

AN ANALYSIS OF THE METHODS AND EFFECTIVENESS  
OF THE DOWNWARD FLOW OF COMMUNICATIONS  
AT TEXAS INSTRUMENTS INCORPORATED

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This study is for the purpose of identifying the flow of internal downward communication and its effectiveness in a particular large industry, Texas Instruments Incorporated. Specifically, the following questions are examined in this study:

(1) Has information which has been sent down by top management been spread to all levels, and is it being understood?

(2) Are employees at all levels receiving the information they desire and sometimes need for their work?

(3) For different types of subject matter, what channels are being used to transmit messages down the system, and are they effective mediums?

The survey method was chosen to gather the necessary information. Of the possible methods to carry out a survey, the personal interview was chosen. A questionnaire was developed, and a pretest was conducted.

A random stratified sample of one hundred individuals was interviewed.

Chapter One presents the purpose of this study, along with its scope and limitations. A review of the pertinent literature is also advanced.

Chapter Two examines the corporation being studied and describes some of the germane philosophies of Texas Instruments Incorporated. The selection of the subjects is also dealt with in this chapter.

Chapter Three concerns the method followed, including explanations of the procedure used, questionnaire development, the selection of subjects, interviewing procedures, and the treatment of the data collected.

Chapter Four presents the results of the study and the discussion of the results.

Chapter Five contains the summary and conclusions, along with recommendations.

The study found that about 80 percent of the population either distorted messages or did not receive the information being sent down. For hourly employees the percentage is approximately 90 percent for distortion or no information. Salaried employees had approximately 65 percent distortion or no information. It is significant to note that 80 to 90 percent of the population showed a moderate-to-high interest level in the type of information tested.

In response to the second question examined through this study, the research reflects that 68 percent of the

salaried and 45 percent of the hourly employees desire further information. The information that is requested is both company and personal.

In response to the third question examined, the data reveal that the newspaper is the main source for overall general information for 39 percent of the population. The survey showed that 42.5 percent of the population receive their company-related information directly from their supervisors, either in person-to-person situations or in group meetings. However, 18.5 percent have no source of information in this category. Data show that 43.8 percent of the population receive personal information directly in private contacts with their supervisors. However, about 10 percent of the sample have no source of information in this category.

The following recommendations were made:

(1) In order to increase the effectiveness of the face-to-face channel, an audit of supervisor's communication is suggested. Using the results, training sessions should be scheduled to improve areas recognized as weak.

(2) It is recommended that a philosophy of communications backed with corporate policies be established.

(3) An ombudsman is recommended at the corporate level to answer questions for supervisors.

(4) It is suggested that all documents be labeled with communicating instructions and that meetings conclude with the same.

(5) To complete the analysis of the corporation's communication networks, further studies should deal with horizontal and upward flows of communication.

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THESIS

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## CHAPTER I

### INTRODUCTION

Much has been written in recent years concerning the importance of communication to business and industry. The need to see oneself as a part of a thriving organization and as a contributor to its growth, as well as an influence on its policies, is necessary for individual well-being, effective performance, and thus, company profits. In turn, this teamwork is critically dependent on a good communications climate of openness and candor in the everyday relationships between management and employees. At one time, companies were small enough so that management was able to devote some of its time to face-to-face contact with its employees. Today, however, many companies have expanded to the point where such contact is all but impossible. A number of colleges and universities are now offering seminars and courses for executives in some phase of communication. Many management books and periodicals are full of information about new communication devices and techniques. Lecturers by the score have spread the gospel of communication throughout the business world. Many companies have installed specialists in newly-created

communication departments; and, furthermore, communication consultants and consultant organizations have appeared across the country.

A thorough investigation of the literature, however, reveals that there have been few attempts to determine objectively the effectiveness of organizational communications. Often, ineffective downward communication exists because of management's failure to take the time to evaluate its present communication systems in terms of effectiveness (2, p. 243).

#### Statement of the Purpose

The purpose of this study is to identify the flow of internal downward communication and its effectiveness in a particular large industry, Texas Instruments Incorporated. This study will also strive to answer several related questions.

Question I: Has information which has been sent down by top management been spread to all levels, and is it being understood?

Question II: Are employees at all levels receiving the information they desire and sometimes need for their work?

Question III: For different types of subject matter, what channels are being used to transmit messages down the system, and are they effective media?

### Scope and Limitations

This study was limited to an analysis of the downward communication process within a single division of Texas Instruments Incorporated.

The nature of the sample employed places a limitation on this study. Since the literature indicated that one cannot generalize findings outside of the population from which the sample was selected (5), the relationships identified as a result of this study apply solely to the company from which the data were collected. Thus, the findings stated in this study can be used to describe the characteristics of only this one company rather than to describe what is taking place in most industrial companies.

### Review of Literature

The purpose of this section is to review significant research studies which are germane to the understanding of the methods and effectiveness of the downward flow of communication in organizations.

#### Organizational Communication

From an analysis of the literature, one is able to discover several conceptualizations which have been entitled "organizational communication." For example, in a study conducted by Maier, Hoffman, Hooven, and Read (7), organizational communication was perceived as (1) a system where ideas and information can flow from individual

to individual within the organization; and (2) a system which provides a means to assure that the receiver's perception of the meaning of a piece of communication will be similar to the sender's perception of the meaning of the same communication. Thayer (14), when writing about the nature of interpersonal communication, constructed a similar conceptualization of communication which could be applied to the setting of a social system. According to Thayer, all interpersonal communication, whether inside or outside the structure of a social system, can be broken down into two basic types. One type can best be described as that communication encounter which is aimed at seeking a synchronization of the participants with regard to their thoughts or behavior. During such an encounter, the objectives of one of the participants include the changing of the thoughts or behavior of another person(s) so they will be similar to his or what he intends the other person's to be. An example of this type of communication might be the efforts of a chairman of a board of directors attempting to convince the other board members that a new idea he possesses is feasible in terms of achievement of the company's objectives. By doing this, the chairman is seeking a synchronization of a thought among the group with respect to a single idea. Thayer (14) identified this type of communication as being "synchronic" communication, which

can take place both inside and outside the structure of a formal social system.

The second type of interpersonal communication encounter which Thayer identified has for its desired outcome a state of affairs which is new to both the originator and the receiver. An example of this type of encounter might be a participant's presentation to a group of a problem for which he has no solution. Through interpersonal communications, however, a solution (new state of affairs) is developed which could not have been developed by any one individual. Thayer identified this type of communication as "diachronic" communication.

This particular study of organizational communication will be based, primarily, on the informational definition developed by Maier, Hoffman, Hooven, and Read (7).

### Media

Several studies have been conducted to assess the effectiveness of the various media used to communicate with employees.

Eugene Walton (15, p. 78), after working on a study carried out at the Naval Ordnance Test Station, reported that one hundred randomly chosen employees claimed that the grapevine was the fastest means of spreading messages among employees. Walton concluded, also, that the station newspaper was the most reliable medium, according to the

sample, because employees were sure that they would see the house organ. The second reason given by the employees for rating a communication channel as most effective was the assurance that it was "official."

Thomas L. Dahle (2, p. 243) concluded, on the basis of his study on media, that if management wished to transmit certain types of factual information to its employees, the best results could be obtained if the material was presented orally at the same time that written material on the subject was made available.

