is a new tool whose use is a timely and appropriate subject of analysis.

- The key aspect of centralized dispatch is that it may remove the local manager from the decision loop.

- This manager's judgement is, therefore, not available on discussions relative to account knowledge, people alternatives and so forth.

- On the other hand, centralized dispatch relieves the manager from having to deal with the routine requirements which make up the great majority of the calls.

- The system may be designed to reenter the service manager into the loop under certain conditions where his judgement is required.

- As part of each client's analysis of centralized dispatch, the tradeoffs on the issue of optimized use of the manager's time must be considered.

- VoiceBank is a service of Delphi Communications Corporation, an affiliate of Exxon Enterprises. Beyond the service itself, an understanding of the offering has the following benefits to field service management:

  - The methodology used in the service can be applied to in-house dispatch systems, either totally or partially.

  - VoiceBank can function as a bridge between decentralized and centralized dispatch:

    . As a "test bed" for centralized dispatch in selected areas.

    . As an off-prime shift alternative to centralized or decentralized dispatch.

  - VoiceBank can also function as a quality control device relative to current dispatch procedures. VoiceBank executives state that field service organizations are forced by the system to organize effectively. An organization which is not able to organize effectively will not be able to exploit the system. In the view of VoiceBank, it pinpoints "expensive thrashing."

- The ideal client, in the view of VoiceBank, is a high-technology company with:
  - A high requirement for responsiveness.
  - Typically, 50-100 servicepeople in an area, or more nationwide.
  - A desire to get all or some of the advantages of a central dispatching function.
- The key attributes of the system are:
  - Reliability through a special redundant computer system.
  - Twenty-four hour, seven-day availability.
  - Management reports.
  - The fact that the information is entered into a computer system and "never forgets."
  - In some instances, a cost advantage.
- Current users of the system include:
  - A word processing vendor.
  - A third-party maintenance company.
  - A microfilm equipment manufacturer.
  - A major minicomputer company.

- A nationwide point-of-sale terminal company.

- A communications equipment company.

- Users vary between local and national coverage, and between 24-hour coverage and after-hours coverage.

  - Charges are on a "per-operator-minute" basis, at $0.55 per operator minute.

  - A setup charge of $100 (more for a large area) is applied.

  - There are additional costs associated with line charges.

  - A minimum of approximately $200 per month per account is standard.

  - Typical charges for an "after-hours" account in a local area currently run at $600-700 per month.

- The present center is in Brisbane, California near San Francisco. A Los Angeles center is scheduled to open at the end of 1980.

  - Houston, Washington, DC and Chicago are targetted for 1981.

  - The final anticipated configuration calls for centers in 67 U.S. cities.

- Several additional aspects of VoiceBank increase its relevance.

  - As part of Exxon Enterprises, VoiceBank has the potential to be integrated into other EEI components, including Qwip, Qyx, Vydec, Xonex, InteCom and Periphonics. This group of office products and communications companies, in combination with the Delphi processor at the heart of the VoiceBank system, could become part of an integrated, digital communications offering.

- It has the potential to provide a data capture capability and control tool as part of an inventory control system. (INPUT is completing a Field Service Brief on the subject of inventory control concurrent with this brief.)

- It is representative of the kind of new offering becoming available which field service management must consider as a potential tool in the task of "asset management."

B. ALTERNATE SOLUTIONS TO FIELD SERVICE DISPATCH

- Several methods of implementing centralized field service dispatch are currently employed. Field Service organizations may choose to:

  - Use a traditional manual system.

  - Use an automated in-house system or systems located at headquarters, regions or districts. This approach is being implemented on a large scale by IBM with its announcement of the installation of over 100 in-house computer dispatch systems in the U.S. and overseas.

  - Supplement the in-house system with an assortment of locally available telephone answering services.

  - Employ an automated dispatch service such as VoiceBank, either exclusively or in combination with in-house systems.

- The latter alternative of a shared dispatch service became available from VoiceBank Communications Center, San Francisco, in 1979. It is an automated service which incorporates the following attributes:

- Management reports and control tools.

