

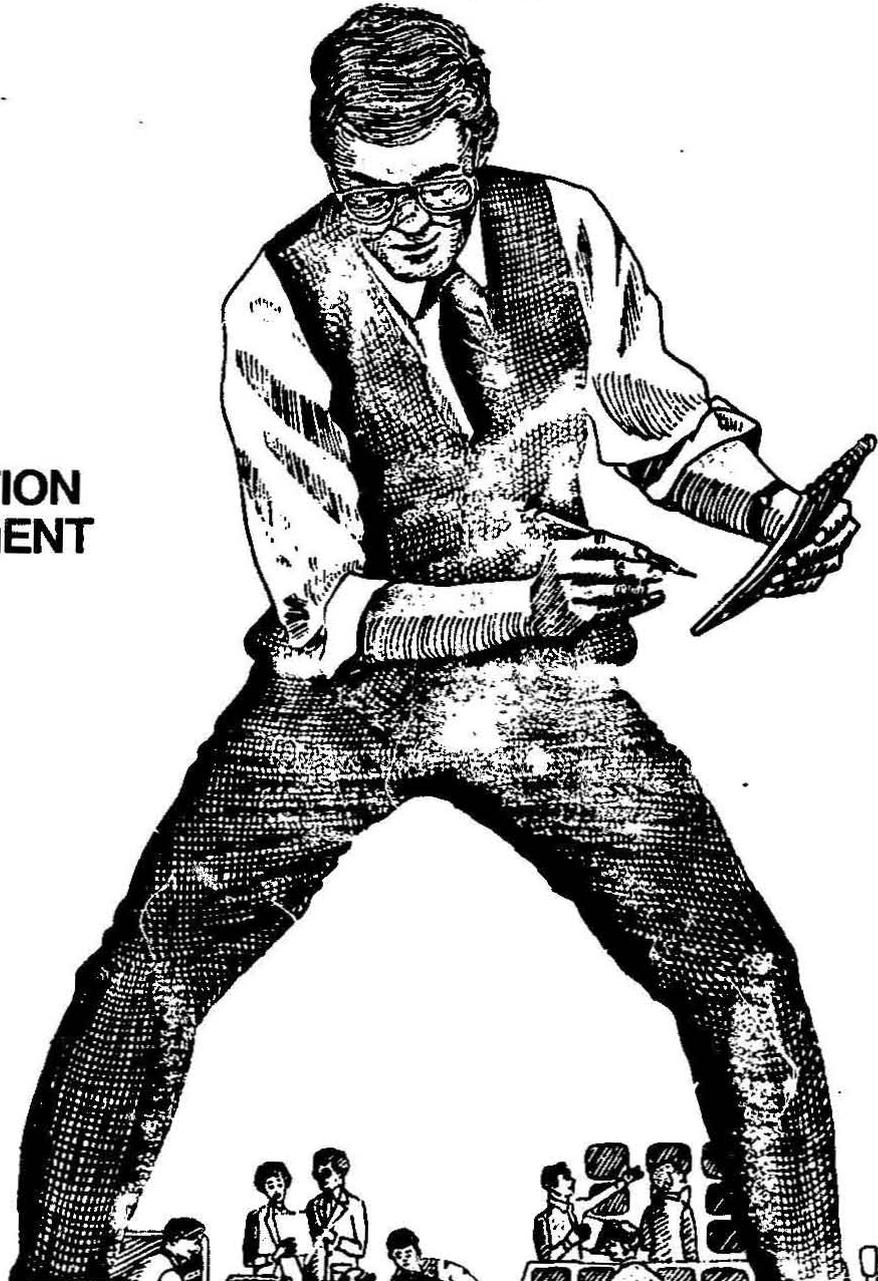
120278

# INFORMATION & RECORDS MANAGEMENT

FOR THE  
PROFESSIONAL  
INFORMATION  
MANAGER  
**IRM**  
VOLUME 16 NO. 12  
DECEMBER 1982  
TWO DOLLARS

Integrating Information Technologies/Managing Information Media

## AUDITING INFORMATION MANAGEMENT SYSTEMS



**MOREY J. CHICK, CPA**  
MANAGER - COMPUTER TECHNOLOGY

U. S. GENERAL ACCOUNTING OFFICE  
(202) 275-4787  
(703) 370-1881

ADP GROUP  
441 G. ST. N. W.  
WASHINGTON, DC 20548

Publishers and Editorial Directors  
**RUDOLF MASCHKE**  
**EDWARD WAGNER**

Editorial Director  
**RITA MASS**

Publication Manager  
**MARVIN WALTER**

Associate Editor  
**ELLEN MAINIERO**

Contributing Editors  
**DON AVEDON**  
**HENRY A. DECILLIA**  
**FOREST W. HORTON JR.**  
**EDWARD JOHNSON**  
**ROBERT R. MUELLER**  
**JOHN W. MERONEY**  
**IRA A. PENN**

Art Director  
**ELIOT SHEARER**

Assistant Art Director  
**KENNETH ZIEGLER**

Art Assistants  
**MARK DARLING**  
**KATHY KOVARY**

Design Consultants  
**HGSO, INC.**

Circulation Director  
**MARLIS MASCHKE**

Circulation Manager  
**CAROL LIPTAK**

Production Manager  
**BEVERLY SCHEREMETA**

#### EDITORIAL ADVISORY BOARD

Records Management  
**ROBERT A. SHIFF (AMS)**  
Naremcio Services, Inc.  
**JESSE L. CLARK**  
The Records Management Group  
**MILTON REITZFELD**  
American Management Association  
Word Processing  
**JOHN W. MERONEY**  
Meroney & Associates, Inc.

