

**BEFORE THE
POSTAL REGULATORY COMMISSION**

SIX-DAY TO FIVE-DAY STREET DELIVERY
AND RELATED SERVICE CHANGES, 2010

Docket No. N2010-1

NALC-LR-N2010-1/1:

Excerpt from Report of the Commission of Postal Service (April 1977)

**Report
of the
Commission
on
Postal
Service**

Volume 1

April 1977

COMMISSION ON POSTAL SERVICE

(Public Law 94-421)

1750 K Street, N.W.

Suite 801

Washington, DC 20006

April 18, 1977

To The President and Congress of the United States:

I have the honor of transmitting the report of the Commission on Postal Service under section 7 of Public Law 94-421, enacted September 24, 1976.

The Commission was established to identify and study problems facing the United States Postal Service and to recommend actions to resolve those problems.

The Commission conducted formal meetings, hearings, and field inspections of postal facilities. In response to a Federal Register invitation, the Commission received written comments from 425 individuals and groups. The Commission held 26 days of public hearings in 21 cities across the country including five days of hearings in Washington, D. C. Testimony was received from 525 witnesses, most of whom accompanied their oral testimony with written statements.

The Commission made contracts with five independent contractors. National Economic Research Associates, Inc., contracted to identify and study the public service aspects of the Postal Service, study productivity measurements, and submit specific issue papers. Arthur D. Little, Inc., and The George Washington University Program of Policy Studies in Science and Technology studied the impact of electronic communications on the Postal Service. A. C. Nielsen Company conducted two studies, one based on a public opinion survey of existing postal rates and services provided by the Postal Service, and the other based on a special survey of postal customers in rural areas where changes in postal services have been instituted recently. Lewin and Associates, Inc., contracted to assist the Commission in analyzing the implications of possible alternatives of structural changes in the Postal Service.

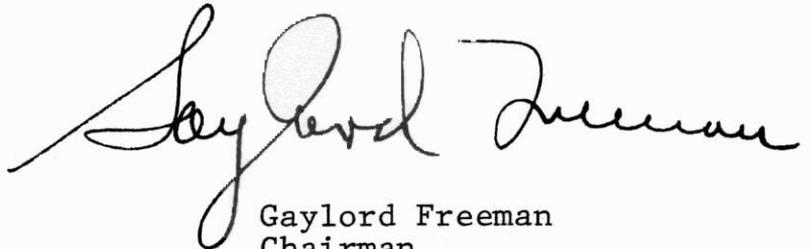
Our report is in three volumes. Volume 1 contains the report and recommendations of the Commission, divided into an introduction and eight chapters: a summary of major conclusions and recommendations; a description of the Postal Service today; the challenge presented by the development of electronic communications; financing the Postal Service; levels of service; postal rates and mail classification; recommended changes in the organization and operation of the Postal Service and the Postal Rate Commission; and legislation proposed by the Commission to carry out its recommendations.

Volume 2 consists of reports submitted by National Economic Research Associates, Inc., Arthur D. Little, Inc., The George Washington University Program of Policy Studies in Science and Technology, and A. C. Nielsen Company.

Volume 3 is published in three books and is the printed hearings of the Commission. Volume 3 also includes a summary of written comments submitted to the Commission.

We hope that you will conclude that our recommendations are worthy of adoption and support.

Respectfully submitted for the Commission,



Gaylord Freeman
Chairman

The President
The President of the Senate
The Speaker of the House of Representatives

COMMISSION ON POSTAL SERVICE

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Chapter 3

THE IMPACT OF ELECTRONIC COMMUNICATIONS

Developments in electronic communications that began in the 1960's portend disastrous consequences for the Postal Service. Diversion of messages from the mail as the result of electronic communications has already started. Mail volume will cease to grow in the immediate future because growth in communications will be absorbed by electronic systems. Over the longer term, mail volume will decline.

We cannot estimate precisely when electronic communications will have a significant impact. Arthur D. Little, Inc., advised the Commission that by 1985, 23 percent of first class mail will have been diverted to electronic communications:

- The total diversion of some 17.0 billion pieces can be compared to an FCM [first class mail] mailstream that we estimate would amount to about 73.5 billion pieces per year in 1985, in the absence of any source of diversions. The diversions, therefore, amount to a reduction of 23 percent of the undiverted total and the remaining FCM in
- 1985 will amount to about 56 billion pieces [including Government mail] essentially the same as that carried in 1972. In effect, the total growth potential in USPS volume that might have been produced in prior decades through increases in population and households is likely to be diverted to electronic forms of communications during the coming decade.