- Shared services to reduce cost.

- Computer-assisted operation and control.

- Twenty-four-hour, seven-day operational reliability.

II VOICEBANK SERVICE DISPATCH

A. CONCEPTS AND OBJECTIVES

- The service offered by VoiceBank Communications Center for field service dispatch was designed to provide field service managers with the following:

  - Immediate response to service requests.

  - Dispatch of customer engineers.

  - Monitoring and control of service-call activity.

  - A reporting facility for busy mobile technicians.

  - On-line status information.

  - On-line escalation instructions for handling problem situations.

  - Reports for management audit and review.

  - One hundred percent system up-time reliability.

- It is an automated service implementing an advanced communications computer and a staff of trained professional operators.

B. VOICEBANK COMMUNICATIONS CENTER - HISTORY

- The first experimental telecommunications service center was opened by Delphi Communications late in 1976 to prove the Delta system concepts in an operating environment. Located in Brisbane, California (near San Francisco), this center initially concentrated on providing clients with telecommunications services which, although similar in function to common telephone answering services, would be enhanced through the use of the Delta computer.

- The number of clients has expanded and other services, such as service dispatch, executive communications, order-taking for department stores, and advertising lead-taking are now offered. Additional services are being studied and developed.

- Thousands of clients now share the services.

C. DELTA SYSTEM RELIABILITY

- The basis for reliable, 24-hour service is the Delta computer.
  - The Delta computer is an advanced, communications-oriented system designed and manufactured by Delphi Communications Corporation.
  - It is a unique multiprocessor, multibus system intended for applications requiring continuous, 100% up-time operation.
  - The current system is capable of handling up to 7,000 telephone numbers through a series of concentrators.
- The Delta system is designed to manage simultaneously large numbers of independent jobs, processes and activities involving mixed-media, such as

voice, data, text and images; mixes of circuit, packet and message communications switching; transaction processing; management of large data bases; and high input/output data rates.

- The system is presented by VoiceBank as having no down-time for failures, maintenance, expansion or alterations, and failure recovery as being absolutely automatic and instantaneous.

- These reliability levels of the Delta System have been tested during more than three years of actual operation serving VoiceBank customers 24 hours per day, seven days per week.

D. DESCRIPTION OF SERVICE OPERATION

- The VoiceBank service employs a number of related components to capture, monitor and control the dispatch, tracking and reporting events associated with each request for service. These events are organized as an audit trail in what VoiceBank terms a "service transaction." Some or all of the available components may be used to structure the service, depending upon the amount of control and reporting a user requires.

- Exhibits II-1 and II-2 are flow charts showing typical dispatch operations.

  . Exhibit II-1 illustrates a dispatch using some available components, including critical account and escalation.

  . Exhibit II-2 employs only a minimum procedure.

1. INITIAL SERVICE REQUESTS

- A VoiceBank operator uses the Delta System display information to handle a customer in an informed manner.

- Questions are asked in accordance with instructions to solicit full and complete information regarding the customer, site location, phone number, equipment model, the problem, the urgency, etc.

- Upon completion of the call, the computer assigns a unique job number for filing, retrieving and tracking the information associated with all subsequent events in the service transaction. All information is automatically dated and time-stamped.

2. DISPATCH

- Immediately following the completion of the customer call, the computer displays the dispatch instructions on the operator's console. These instructions designate the prime customer engineer for the account, the specific equipment, model, day, time of day, how to contact, and alternate FEs.

  - Since these instructions are stored in a computer file, they reflect dynamic changes in daily duty roster, illness, vacations, etc.

  - They may be updated and changed according to varying operational requirements by calling a VoiceBank operator and dictating the changes.

- Following the instructions, the operator initiates the dispatch (a radio page, for example) which is dialed directly by the Delta computer to eliminate error. Upon completion, the operator sets up a "tickler" in the computer to reactivate the dispatch job if the FE does not respond within a predetermined period of time.