In another experiment Thomas Dahle (2) investigated five methods of transmitting information to business and industrial employees--oral, written, combined oral and written, pictorial (bulletin boards, et al), and the grapevine. The combined method of giving instructions verbally and in writing at the same time was found to be the most effective.

In addition, the Center for Group Dynamics reported in its study of rumor transmission that

The likelihood that a given item of information circulating through a social structure will reach a particular individual is in part determined by the number and nature of the channels of communication in the structure that touches this individual (11).

From his experience as a communication consultant, Harold Zelko (16, p. 10) arrived at these conclusions:

(1) oral, face-to-face communication is best; (2)



supervisors are the key communicators; and (3) employees like to see and hear their executives.

### Communication Channels and Flow

The communication flow in a large organization is too often looked upon as strict and rigid according to the organizational chart. Tannenbaum related the accepted view that such procedure would cause "effective communications." He states that through incentives and supervision, the superior reasonably insures that all the behavior responses of the subordinates are in conformance with those desired (13, p. 33).

Harbison relates the difficulty, however, in what he refers to as the "top-down" view of communication and describes what actually occurs.

Authoritarian, or top-down communication often breeds misunderstandings and determined resistance to authority in the lower levels of an organization whereas lack of proper direction may lead to chaos (4, p. 365).

The existence of levels of hierarchical authority in an organization tends to create points of initiation and reception. Between these points are a given number of encoding and decoding mechanisms, resulting in a greater opportunity for misinformation (9). Further, according to Migginson,

The importance of effective communication increases as the size and complexity of an organization increases, as the information channels tend to become clogged. The increased size and complexity curtails face-to-face contact, which is important in effective communication (8, p. 529).

The greater the complexity of the organization, the more components--the more the conflicts of organizational and personal needs and goals. All these are seen to be effective barriers to good communication. French listed ten such barriers to effective communication (4, p. 155). Sayles and Strauss referred to these barriers as "distortions" and gave a composite of some twelve blockages to communicating effectively (13, p. 362).

Barriers to effective communication are not indigenous to downward communication. Sayles and Strauss also make reference to this aspect of ineffective intra-organizational process.

The men at the top do not always know the right questions to ask or the right instructions to give . . . . Unless subordinates feel free to communicate these matters upward, management will lack soon the data essential to sound decision (13, p. 371).

### Measuring Effectiveness

Although few examples could be found where communication audits have been conducted, several sources have expressed the need to evaluate a company's communication program.

In a survey conducted by Andrew Chase (17), one of the main reasons indicated for ineffective downward communication was management's failure to take time to see whether or not their present communication techniques were effective. Frank Fisher (3) has pointed out that skill in communicating depends upon mastery of the basic communication process and

involves the following steps: (1) clarifying the idea or problem; (2) getting participation in developing a solution to the problem; (3) transmitting ideas or decisions; (4) motivating others to take action agreed upon; and (5) measuring the effectiveness of communications. Fischer goes on to note: "Just as communications often suffer from lack of planning, so they suffer from failure to evaluate their effectiveness."

Raymond Ross (11, p. 514) suggested that the propositions which emerge from communications research may provide some yardsticks for management in evaluating its own communications program. He recommends the following procedures:

First, check what kinds of communication go on, how much, and in what forms. Trace a given communication through the line organization and find out where it seems to get stuck.

Second, use a homemade temperature survey to find out what are some of the basic assumptions held by managers and supervisors and whether these are impeding communication.

Third, try simple experimentation. Communicate a given message in different ways to different groups; then try to find out how the message is received and what seems to be the best method to use.

### Contents of the Study

Chapter One has presented the purpose of this study, along with its scope and limitations. A review of the pertinent literature has also been advanced.

Chapter Two examines the corporation being studied and describes some of the germane philosophies of Texas Instruments Incorporated. The selection of the subjects is also dealt with in this chapter.

✓ Chapter Three concerns the method followed, including explanations of the procedure used, questionnaire development, the selection of subjects, interviewing procedures, and the treatment of the data collected.

Chapter Four presents the results of the study and the discussion of the results.

Chapter Five contains the summary and conclusions, along with recommendations of the researcher.

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## CHAPTER II

### COMPANY AND POPULATION DESCRIPTION

The company chosen for this study is Texas Instruments Incorporated. TI is a diversified company engaged in the development, manufacture, and distribution of many products all over the world. The firm was established in 1930 and has grown into a global complex; its reputation as a major brain center for space-age technology is worldwide. But global as its influence has become, thirty-six plants in sixteen countries throughout the world, the fact remains that its beginning and much of its growth was launched from Texas.

Until 1957, the 500 acre site in Dallas was farm and pasture land. Now, more than three and one-half million gross square feet of plant space are on this land. On this site, TI produces chemical materials, semi-conductor devices, and electronic equipment and systems. In addition, corporate headquarters, central research laboratories, and the world headquarters for geophysical service activities are based in Dallas.

TI's operations are divided into seven product groups (See Figure 1, page 14). Within these seven groups there