Regardless of the timing, the result appears inevitable.

Advances In Electronic Communications

Eighty percent of first class mail today is business related, meaning invoices, bills, payments, statements of account, purchase orders, financial papers, and business letters. Christmas and other greeting cards make up more than half of the remaining 20 percent. Personal letter correspondence is only three percent of all first class mail.

Although first class mail volume was 52 billion pieces in 1976, the Postal Service holds only a small share of the total communications market. In the past 30 years, advances in electronic communications, basically in the telephone industry, have caused a continuing decline in the market served by the Postal Service. Figure 6 on the following page illustrates the decline in the postal share of the message communications market.

Figure 6

MARKET SHARES WITHIN COMMUNICATIONS INDUSTRY
Messages
(Percent)

	Postal	Telephone	Telegraph	
1945	34.7	64.9	0.2	
1950	28.9	70.9	0.2	
1955	27.9	71.9	0.1	
1960	24.9	75.0	0.1	
1965	22.8	77.1	0.1	
1970	22.1	77.8	0.0	
1971	21.5	78.5	0.0	} less than 0.1
1972	20.2	79.8	0.0	
1973	20.0	80.0	0.0	

Source: "The Postal Crisis: The Postal Function As A Communications Service," U.S. Department of Commerce, Office of Telecommunications, Policy Research Division (January 5, 1977).

Beginning in the early 1960's, entirely new communications systems began to develop. Today, we know that foreseeable technological advances in the manufacture of electronic components will increase the transmission and information storage capacities of existing electronic systems and undoubtedly reduce their costs. Although it is not yet economically feasible, it is now technologically possible to transmit more than 50 percent of the entire mailstream by electronic means. Arthur D. Little, Inc., cites four examples which illustrate the magnitude of this development:

- The basic elements in solid state circuits are transistors that are mounted on a small "chip" or wafer of silicon. In 1962 we typically mounted five transistors on a single chip; in 1974, 12,000 transistors could be placed on a chip; and in 1985 the number is expected to increase to 300,000.
- The key element in computer devices used for control, switching and many other functions is composed of what are termed logic gates. In 1962 a logic gate cost \$80; in 1974 it cost \$.50 and in 1985 we expect it to cost \$.0007.
- Memory devices are at the heart of many new electronic applications. In 1962 a "bit" of fast access memory cost \$20; in 1974 it cost \$.001 and in 1985 we expect it to cost \$.00005.
- Until quite recently, person-to-person communications were carried almost entirely by parts of copper wires which typically could handle 240 one-way voice communications simultaneously, or at most a single black and white television channel. The earliest operating version of a glass fiber network, employing fibers no thicker than the older copper wires, will be able to transmit 672 one-way voice conversations simultaneously; and this capability will have been multiplied at least several-fold by 1985.

Arthur D. Little, Inc., sees improvements in solid state physics and improved techniques that enable effective application leading to the following:

- Input Devices—solid state circuitry is increasingly being built into devices to provide buffer (temporary) storage of input, in order to allow the input to be manipulated (such as for correcting errors) or to permit more efficient later use of the transmission medium. More permanent magnetic tape

storage of input on cassettes allows information to be filed in this form, or to be batch transmitted and stored in a larger computer memory. Electronic keyboards can provide more economical input equipment than mechanical or electro-mechanical equivalents. Visual displays can be employed to observe information before its final transmittal. "Editing" capabilities can assure that some types of messages, such as for airline reservations, are not transmitted if there is an obvious error present, such as omission of a required piece of data.

—Control Systems—solid state components and computer systems are being used increasingly to provide larger, more capable and more economical switching systems. Single number dialing and call forwarding are examples of new capabilities. The same technology provides means to "compress" facsimile-type information, to achieve more rapid and economical later transmission. "Packet switching" breaks a message apart, to be reassembled at the far end; the process permits the transmission medium to be utilized more efficiently.