3. "TICKLER"

- The "tickler" in the Delta system ensures that transactions will not be forgotten. The computer uses it to manage future events in the transaction and raises the alarm should these events fail to happen.

EXHIBIT II-1

VOICEBANK DISPATCH INFORMATION FLOW - COMPLETE SERVICE

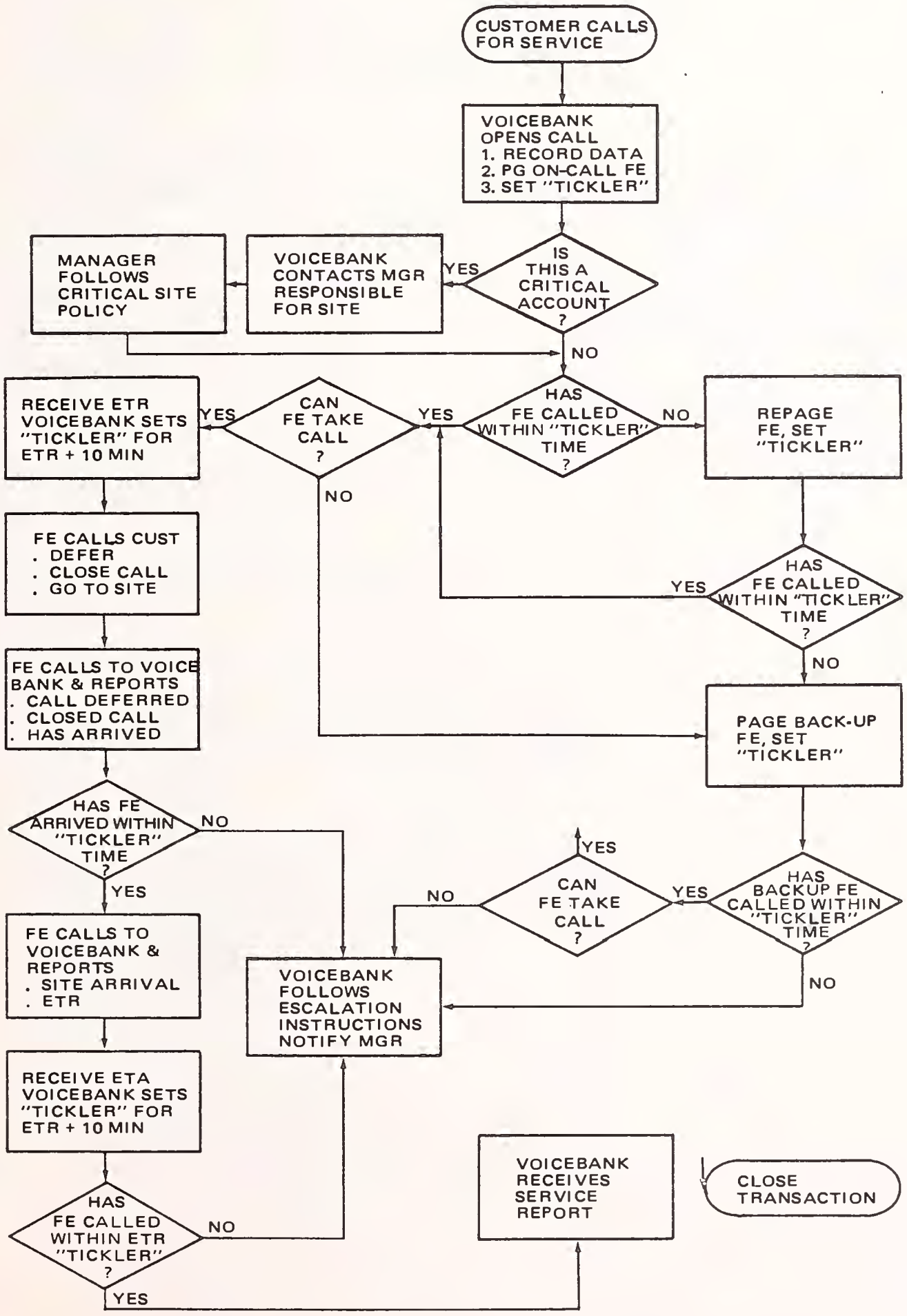
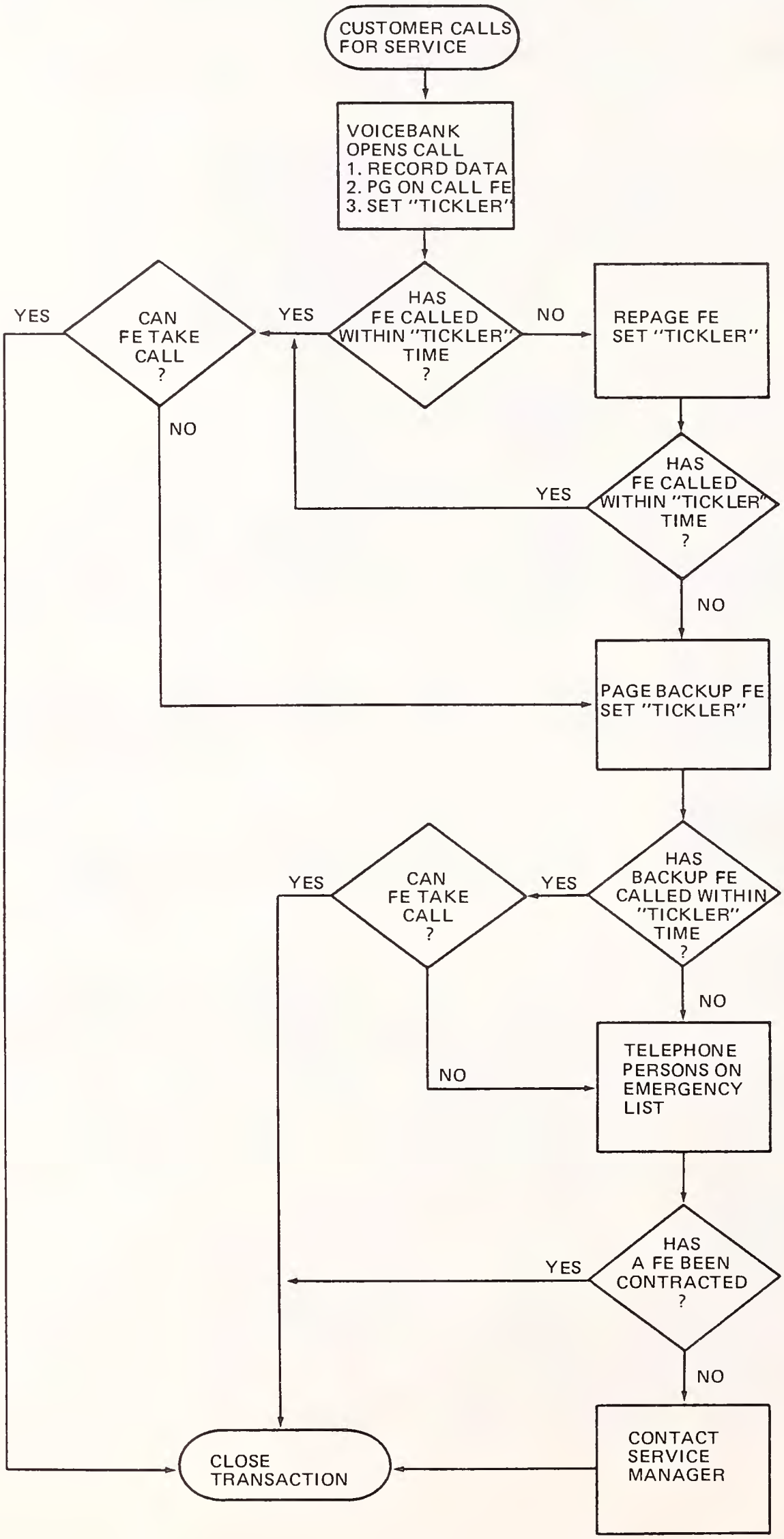


EXHIBIT II-2
VOICEBANK DISPATCH INFORMATION FLOW - LIMITED SERVICE



- A "tickler" is set for each event which must be monitored by the operator for completion.