# TEXAS INSTRUMENTS INCORPORATED

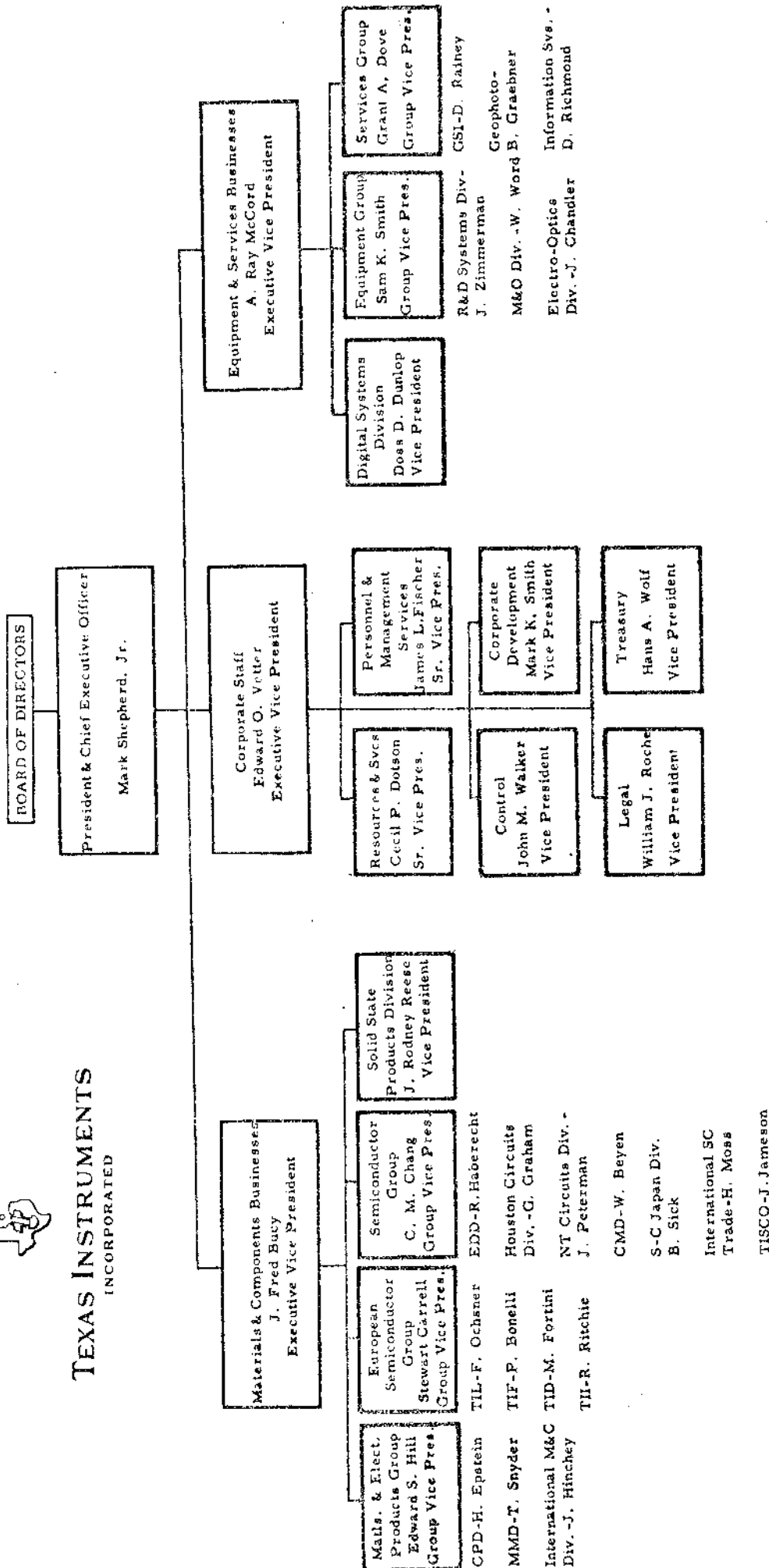


Fig. 1--Texas Instruments' organizational chart



are about eighty basic organizational units of "Product-Customer Centers." Each PCC is actually a complete business within itself with research, manufacturing, and marketing functions, as well as responsibility for planning and profits.

A sample of one hundred persons was decided upon as a number that could produce valid results and still be practical in terms of time. All one hundred had to be personally interviewed by the researcher during the time period available for this part of the project.

The sample was randomly selected, but stratified to the following extent: one in ten among exempt personnel, and one in approximately forty-three among non-exempt employees. TI's Personnel Files Management Computer system was employed to obtain the sample.

To measure the dissemination of information, the sample was divided into job grades. Job grades are the levels within the organization and reflect both pay and responsibility. Job grades 4, 5, and 6 are non-exempt or hourly employees; grades 1, 2, and 3 are exempt or salaried employees. Job grades 3 and 6 are the top of their respective classification. Of the one hundred individuals that were interviewed, the job classification breakdown is as follows: nineteen were job grade 1; seventeen were grade 2; one was grade 3; these three grades totaled thirty-seven exempt employees;

fifty-four were job grade 4; four were grade 5; and five were grade 6, for a total in the non-exempt category of sixty-three.

Because of the necessarily small size of the sample and because the audit could be made within one particular organizational chain, a single division was chosen for the audit rather than all of TI-Dallas. The particular division was chosen for the audit because it offers a sort of "mini-version" of TI in general; it has a multi-site (Dallas/Sherman) operation, both of which were readily accessible.

Since a corporation's basic philosophies can have a tremendous effect on the communication atmosphere, several of Texas Instruments' pertinent philosophies are described in this study. A very important philosophy at TI is that the organization is goal-oriented and must be so managed that each individual employee associates achievement of his personal goals with the achievement of TI goals. This philosophy has a great effect on how TI manages, how TI pursues objectives, and how TI uses human resources.

An underlying premise of this philosophy is that the vitality of TI depends upon the personal commitment of the employees. TI has accepted as a management responsibility the creation of those conditions which upgrade the human spirit through opportunities to participate in a worthwhile endeavor. This goal requires a high degree of sensitivity to the on-the-job attitudes and the needs of employees. This

requirement is reflected in the company programs of self-scrutiny (attitude surveys, post-performance review analysis, TI motivation research, etc.). These tools of management provide information on which to base corrective action and to monitor effectiveness.

The inter-personal relationships among employees exemplify this team spirit of family grouping. As one moves up in the traditional organization, opportunities increase to surround oneself with physical evidence of his greater status. The TI philosophy states that status symbols are not harmful provided (1) they do not inhibit communication; (2) they do not reinforce or increase social distances; and (3) they are available through a democratic process. A few practices which characterize the employee's relationships and the climate are as follows: common dining room facilities; equal parking privileges; tenure-related identification badges; assignment of office space in accordance with actual need; functional office furnishings; informal first-name use in day-to-day relationships; and informality in attire. Alone, probably, none of these would have a significant impact, but taken collectively, they become significant.

Not unrelated to this concept is the way in which employees are encouraged to communicate. One of the inevitable consequences of company growth is the tendency to formalize communications. Many large organizations

fall into a pattern of avoiding verbal orders and ultimately try to commit everything to writing. TI hopes to avoid this pitfall and encourages face-to-face communication and the use of the telephone. The company feels that although such informal communication shortens management-action time and reduces clerical costs, it carries a parallel responsibility to keep adequately posted all intervening levels, line and functional, in the formal organization. Managers are encouraged to use deliberate judgement in deciding what must be committed to paper as an act of good management and what is best achieved less formally. The success of any communications system is felt to depend as much on an atmosphere of security, fairness, and friendliness as on how the information is stated.

## CHAPTER III

### METHOD

The major purpose of this section of the study is to identify the research procedures which were followed with regard to the implementation of this study.

The goal was to study communication in an actual situation. It was desired that the research be beneficial to a company as well as provide the basis of this thesis. With these criteria in mind, a meeting was scheduled December 15, 1971, with Charles Hughes, Director of Corporate Personnel at Texas Instruments Incorporated. At this meeting it was decided that an audit of downward communication at TI would be a prospect for both parties. Several other TI contributors were Dan Amis, Manager of Personnel Services, John Wilson, Manager of Internal Communications, and Jack Land, Editor of the Dallasite, the company paper. Several meetings followed in January, 1972, at which the goals and overall plans for the study were worked out.

During these meetings the purpose of the study was developed. The purpose was to identify the flow of internal communication and its effectiveness. Several related questions were to be answered also. These include (1) has information from top management been sent down,

spread to all levels, and is it being understood; (2) are employees at all levels receiving the information they desire and sometimes need for their work; and, (3) for different types of subject matter, what channels are being used to transmit messages down the system and are they effective media?

TI considered this audit as a pilot or prototype survey with a view to possible extension within TI at a later date. TI wanted to learn something more about the audit technique and the subject matter sampled to see if it would give them a basis for considering broader audits.

The survey method was chosen to gather the necessary information to carry out the proposed study. The survey is concerned with collecting facts about a currently existing situation and interpreting them. One of the reasons this method was chosen was that it deals with practical problems.