—Transmission—transmission costs have been steadily reduced and capacities improved through the use of satellites and micro-wave radio for long haul transmission, and new forms of waveguides for shorter distances. Glass fiber transmission lines, using light waves as the carrier of information, will provide a major improvement in capabilities and cost reduction in the not too distant future.

—Output Terminals—solid state devices provide improved control and temporary storage. Visual displays, originally limited to cathode ray tubes, are now based on other forms of electronic devices. New forms of non-impact printing, such as ink jets, will provide greater speed at lower costs.

Technological innovations in the electronics industry applicable to the telecommunications market are not designed to avoid postal costs. They are simply progress in science and offer incentives to business for continued support of their development and refinement. Properly used hardware can improve management control capabilities, achieve economy in facilities and capital equipment, delete expensive transitions between paper systems and electronic systems, and gain efficiencies through fast communications. The processing and storage of paper documents are being abandoned wherever possible in favor of more efficient electronic storage methods.

Financial transactions are most vulnerable to diversion. In 1976, the Department of the Treasury expanded the direct deposit test program to nationwide status to include not only social security checks, but also supplemental security income, civil service retirement payments, railroad retirement checks, and revenue-sharing payments to city and state governments. Today, 15 percent of all Treasury payments are deposited automatically into bank accounts, and the rate of acceptance is growing monthly. The result is and will continue to be losses in first class postal volume. Reductions in the number of Federal payroll and transfer payment checks are estimated by Arthur D. Little, Inc., at 45 percent by 1980 and 75 percent by 1985.

Diversions of mail can be estimated by determining the number of pieces of mail associated with a check, not just the pieces containing check payments. Arthur D. Little, Inc., identified four types of mail associated with the use of checks which could be diverted from the mailstream or simply eliminated by electronic funds transfers:

- (1) pre-check mailings, such as bills and invoices;
- (2) check mailings, from check writers to receivers;
- (3) check mailings, receivers to banks for deposit; and
- (4) post-check mailings, such as receipts, notices, and mailings of new deposit envelopes.

Each check written generates an average of one piece of first class mail in one of these four categories. The check transactions most conducive to replacement by electronic funds transfers by 1985 generate only 0.5 mail piece each check. Resulting first class mail diversion due to electronic fund transfer systems was estimated at 1.9 billion pieces by 1980 and 6.56 billion pieces by 1985.

Electronic systems developments which are marketed currently and which have begun to change our means of communications include—

System	Example
—Terminal-to-Terminal, Alphanumeric Input/Output	Telex
—Scanned Input/Paper Copy, Image Output	Facsimile
—Multi-form Input (voice, paper copy, or computer-generated)/Paper Copy Output	Mailgram
—Terminal-to-Terminal, Keyed Input/Displayed Output	Cathode Ray Tube Terminals
—Continuously-scanned Input/Soft Image Output	Videotelephone
—Mixed Systems	Teleprocessing

In Japan, two communities are experimenting with the latest technology in communications. The experiments prove that steps beyond hard-copy delivery of information are near. The TAMA New Town and Higashi-Ikoma experiments have bypassed electronic mail handling and gone directly to home-to-home (or business-to-business) delivery of information. Information that can be transmitted to the home or office include scheduled programs stored for later transmission, news and stock ticker information, facsimile newspapers, and individual memos. Electronic transmissions can also be sent from the home or business. Examples include automatic reading of household utility meters, participatory lessons and lectures, reservation and ticket services, and safety and fire alarm messages.

The Role of the Postal Service

Mailstream identification. Whatever the role of the Postal Service in electronic communications, it must adjust to the diversion caused by electronic advances. The Postal Service must know the composition of the mailstream, but the Postal Service's plans to study the household and business mailstreams are only in the development stage. Other mailstream studies it is undertaking are designed to show information on work-sharing between the Postal Service and mail users; the effect which "peak loads" caused by volume changes have on costs and services; and the relationship between competition and demand. Unless these studies are quickly implemented and regularly updated, they will be useless.

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The George Washington University study commented:

No successful business attempts to operate with as little information about its present and potential customers and market opportunities, the ways in which its services are used, and the real costs of providing those services, as does USPS. The mailstream is changing rapidly, and while USPS is now undertaking its first serious effort to develop a detailed description of the mailstream, this is to be a one-time effort only. It is unlikely to constitute a corrective for the glaringly inadequate data base which USPS must use in its planning and management analyses. Little is known about how, or why, individuals and organizations of various kinds now use postal services, or what additional services may be needed. The marginal costs of providing various services is little understood.