- If the FE does not respond or call in a report within the predetermined time period, the transaction is returned to an operator along with instructions on how to proceed. Such instructions may be to repage, to contact an alternate FE or to escalate by notifying service management.

4. CRITICAL ACCOUNTS

- The VoiceBank service accommodates what are termed "critical" accounts. These could be large accounts, new installations or accounts in which an inordinate number of equipment problems are being experienced, etc.

- Again, this is a dynamic list which includes instructions to be followed when a service request is received. Such an instruction could be to notify the local or regional service manager.

5. DISPATCH MESSAGE PICKUPS

- Upon pickup, the name of the customer engineer responding to the call and the time are entered into the job file. The estimated time of arrival (ETA) is also entered.

- If desired, a "tickler" reflecting the ETA is set. If the customer engineer does not report arrival on-site within the specified period, the job is returned to an operator who will repage or escalate.

6. SITE ARRIVAL

- The FE advises a VoiceBank operator upon arrival at the site.

  - Desired information such as the customer engineer's assessment of the malfunction and estimated time to repair (ETR) is also entered.

- The site arrival time may be used for billing purposes.

- Once again, a "tickler" is set reflecting the ETR.

7. JOB STATUS INFORMATION

- During the job, all dispatch notes and data associated with each event are quickly accessable either for operator response to job status inquiries, or when a transaction returns to an operator at the end of a "tickler."

- Having complete information available on each service transaction permits an informed response. If a customer calls again; if a service manager or supervisor requires information on a job, personnel status or location; if a job involving a critical account is being monitored, these events can be handled.

- The entire file on any transaction is always accessable until the service transaction is completed.

8. SERVICE REPORT

- Upon completion of the call, the FE enters details on the repair and parts used for reporting and inventory purposes. Only then is the transaction closed with a date and time stamp. It is then transferred to a closed transaction file for storage pending hard-copy printing.

- A typical transaction report is shown as Exhibit II-3. The events in the transaction are printed out in reverse sequence, with the final event described in the top left box and the first event described in the bottom right box.

- Copies of the transaction reports are sent to field service management.

EXIBIT II-3

A TYPICAL VOICEBANK TRANSACTION REPORT

```
5201 ACQUIRE MSG TO CLIENT                    4040
  G   REPAIR REPORT          34 06 05   6:45P
CO:  HELIOTRONIX                          TR#0044
C.E. NAME: BERNIE STERLING
REPORT:  WAS ABLE TO FIX OVER PHONE,
BUT MITCH KATZ SHOULD CALL THEM
TMW
3 TO:  SERVICE                                (6)
```

```
5201 ACQUIRE MSG TO CLIENT                    803C
  G   MESSAGE DLVRD          34 06 05   6:36P
CO:  HELIOTRONIX                          TR#0044
ASSIGNED C.E.:  BERNIE STERLING
ANY MSG:  (PER MITCH KATZ)
   *TICKLE 4 HRS*
3 TO:  SERVICE                                (5)
```

```
5201 ACQUIRE MSG TO CLIENT                    8038
  G   EXCEPTION REPORT       34 06 05   6:22P
CO: HELIO-TRONIX                          TR#0044
JOB STATUS:  HAVE TO FIND A C.E.  TO
TAKE THE JOB,  C.E.  W/C U TO LET U
KNOW.
PER:  MITCH KATZ                              (4)
3 TO:  SERVICE
```

```
5201 ACQUIRE MSG TO CLIENT                    8036
  G  DISPATCH NOTE           34 06 05   6:21P
CO: HELIO-TRONIX                          TR#0044
RE: SVC REQ (X) OR ND REPAIR REPORT ( )
WHO U CLD          TIME          PAG   RES
PATTI CARP         5:56P         (X)   ( )
PATTI CARP         6:07P         (X)   (X)
MITCH KATZ         6:19P         (X)   ( )
3 TO:  SERVICE                (3)
```

```
5201 ACQUIRE MSG TO CLIENT                    802E
  G   DIAL OUT REPORT        34 06 05   5:58P
CO: HELIO-TRONIX                          TR#0044
RE: SVC REQ (X) OR ND REPAIR REPORT ( )
WHO U CLD          TIME          PAG   RES
PATTI CARP         5:56P         (X)   ( )
---IF U GET THIS   NOTE, PLS     ( )   ( )
SCHED A 12 MIN RE TRY.                (2)
3 TO:  SERVICE
```

```
5201 ACQUIRE MSG TO CLIENT                    802C
  G  SERVICE REQUEST         34 06 05   5:56P
N:  BARBARA NUGENT                        TR#0044
CO: HELIOTRONIX
T#: (415) 673-3884          CITY: S.F.
SVC CONTRACT#: 0050-9       DIV: CORPORATE
EQPT MOD#: IDC 3000
PROB: CHEWING UP PAPER TAPE                   (1)
3 TO:  SERVICE
```