Of the many possible methods to carry out a survey, the personal interview was chosen because working directly with employees would allow for a more personal and involved study. Also, this technique would allow an additional check on possible misunderstanding of the questionnaire. It was decided that a prepared questionnaire would be used by the researcher during the interviews. Before the questionnaire was developed, twenty-five letters were written to various large companies throughout the country to see what types of,

if any, communication audits they had employed. Only three companies responded, and of those, only one had conducted an audit on a much smaller scale than proposed in this study.

A questionnaire was developed which reflected the purpose of the study. The biggest problem involved in this process was gearing questions so that individuals at all levels of the company would have the ability to respond. After the questionnaire was completed, it was checked by the researcher and John Wilson of TI to make sure that the questions would elicit responses that would provide data to answer the primary questions being considered in the study.

The questionnaire was made up of several parts. One part was designed to determine if a message that had been fed into the system in the past had reached the individual being interviewed and in addition measured the accuracy of the perceived message. Another portion of the questionnaire presented a list of benefits and other types of information and asked from what channel of communication this type of information was learned. It also checked to see how credible the interviewee felt the source to be. The individual was then asked to rate his level of interest in the various types of information. Specific information was also evaluated to see if the individual was comprehending messages that top management felt should be known, understood, and used. The questionnaire was also developed to determine if the individual was receiving all the types of

information he desired or needed, and, if not, he was given the opportunity to explain.

The interviewing technique and questionnaire were pretested on fourteen employees from different levels of the organization. This was done to spot any misunderstandings or fallacies. Only a few minor changes in format were made after the pretest. The pretest indicated that the interview time would be about thirty minutes, and it would be best to develop an answer sheet so that it would be easier to keypunch the data.

After these minor changes were made, the questionnaire, accompanied by a memo, went to the head of the division that was being surveyed. The head of the division asked for only a few changes. First, he requested that a question be deleted since he knew his people did not know the answer, as he had not passed that information on to them. And, two, he requested a few questions to be added pertaining to the feedback of quality of employees' work and their productivity. His wishes were considered, and the questionnaire was changed. A copy of the changed questionnaire can be observed in the appendix.

Next, the company's computerized personnel file was used to obtain the random stratified sample within the designated division.

Appointments were then made with the one hundred individuals, who were located in Dallas and Sherman.



These participants included representatives from all three shifts. This process took a considerable amount of time since all hourly personnel were handled somewhat differently from salaried. All supervisors of hourly individuals were notified first to determine when it would be convenient to interview the employees.

The interviewing time took a month and a half. Each interviewee was told from the start of the interview that his responses were to be anonymous, but that certain demographic information would be helpful so that correlation along these lines could be made. All one hundred individuals were willing to have the interview, and no problems arose in this area.

After the interviews were completed, the answer sheets were sent to be keypunched on computer cards. Since money was not available to handle the expense of a computer program, however, the only function the computer handled was to sort the cards into various breakdowns as by job grade and to print-out the sorted data.

The remainder of the research, evaluation by percentages, etc., was done manually. The information was divided into two categories, company related and personally related, in order to analyze the data.

## CHAPTER IV

### RESULTS

The present research was designed to study the downward flow of communication and its effectiveness in Texas Instruments Incorporated. Specifically, the following questions were advanced: (1) Has information which has been sent down by top management been spread to all levels, and is it being understood? (2) Are employees at all levels receiving the information they desire and sometimes need for their work? (3) For different types of subject matter, what channels are being used to transmit messages down the system, and are they effective media?

#### Question I

Has information which has been sent down by top management been spread to all levels, and is it being understood?

A number of the questions on the questionnaire were selected to pinpoint data to answer Question I. The following table shows the number of correct responses by job grade groups for each of the pertinent questions.

TABLE I  
CORRECT FEEDBACK OF ORIGINAL MESSAGES

Question	Percent of Exempt	Percent of Non- Exempt	Percent of all Employees
1A. What is TI's long range sales goal for the latter seventies? (6a)*	26	11	17
1B. Do you know what the initials OST stand for? (7a)	38	3	16
1C. Do you know whether TI profits in 1971 increased or decreased compared to 1970? (8a)	83	80	81
1D. Do you know what TI's profit sharing percentage was for 1971? (16a)	43	12	24

\*Numbers in parenthesis refer to question number on questionnaire--see Appendix I.

It should be noted that Question 1C (see Table I) is worded in such a manner that it can be answered without ever receiving any specific information pertaining to the subject. Therefore, it should be disregarded in evaluating the effectiveness of communication.

OST in question 1B on Table I needs to be explained. At the core of TI's success story are the letters OST--

objectives, strategies and tactics. OST is a system of management that stresses innovation. Its purpose is to tap the resources of the entire organization for future growth.

TABLE II  
BREAKDOWN OF INFORMATION DISTORTED  
OR NOT RECEIVED

Question	Distorted		No Information	
	Exempt	Non-Exempt	Exempt	Non-Exempt
1A	37%	4%	37%	85%
1B	8%	14%	54%	83%
1D	41%	43%	16%	45%

These statistics reinforce the fact that the non-exempt employees do not receive the quantity of information that the exempt employees receive.

In terms of information flowing down the system in 1B, 83 percent of the non-exempt people who did receive information on OST gave inaccurate feedback. In response to question 1D, 78 percent of the non-exempt employees who received information pertaining to the profit sharing percentage gave incorrect answers.

Comparing the exempt personnel to the non-exempt in the two examples given above, the pattern is reversed. In this case, a majority of the people who receive the information give accurate feedback. In question 1B, for example, 83 percent of the exempt people receiving the information

answered with accurate feedback. In 1D, 57 percent were able to respond accurately to the question.

A significant point in analyzing the flow of information in the vertical segment of the company is that one of the questions that appeared on the pretest was removed by the group vice-president. This was the message that was given to top managers by an executive vice-president. They were told that the message was very important. They were not told specifically to pass the message down. They were not instructed to withhold this information, either. The group vice-president had the question removed because he said that none of his people would know the information since it was confidential, and he had not disseminated the message. After this statement, the researcher checked to make sure that the message was not confidential and confirmed that the group vice-president had mistakenly classified it.

### Question II

Are employees at all levels receiving the information they desire and sometimes need for their work?

The data reveals that 68 percent of the exempt, while only 45 percent of the non-exempt, desire further information. The type of information desired primarily by exempt personnel includes (1) greater accuracy and honesty on company policies; (2) corporation-wide, long-range goals;

(3) better exchange of information between groups; and (4) explanation of key personnel rating system.

The information most often requested by non-exempts includes the following: (1) general information about the company; (2) updated Personnel Policy Handbook; (3) more training programs to upgrade individuals; (4) actual job openings; (5) technical information relating to their job; and (6) job-security information.

### Question III

For different types of subject matter, what channels are being used to transmit messages down the system and are they effective media?

The question was posed, "What do you consider your most common source of information about Texas Instruments in general?" Table III shows the number of responses for each job grade versus the source and total percentage of each source.

TABLE III  
MOST COMMON SOURCE OF INFORMATION  
ABOUT TEXAS INSTRUMENTS

Sources	Job Grade						%
	1	2	3	4	5	6	
Face-to-face	5	4	1	14	1	1	26
Documents	2	1	0	9	2	2	16
Newspaper	6	0	1	25	4	3	39
Grapevine	6	4	0	5	1	1	17
Outside Sources	0	1	0	1	0	0	2
Total							100

The newspaper is the most common source for general information, followed by face-to-face communications with supervisors.