Less than 0.05 percent of the USPS budget is allocated to R&D [research and development]. To put USPS on a basis comparable to the private sector, this should be raised to two or three percent at a minimum, and a significant portion of the R&D effort should be focused on forecasting and assessment of new technologies and new societal developments which will impact postal operations.

The task of estimating diversion volumes, attributing impact to specific mail segments from specific technologies which are still in a developing state, forecasting dates of impact, and assessing the market is not easy. But the consequences of not attempting to measure the mailstream will be grave. Reliable analyses of the mailstream will also help the Postal Service judge intelligently whether to enter the electronic communications field, and at what level.

The impact. Congress directed the Commission on Postal Service to "review the long-range impact of new electronic funds transfers and communication techniques, the effect of such transfers and techniques on mail volumes and revenues of the Postal Service, and the feasibility of the Postal Service operating such systems."

We conclude that impact will be of sufficient magnitude to constitute a major threat to the basic business of the Postal Service. Procrastination by the Postal Service to a time when a significant volume has been diverted and the magnitude of the impact can be verified will be too late for the Postal Service to take positive action.

The Postal Service's planning for entry into electronic communications has low priority, little money, no organizational stature, and modest top management commitment. Little incentive can be expected of a work force already aware of projections of lower volume, higher rates, the need for continuing subsidies, and plans for fewer employees.

A private enterprise facing declining demand for its product has simple choices: enter new markets to preserve or increase profits, or go out of business. The Postal Service has a different problem. It must assess the public interest before attempting new ventures. We recommend that the Postal Service establish long-term and short-term objectives in electronic communications as part of an integrated overall long-range plan.

Long-term objectives. A nationwide, federally-regulated electronic communications enterprise would most likely succeed in achieving the major economies of scale necessary to support a system to manage both hard-copy and electronic communications. An electronic communications system which transmits and delivers mail must be regulated by Government to assure privacy, equity, universality, reasonable charges, and a variety of services. This

would be a component of an overall plan by the Postal Service to determine its future.

We strongly urge the Postal Service to decide as soon as practicable whether it intends to adopt a long-term objective of providing a message system that is operated completely electronically. We recommend that Congress set April 1979 as a time limit for the announcement of this decision.

Short-term objectives. The Postal Service must understand the communications needs of the public. Cooperative ventures with the private sector would help achieve this goal. Joint venture experiments can minimize capital investment, reduce risk, and utilize the unique collection and delivery network and trained work force of the Postal Service. Immediate participation would help establish credibility and demonstrate a commitment to preserve the Postal Service. The Postal Service should not be deterred from immediate entry into the electronic communications field.

Support for this position was offered recently by the Committee on Telecommunications of the National Research Council, which stated that involvement in an electronic communications system would offer the Postal Service "an opportunity to turn away from a course that shows little or no chance of improvement." The Committee recommended that the Postal Service *make a strong commitment to begin development and undertake demonstration projects* in electronic communications in cooperation with Government and private industry.

The Commission recommends immediate Postal Service participation in cooperative test programs with industry. A same-day, premium mail delivery facsimile service within the United States and partnerships with foreign postal, telephone, and telegraph systems for services on either end of international data transmissions are examples of projects which have been proposed. Test programs on new electronic services should be publicized and marketed in major cities.

A private company submitted a proposal to the Postal Service for joint development and operation of a premium mail delivery facsimile service on a nationwide electronic communications network. The company offered to provide communications equipment, terminal devices, and marketing services, and the Postal Service would be responsible for operation of the network and delivery of messages. The Postal Service rejected the offer on a sole source basis, but also failed to pursue the concept on a competitive bidding basis. We suggest that such proposals in the future be given more thorough consideration, at least on a competitive bid basis.

* * * * *

Electronic communications will have a detrimental impact on mail volume. The Postal Service should complete studies of the impact on the mailstream to meet this future challenge. The Postal Service should undertake joint ventures to use its delivery system with present electronic communications systems, and decide its role in the communications field for the future.