◯ = SEQUENCE OF EVENTS. NOTE TIME OF DAY AS RECORDED

9. JOB SUSPEND

- There are occasions when a transaction cannot be completed because a part is required or the FE effected a temporary solution to get the customer back on-line. In either case, a return call is required.

- A "tickler" may be entered in the VoiceBank center based upon the expected arrival of the part or the agreed-upon time the equipment will again be available for service.

10. REPORTING

- The Delta system captures all information acquired during a service transaction with the date and time of each incident in a file unique to that transaction. A printed copy of all such files can be provided on a periodic basis. Such information can be a powerful tool both in resolving disputes with customers and for managing field personnel.

  - "Exception" reporting by VoiceBank operators captures evidence of operational problems for management review. Typically, this provides information on various problems with service personnel and/or complaining customers.

  - The information items contained within a given event message, including the date/time stamp, can be extracted for summary statistical data analysis. This may be information about customers, service personnel, equipment malfunctions, parts inventory, etc.

  - Transmission of service transaction text messages to remote terminals (or in-house MIS systems) is a planned facility for the near future. Local managers can have service activity reports delivered to their individual local office, if desired.

- VoiceBank Centers capture traffic data as part of their internal monitoring of client activity. Such data include call activity distributed over time of day, by day of week, and "hold time" statistics. During the initial start-up, and for purposes of activity evaluation, this information is reviewed with VoiceBank customers.

E. FLEXIBILITY

- The concept of the VoiceBank service is based upon the dispatch operators' use of stored information and instructions to handle service call requests and all other aspects of the dispatch procedure properly. Therefore, as new operational requirements evolve and old ones change, there is no significant retraining required for the VoiceBank dispatchers. Only the information they use in the VoiceBank system must be modified.

III ORGANIZATIONAL IMPLICATIONS

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A. IMPLICATIONS FOR FIELD SERVICE ORGANIZATIONS

- As with any automated system, VoiceBank involves certain changes within the implementing organization.

- The structure of VoiceBank assumes that:

  - Assignments on a weekly or monthly basis are made by geographic area, type of equipment, customer, etc.

  - Backup and alternative assignments are made in a similar manner.

  - Whenever more complex problems require management decisions for effective service call assignment, the appropriate manager can be contacted for this particular function. This keeps local management involved without having to handle the other tasks of dispatch activity.

- The system includes an escalation option.

  - This option involves management in the resolution of problems in a structured way.

- The increased visibility to management of the customer engineers' activities also affects the management-field engineer interface, with the potential consequence that field engineers feel they are being watched too closely.

- The VoiceBank service also provides a "Message Service" to all levels of a field service organization. Personnel can contact others in the field or in the various offices. Procedural changes can be disseminated via this mechanism, which may be viewed as "Operator-Assisted Electronic Mail."