A second question relating to general job information was asked: "What do you consider your most common source of information about your job and work group?" Table IV presents the data collected.

TABLE IV  
MOST COMMON SOURCE FOR JOB  
AND GROUP INFORMATION

Sources	Job Grade						%
	1	2	3	4	5	6	
Face-to-face	13	5	2	42	7	7	76
Documents	0	1	0	7	1	0	9
Newspaper	0	0	0	1	0	0	1
Grapevine	5	4	0	4	0	0	13
Outside Sources	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No Sources	1	0	0	0	0	0	1
Total							100

The data show that by far the most common source of direct job-related information is, as would be expected, the supervisor.

In order to analyze the data on source, the questions were separated into company-oriented questions and personally oriented questions. Two examples of each category are shown in detail, followed by a summation of the sources for each category.

Table V shows the sources used for OST and other management concepts.

TABLE V  
SOURCES FOR MANAGEMENT  
CONCEPTS

Sources	Job Grade						%
	1	2	3	4	5	6	
Face-to-face	13	11	1	10	1	3	39
Documents	3	1	0	4	0	0	8
Newspaper	0	3	0	1	1	0	5
Grapevine	1	1	0	1	0	0	3
Outside Sources	0	0	0	1	0	0	1
Other	0	0	0	0	0	0	0
No Source	2	1	0	37	2	2	44
Total							100

It is significant that 44 percent of the people surveyed do not have a source for TI management concepts. Of the ones who do receive this information, the majority receive it from their supervisor.

The second example of company-oriented information is represented by the question, "What is your source for information with regard to specific plans or goals related to sales, profits, cost, etc. for 1972 in your area?" Table VI reflects the results of the query.



TABLE VI  
SOURCES FOR GROUP GOALS

Sources	Job Grade						%
	1	2	3	4	5	6	
Face-to-face	18	8	2	38	7	5	78
Documents	1	0	0	0	1	1	4
Newspapers	0	0	0	0	0	0	0
Grapevine	0	1	0	0	0	0	1
Outside Sources	0	0	0	1	0	0	1
Other	0	1	0	0	0	1	2
No Source	0	0	0	14	0	0	14
Total							100

The table clearly shows that the supervisor is the prime source of this information. It is also significant that 14 percent of the population had no source for this type of information.

After assessing all source questions relating to company-oriented information, Figure 2 was developed to show the breakdown of the sources.

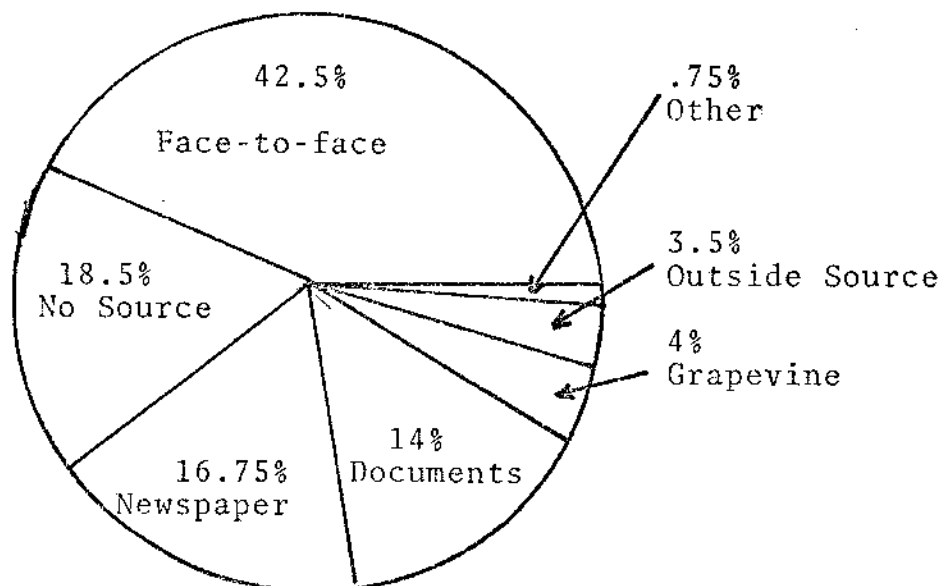


Fig. 2--Breakdown of sources for company oriented information

The primary source for this type of information is the face-to-face channel. The second largest segment of the population does not indicate a source.

Tables VII and VIII present results of questions dealing with personally oriented information. Table VII reflects the sources of information in answer to, "What is your source of information on avenues and possibilities of growth and development (i.e., job openings and training)?"

TABLE VII  
SOURCES FOR PERSONAL OPPORTUNITIES  
INFORMATION

Sources	Job Grade						%
	1	2	3	4	5	6	
Face-to-face	2	3	1	2	3	3	14
Documents	1	2	0	30	3	1	37
Newspaper	11	2	1	16	2	1	33
Grapevine	5	2	0	2	0	1	10
Outside Sources	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No Source	0	1	0	4	0	1	6
Total							100

The data show that 70 percent of the people receive this personal information from a written source. Face-to-face contact with supervisors also plays an important role in communicating these opportunities. The grapevine shows quite a significant part in relaying this type of information also.

Benefit programs are usually of high interest to employees; Table VIII shows how the population receives this type of information.

TABLE VIII  
SOURCES OF BENEFIT INFORMATION

Sources	Job Grade						%
	1	2	3	4	5	6	
Face-to-face	0	2	1	8	1	1	13
Documents	6	5	0	21	3	2	37
Newspaper	11	2	1	19	2	4	39
Grapevine	2	0	0	3	2	0	7
Outside Sources	0	0	0	0	0	0	0
Other	0	1	0	0	0	0	1
No Source	0	0	0	3	0	0	3
Total							100

The written channels again are the main sources. The newspaper is the most significant media for benefit information.

Figure 3 gives a total picture of the source distribution for all questions related to personally oriented information.

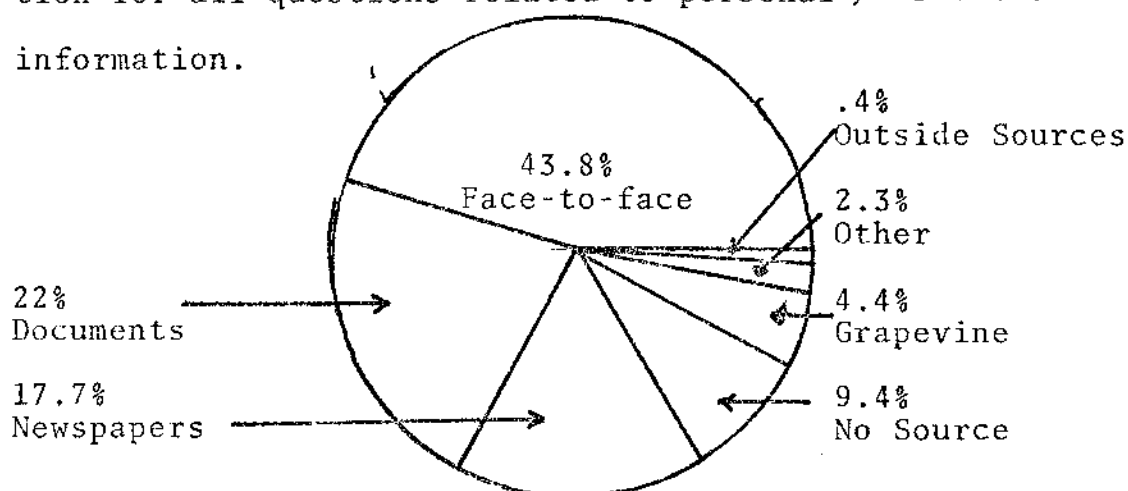


Fig. 3--Source distribution for personally oriented information

The most significant source of personally oriented information is face-to-face meetings with supervisor or meetings.

The credibility of these sources was studied from the viewpoint of the population. Table IX reflects the responses to the query, "Which source of information about TI and your job do you find most accurate?"

TABLE IX  
DISTRIBUTION OF POPULATION'S PERCEPTION  
OF MOST ACCURATE SOURCE

Sources	Job Grade						%
	1	2	3	4	5	6	
Face-to-face	9	7	2	38	5	2	63
Documents	8	1	0	7	2	3	21
Newspaper	1	1	0	6	0	1	9
Grapevine	1	1	0	2	1	0	5
Outside Sources	0	0	0	1	0	1	2
Total							100

For all types of information, the population feels the face-to-face communication to be the most accurate.

To measure the credibility of individual sources, the information was divided again into company-oriented and personally oriented sections. Table X presents the credibility of the face-to-face medium when relaying corporate information.

TABLE X  
FACE-TO-FACE CREDIBILITY RATINGS FOR  
CORPORATE INFORMATION

Subject Matter	Rating by Percentages				
	1	2	3	4	5
Sales Goals (6D)	0	12	26	28	34
OST (7E)	2.5	15.4	38.5	35.9	7.7
1971 Profit (8D)	0	4	40	42	14
Group Goals (9D)	1	4	33	38	24

The rating scale used in the credibility tables is as follows: 1 is poor, 2 is fair, 3 is good, 4 is excellent, and 5 is superior. The percentages shown are the percentages of the number of people selecting that source. Table X tends to indicate that the more complex the information is, the less credible the face-to-face medium seems, i.e., OST. Overall, the credibility of the face-to-face channel is good or better.

Table XI presents the credibility of documents when transmitting corporate-type information.

TABLE XI  
DOCUMENT CREDIBILITY RATINGS FOR CORPORATE INFORMATION

Subject Matter	Rating by Percentages				
	1	2	3	4	5
Sales Goals (6D)	0	14	72	14	0
1971 Profits (8D)	0	3.5	38	24	34.5

Only two areas of subject matter appear on Table XI because "documents" were the only significant sources in these two areas. The table shows that documents are considered to be a credible source by the people who receive corporate messages through this source.

Table XII depicts the credibility associated with the company newspaper when dealing with company information. The newspaper was a significant source in only one case, as presented in the following table.

TABLE XII  
NEWSPAPER CREDIBILITY RATINGS ON CORPORATE INFORMATION

Subject Matter	Rating by Percentages				
	1	2	3	4	5
1971 Profits (8D)	0	0	34	47	19

This result shows that the newspaper is an excellent source for transmission of corporate information.

The next four tables set forth the credibility ratings of personally oriented information sources. Table XIII rates the credibility of the face-to-face channel.

TABLE XIII  
FACE-TO-FACE CREDIBILITY RATINGS ON  
PERSONALLY ORIENTED INFORMATION

Subject Matter	Rating by Percentages				
	1	2	3	4	5
Quality of Work (10C)	1.5	3	40	41	14.5
Quantity of Work (11D)	0	3	41	36	20
Changes (12D)	0	11.5	36	41.5	11
Advancement (13D)	7	15.5	43	23.5	11

Overall, the face-to-face channel is rated "good" or "better." However, there is a tendency for the credibility rating to go down when discussing possible advancement.

The credibility associated with documents as a source of personally oriented information is presented in Table XIV. Documents refer to memos, letters, or bulletin boards.

TABLE XIV  
DOCUMENT CREDIBILITY RATINGS ON  
PERSONALLY ORIENTED INFORMATION

Subject Matter	Rating by Percentages				
	1	2	3	4	5
Quantity of Work (11D)	0	13	27	40	20
Changes (12D)	0	0	36.5	45.5	18
Employee Benefits (15D)	0	13.5	32.5	38	16
Profit Sharing (16E)	0	0	23.5	45	31.5

Table XIV reflects that a majority of the individuals receiving information through this channel see documents as an excellent to superior source in terms of credibility.

The newspaper is evaluated on credibility criteria in Table XV.

TABLE XV  
NEWSPAPER CREDIBILITY RATINGS AS A SOURCE  
OF PERSONALLY ORIENTED INFORMATION

Subject Matter	Rating by Percentages				
	1	2	3	4	5
Job Opportunities (14D)	15.5	15.5	38	26.5	4.5
Employee Benefits (15D)	5	8	33	36	18
Profit Sharing (16E)	5	0	20	37.5	37.5

It should be noted that job opportunities are published periodically by the company newspaper in order for individuals to be aware of current openings in the corporation, thus allowing a person to transfer to a better position. This is an effort to promote from within TI rather than bringing in new employees. Table XV shows that 31 percent of the people who use this source rated the credibility as unacceptable. Their objections were that the job openings were not current and in some cases were filled before the publication came out.

Other than for the job-opportunities information, the newspaper is rated good or better in terms of credibility.

There was one case in which it was possible to get a rating of credibility of the grapevine. This is shown in Table XVI.



TABLE XVI  
GRAPEVINE CREDIBILITY AS A SOURCE OF CHANGES

Subject Matter	Rating by Percentages				
	1	2	3	4	5
Changes (12D)	10	70	10	10	0

Not many people have this as a main source and the few that do rate the credibility as unacceptable.

The researcher felt that a pertinent variable in this study was the interest level in the various types of information. The next three tables present the interest levels of all individuals in the population. Table XVII shows interest level of general information about Texas Instruments. The rating scale is as follows: 1 is no interest, 2 is low interest, 3 is moderate interest, and 4 is high interest.

TABLE XVII  
INTEREST LEVEL IN GENERAL INFORMATION

Subject Matter	Interest Level by Percentages			
	1	2	3	4
General Information	1	6	47	46

This shows 93 percent of the population had a moderate to high interest in general information.

Table XVIII shows the interest level in relation to company-oriented information.

TABLE XVIII  
INTEREST LEVEL IN CORPORATE INFORMATION

Subject Matter	Interest Level by Percentages			
	1	2	3	4
Sales Goals (6B)	4	17	49	30
OST (7C)	6	13	47	34
1971 Profits (8B)	2	2	27	69
Group Goals (9B)	2	2	24	72

The data would seem to suggest that when people can see that the information could directly affect them (for example, profits that affect profit-sharing and local group goals), there is a high interest level. Overall, there is a moderate-to-high interest in corporate information.

Table XIX presents interest level in personally oriented information. These subject matters directly affect the individual.