B. IMPLICATIONS FOR SERVICE CUSTOMERS

- The use of VoiceBank dispatch operators introduces an additional interface between field service personnel and their customers.

  - This interface can serve as an informed buffer to unhappy callers.

  - It can also be a "filter" in which some information may be lost.

- The system requires that the customer behave in a prescribed way. It becomes important for service customers to identify themselves, their particular equipment and the nature of problems properly in order for the appropriate service technician to be assigned.

- Because of service contract considerations, many service customers call for service to which they are not entitled. To ascertain the legitimacy of the service request, the service customer must be able to give an identifier which indicates service entitlement.

- The availability of all events reported during the course of a service transaction provides convenient and accurate information to satisfy customer requests for current status. The audit trail of service activity can minimize confusion as to the action taken and when it was taken. It also provides a tool which management can use in developing a customer profile.

C. OVERALL IMPLICATIONS

- VoiceBank represents the kind of service which Field Service managements must evaluate as it relates to basic factors such as:

  - Rising labor costs.

  - Increasing customer demands for up-time.

  - Continued turnover of field engineers.

  - Distributed data processing, with the result that equipment may be more remote, and the problem involved located at more than one site.

  - Increased inventory-carrying costs.

  - Optimization of the manager's time.

- Often the final choice on whether or not to use a new service such as VoiceBank is secondary in importance to the management process of evaluating the service. The evaluation of VoiceBank presented in this brief:

  - Assists clients in gaining a quick knowledge of a new offering in the context of the total field engineering environment.

  - Enables clients to evaluate their own dispatching techniques in comparison to an approach which benefits from a mixed customer base.

SUBSCRIPTION PROGRAMS: Designed for clients with a continuing need for information about a range of subjects in a given area. All subscription programs are fixed fee and run on a calendar year basis:

- Planning Service for Computer & Communications Users - Provides managers of large computer/communications facilities with timely and accurate information on developments which affect today's decisions and plans for the future.

- Small Establishments Service - Analyzes and forecasts small establishments' (<500 employees) use of office, communication, and computer services and products. Applications requirements and economics are emphasized.

- Computer Services Market Analysis Service - Provides market forecasts and business information to software and processing services companies to support planning and product decisions.

- Computer Services Company Analysis and Monitoring Program - Provides immediate access to detailed information on over 2,000 companies offering software and processing services in the U.S. and Europe.

- Field Service Planning Information Program - Provides senior field service managers with basic information and data to support their planning and operational decisions.

MULTICLIENT STUDIES: Research shared by a group of sponsors on topics for which there is a need for in-depth "one-time" information. A multiclient study typically has a budget of over $100,000, yet the cost to an individual client is usually less than $10,000. Recent studies specified by clients include:

- Maintenance Requirements For The Information Processing Industry

- Value Added Network Services

- IBM Series/1 Analysis

CUSTOM STUDIES: Custom studies are proprietary to a client. Fees typically range from $10,000 to over $50,000 and are a function of the extent of the research work. Examples of recent assignments include:

- Survey Fortune 500/50 companies to determine plans for distributed data processing.

- Compare the internal charges for EDP services in a large company to those of commercially available services.

- Determine the market potential for an associative Relational Data Base Management System Processor.

- Conduct the 1979 ADAPSO Survey of the Computer Services Industry.

- Analyze the opportunities and problems associated with packaging terminals and/or minicomputers with remote computing services.

ABOUT INPUT

THE COMPANY

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions. Continuing services are provided to users and vendors of computers, communications, and office products and services.

The company carries out continuous and in-depth research. Working closely with clients on important issues, INPUT's staff members analyze and interpret the research data, then develop recommendations and innovative ideas to meet clients' needs. Clients receive reports, presentations, access to data on which analyses are based, and continuous consulting.

Many of INPUT's professional staff members have nearly 20 years experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed in 1974, INPUT has become a leading international consulting firm. Clients include over 100 of the world's largest and most technically advanced companies.

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