TABLE XIX  
INTEREST LEVEL IN PERSONALLY ORIENTED INFORMATION

Subject Matter	Interest Level by Percentages			
	1	2	3	4
Quality of Work (10B)	1.5	1.5	5	92
Quantity of Work (11B)	1.5	0	12.5	86
Changes (12B)	1	1	20	78
Advancement (13B)	1	4	16	79
Job Opportunities (14B)	5	8	37	50
Benefits (15B)	2	2	34	61
Profit Sharing (16C)	2	4	25	69

The data point out that the employees were highly interested in information that directly affected them. '

## CHAPTER V

### SUMMARY AND CONCLUSIONS

This study has identified the flow of internal downward communication and its effectiveness in a vertical segment of Texas Instruments. One hundred employees were personally interviewed, using the developed questionnaire.

Three questions formed the basis of the study. The first question was "Has information which has been sent down by top management been spread to all levels, and is it being understood?" The study found that about 80 percent of the population either distorted messages or did not receive the information. In the non-exempt category the percentage is approximately 90 percent for distortion or no information. Exempt employees had approximately 65 percent distortion or no information.

It is significant to note that 80 to 90 percent of the population showed a moderate-to-high interest level in this type of information. This finding shows that there is interest, yet the information flow is not adequate.

The second question was, "Are employees at all levels receiving the information they desire and sometimes need for their work?" The research reflects that 68 percent of the exempt and 45 percent of the non-exempt employees

desire further information. The information that is requested is both personal and company-oriented.

The third question was, "For different types of subject matter, what channels are being used to transmit messages down the system and are they effective media?" The data reveal that the newspaper is the main source for overall general information for 39 percent of the population. Face-to-face communication with the supervisor, either private or in meetings, is the main source for company-related information for 42.5 percent of the population surveyed. However, 18.5 percent had no source for this type of information. For personal messages, the main source is face-to-face meeting for 43.8 percent of the population. However, about 10 percent of the population had no source of information in this category.

When the face-to-face channel is used to transmit corporate information, it is rated "good" or "better" in terms of credibility. But the tendency is that when more complex information is relayed, the credibility rating decreases. When personally oriented information is transmitted down through the face-to-face channel, the overall credibility rating is good or better. However, the data showed that there is a tendency for decrease in credibility when the subject matter deals with job promotion.

The following recommendations are considered as important to the effectiveness of Texas Instruments' internal communications effort.

The study revealed that face-to-face communication with the supervisor, either private or in meetings, is the main source of information at TI. This situation is good since one of TI's philosophies described in Chapter II explains how the company wants most information to be passed through the face-to-face channel. Considering the size of Texas Instruments, this accomplishment is remarkable. However, the study also showed that there was often considerable distortion or no information passed.

Comments from supervisors revealed that in many cases they did not have the information they needed to inform their subordinates; in some cases, the information was sought with no success by several supervisors interviewed.

In order to increase the effectiveness of this channel, it is recommended that an audit of supervisor's communication be conducted. Training sessions could utilize the results and improve areas recognized as weak, i.e., motivation, communications skills, etc.

An immediate improvement for this channel is to update the Supervisor's Handbook so that current information is available to answer questions. In order for any source to be accurate or effective, the information must be available.

Of course there is much information that is needed that would not be included in the Supervisor's Handbook; to fulfill this need, an ombudsman is recommended. This position should be at the corporate level, and the duties of the office should be to answer any questions the supervisor is unable to answer. He can either give out information or inform the supervisor where it can be found. This office must have access to all levels of management and all divisions.

There is a need for a philosophy of communications backed with corporate policies. This would permit all managers in all of the company's plants to recognize their boundaries. They would know what, when, and how completely they may communicate with their subordinates. Good downward communications in any company does not just happen; it must be planned and based upon firm guidelines from the top of the organization. Without such guidelines, such necessary safeguards as "need to know" may have the effect of compartmentalizing communications or restricting the flow of non-classified information. It is strongly suggested that all documents be labeled with communication instructions. Also, at the conclusion of meetings, it should be made clear what information can and should be transmitted down the system. This action is important if the goal of Texas Instruments to have all employees committed to the company goal and keeping the feeling of a

TI family is to be obtained and maintained. People must know the goals before they can choose to be committed to them.

In the course of this investigation, a problem was uncovered dealing with the Job Opportunities Bulletin. A study is suggested with the purpose of defining steps to correct what appears to be a serious problem. The present bulletin appears to be viewed by a number of people interviewed as merely a front to appease employees and not actually giving them a chance for advancement. The major cause for this view is based on the idea that most jobs are filled or non-existent at the time of publication. If this is true, the procedures need to be changed and, if not, the image must be changed.

As stated in Chapter I, the purpose of this study was to identify the downward flow of communications at TI. An evaluation should be conducted to analyze the horizontal and upward flows of communication in the corporation to get a complete evaluation of the communication networks.

Although an evaluation of horizontal communication flow is not included within the scope of the present study, comments received mainly from exempt employees indicated a strong desire for more cross-fertilization of information between groups. It is recommended that the creation of a technical journal using unclassified data be considered.



The fact that this study was permitted to be conducted with complete cooperation from top management shows that TI is interested in upward communication. Not only does this study give the corporation feedback of its communication effectiveness, but it also gave the individuals interviewed a channel for upward communication.

Texas Instruments is commended for being a leader in terms of realizing the importance of communication effectiveness and therefore developing a communication department in its corporation. However, this framework can and should be strengthened with greater funds and resources. The existing department realizes its importance and is enthusiastic in its endeavors.

## APPENDIX

### COMMUNICATIONS AUDIT

- I. 1. Length of service: Less than 1 yr ☐ 1-5 yrs ☐  
6-10 yrs ☐ over 10 yrs ☐
2. Age: Less than 25 yrs ☐ 25-35 ☐ 35-50 ☐ 50-65 ☐
3. Sex: Male ☐ Female ☐
4. Education: Hi sch ☐ Coll ☐ Adv Degree ☐
5. Job Grade: 21-28 ☐ 29-32 ☐ 33+ ☐ 1-12 ☐ 50-69 ☐  
70-79 ☐
6. Locations: Dallas Exp ☐ Sherman ☐
7. Shift: 1st ☐ 2nd ☐ 3rd ☐
8. Job Type: Manuf ☐ Engineering ☐ Administration ☐  
Marketing ☐
- 
- II. 1. How well do you feel you are kept informed on what  
is going on in TI?  
Informed ☐ 1 ☐ 2 ☐ 3 ☐ 4
2. Is the information you received about TI from your  
supervisors and others above you generally informa-  
tion that you find to be of: Interest ☐ 1 ☐ 2 ☐ 3 ☐ 4
3. What do you consider your most common source of infor-  
mation about TI in general? (i.e., policies, overall  
company goals & progress, employee benefits, general  
activities, management decisions) Source ☐ 1 ☐ 2  
☐ 3 ☐ 4 ☐ 5 ☐ 6
4. What do you consider your most common source of  
information about your job and work group at TI?  
(i.e., things that affect you directly and personally)  
Source ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6
5. Which source of information about TI and your job do  
you find most accurate? (i.e., what you hear matches  
up with what you see) Source ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6



11. (a) How well are you kept informed on how productive you are in your job?  
 Informed ☐1 ☐2 ☐3 ☐4  
 (b) Rate your level of interest in this information.  
 Interest ☐1 ☐2 ☐3 ☐4  
 (c) Source of information. Source ☐1 ☐2 ☐3 ☐4  
☐5 ☐6  
 (d) How accurate do you consider this source to be?  
 Accuracy ☐1 ☐2 ☐3 ☐4 ☐5
12. (a) Does TI keep you informed ahead of time on changes affecting you or your job?  
 Informed ☐1 ☐2 ☐3 ☐4  
 (b) Rate your level of interest in this information.  
 Interest ☐1 ☐2 ☐3 ☐4  
 (c) Source of information. Source ☐1 ☐2 ☐3 ☐4  
☐5 ☐6  
 (d) How accurate do you consider this source to be?  
 Accuracy ☐1 ☐2 ☐3 ☐4 ☐5
13. (a) Have you ever received information on what is expected of you in order that you might advance within TI? (i.e., financially and position-wise)  
☐no ☐yes  
 (b) Rate your level of interest in this information.  
 Interest ☐1 ☐2 ☐3 ☐4  
 (c) Source of information. Source ☐1 ☐2 ☐3 ☐4  
☐5 ☐6  
 (d) How accurate do you consider this source to be?  
 Accuracy ☐1 ☐2 ☐3 ☐4 ☐5
14. (a) Are avenues and possibilities of growth and development communicated to you? (i.e., job openings, training) Informed ☐1 ☐2 ☐3 ☐4  
 (b) Rate your level of interest in this information.  
 Interest ☐1 ☐2 ☐3 ☐4  
 (c) Source of information. Source ☐1 ☐2 ☐3 ☐4  
☐5 ☐6  
 (d) How accurate do you consider this source to be?  
 Accuracy ☐1 ☐2 ☐3 ☐4 ☐5
15. (a) How well do you think you are kept informed on TI benefit programs?  
 Informed ☐1 ☐2 ☐3 ☐4  
 (b) Rate your level of interest in this information.  
 Interest ☐1 ☐2 ☐3 ☐4  
 (c) Source of information. Source ☐1 ☐2 ☐3 ☐4  
☐5 ☐6  
 (d) How accurate do you consider this source to be?  
 Accuracy ☐1 ☐2 ☐3 ☐4 ☐5

16. (a) Do you know what TI's Profit Sharing percentage contribution was for 1971?  
☐yes ☐no ☐not sure  
(b) State your best guess (estimate) of what it was.  
☐accurately identified ☐inaccurately  
(c) Rate your level of interest in this information.  
Interest ☐1 ☐2 ☐3 ☐4  
(d) Source of information. Source ☐1 ☐2 ☐3 ☐4  
☐5 ☐6  
(e) How accurate do you consider this source to be?  
Accuracy ☐1 ☐2 ☐3 ☐4 ☐5
17. How do you rate the exchange of information in TI between different technical activities and work areas, particularly as it affects you and your ability to perform your job well?  
Informed ☐1 ☐2 ☐3 ☐4
18. How would you rate communications in general within your part of TI as compared with other parts of TI?  
☐more of a problem ☐as good here as elsewhere  
☐unable to answer ☐less of a problem ☐no problem at all ☐we have a special problem
19. How would you rate communications in TI compared with your estimate of communications in other companies? ☐worse in TI ☐about the same as others  
☐better in TI ☐unable to answer
20. Would you like to receive more information on any particular subject in TI?  
(a) ☐no ☐yes (b) What subject? \_\_\_\_\_
-

## ANSWER KEY

## INTEREST

- 1 ☐ No interest
- 2 ☐ Low interest
- 3 ☐ Moderate interest
- 4 ☐ High interest

## SOURCE

- 1 ☐ Face-to-face from meetings with manager/supervisor
- 2 ☐ Memos, letters, bulletin boards (official documents)
- 3 ☐ Company newspapers and other TI publications
- 4 ☐ Other TIers I know or work with
- 5 ☐ Sources outside TI (newspapers, radio, TV, neighbors, etc.)
- 6 ☐ Other

## ACCURACY

- 1 ☐ Poor
- 2 ☐ Fair
- 3 ☐ Good
- 4 ☐ Excellent
- 5 ☐ Superior

## INFORMED

- 1 ☐ Poorly
- 2 ☐ Somewhat
- 3 ☐ Adequately
- 4 ☐ Very well

# COMMUNICATIONS AUDIT

53

I. 1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_ 4. \_\_\_\_\_  
 5. \_\_\_\_\_ 6. \_\_\_\_\_ 7. \_\_\_\_\_ 8. \_\_\_\_\_

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II. 1. \_\_\_\_\_ (9) 11b. \_\_\_\_\_ (36)  
 2. \_\_\_\_\_ (10) 11c. \_\_\_\_\_ (37)  
 3. \_\_\_\_\_ (11) 11d. \_\_\_\_\_ (38)  
 4. \_\_\_\_\_ (12) 12a. \_\_\_\_\_ (39)  
 5. \_\_\_\_\_ (13) 12b. \_\_\_\_\_ (40)  
 6a. \_\_\_\_\_ (14) 12c. \_\_\_\_\_ (41)  
 6b. \_\_\_\_\_ (15) 12d. \_\_\_\_\_ (42)  
 6c. \_\_\_\_\_ (16) 13a. \_\_\_\_\_ (43)  
 6d. \_\_\_\_\_ (17) 13b. \_\_\_\_\_ (44)  
 7a. \_\_\_\_\_ (18) 13c. \_\_\_\_\_ (45)  
 7b. \_\_\_\_\_ (19) 13d. \_\_\_\_\_ (46)  
 7c. \_\_\_\_\_ (20) 14a. \_\_\_\_\_ (47)  
 7d. \_\_\_\_\_ (21) 14b. \_\_\_\_\_ (48)  
 7e. \_\_\_\_\_ (22) 14c. \_\_\_\_\_ (49)  
 8a. \_\_\_\_\_ (23) 14d. \_\_\_\_\_ (50)  
 8b. \_\_\_\_\_ (24) 15a. \_\_\_\_\_ (51)  
 8c. \_\_\_\_\_ (25) 15b. \_\_\_\_\_ (52)  
 8d. \_\_\_\_\_ (26) 15c. \_\_\_\_\_ (53)  
 9a. \_\_\_\_\_ (27) 15d. \_\_\_\_\_ (54)  
 9b. \_\_\_\_\_ (28) 16a. \_\_\_\_\_ (55)  
 9c. \_\_\_\_\_ (29) 16b. \_\_\_\_\_ (56)  
 9d. \_\_\_\_\_ (30) 16c. \_\_\_\_\_ (57)  
 10a. \_\_\_\_\_ (31) 16d. \_\_\_\_\_ (58)  
 10b. \_\_\_\_\_ (32) 16e. \_\_\_\_\_ (59)  
 10c. \_\_\_\_\_ (33) 17. \_\_\_\_\_ (60)

10d. \_\_\_\_\_(34)

18. \_\_\_\_\_(61)

54

11a. \_\_\_\_\_(35)

19. \_\_\_\_\_(62)

20a. \_\_\_\_\_(63)

20b. \_\_\_\_\_  
\_\_\_\_\_(64)

Employee # \_\_\_\_\_(65-68)



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