Forms Management  
**DON L. CALDWELL**  
Consultant

Office Automation  
**DON AVELON**  
International Micrographic Congress

Computer Output Microfilm  
**GERALD HARMON**  
Micro Corp.

Special Libraries  
**HUBBARD BALLOU (ALA)**  
Columbia University Library

Systems & Procedures  
**MORT RAYMOND**  
Datamation Systems

ADVERTISING  
Executive Office  
**Geraldino Broese**  
**Philip Brooks**  
101 Crossways Park West  
Woodbury, NY 11797  
516-496-8000; 212-895-8370

New England Advertising:  
**Jack Flynn**  
The Flynn Group  
P.O. Box 875  
Avon, CT 06001  
Tel. (203) 678-0000

Mid-West Advertising:  
**Robert Patis**  
**Dave Prizer**  
The Patis Group  
4781 W. Touhy Ave.  
Lincolnwood, Illinois 60466  
Tel. (312) 878-1100

West Coast Advertising:  
**Norm Schindler**  
**Scott Evans**  
Norman S. Schindler & Associates  
7080 Owensmouth Avenue, #200  
Canoga Park, California 91303  
Tel. (213) 898-1414

# INFORMATION & RECORDS MANAGEMENT

Integrating Information Technologies/Managing Information Media

FOR THE  
PROFESSIONAL  
INFORMATION  
MANAGER

**IRM**

VOLUME 16 NO 12  
DECEMBER 1987  
TWO DOLLARS

## FEATURES

**14 Accounting For Info Costs Essential To Effective Management**  
By collecting and presenting data about the cost of information activities, and the elements of these costs, better decisions can be made about them.

**17 Assessing Performance Through Systems Audits**  
A brief 6-step methodology for post-implementation evaluation of office automation systems.

**18 OA Systems Security a Key Element in Business Information Management**  
Incidents of computer abuse, fraud and negligence makes it essential for management to implement information and software protection programs.

**24 COM, Source Document Filming Stem Rising Paper Costs for Book Co.**  
An important element of the success of the conversion and startup was user involvement in planning flow, formats and document preparation.



**26 Technology Interest High as 102,000 Attend Orgatechnik Trade Fair**  
Automation of the office and management decision support systems are high on the European businessman's priority list.

**29 Custom Forms Streamline Integrated Word/Data Processing System**  
Progressive law firm believes office automation is vital to continued growth and success.

**32 FOAC Reflects Theme of Leveraging Resources Thru Office Automation**  
Fed conference covers pivotal issues critical to planning, acquisition and use of office automation.

## COLUMNS

**27 INFO SYSTEMS**  
Information Management Systems in Perspective  
Information as a medium of intelligence and also as a medium of evidence.

**31 INFO-MEDIA**  
Optical Disk Technology and Integrated Media Systems  
Optical Disk offers some interesting alternatives for providing total information service.

## DEPARTMENTS

**8 Industry News**  
**13 Events**  
**34 Products, Supplies**  
**38 Literature**  
**40 Classifieds**

Season's Greetings

Information & Records Management (USPS 263-820) is published 12 times a year by Information & Records Management, Inc., 101 Crossways Park West, Woodbury, N.Y. 11797. Controlled circulation postage paid at Woodbury, N.Y., and additional mailing office. Postmaster send address changes to Information & Records Management, 101 Crossways Park West, Woodbury, N.Y. 11797. Information & Records Management is available to all qualified records handling professionals. Regular subscription rates are \$10.00 for one year, \$18.00 for two years, in the U.S.A. All other countries, \$24.00 additional each year. Back issues are \$2.00 each. Back issues are also available on microfilm from Xerox University Microfilms, 300 N. Zeeb Rd., Ann Arbor, Mich. 48106. No material published here may be reprinted without permission or credit. Printed in U.S.A.

**ptn**  
Publishing Corp

PTN Publishing Corporation is the world's largest publisher of professional photographic magazines, as well as leading publications in the consumer cinematography, microfilm, information storage/retrieval and security industries.

Publications: Information & Records Management; Studio Photography; Technical Photography; Functional Photography; Photographic Trade News; Photographic Processing; PTN Master Buying Guide; Professional Photographic Equipment Directory & Buying Guide; Security Industry & Product News; IRM Micrographics Equipment Directory & Buying Guide.

**BPA**

# Accounting for Info Costs Essential to Effective Management

By collecting and presenting data about the cost of information activities (collecting, inputting, processing, storing it), and the elements of these costs, better decisions can be made about them.

**Morey J. Chick**  
U.S. General Accounting Office

**A** need exists to establish some mechanism or methodology for determining, measuring, and/or estimating information costs. Such a mechanism or methodology as a tool is of primary importance to business and governmental establishments for effective and economical management of information and organizations, establishing measures for holding organizations accountable for their information determinations, and for proper pricing of information products sold to the public or other organizations.

There has been a growing recognition and acceptance of the concept that data and information are costly and valuable resources that should be managed in the same manner as other costly and/or valuable resources. This is evidenced by the results of the work performed by the Federal Paperwork Commission and by the objectives of the Paperwork Reduction Act of 1980. Early views on the subject go back as far as the early 1970s or before.

It is generally recognized that effective management of resources depends on the development and use of good information about the resources being managed. One of the principal types of information required for effective management is financial in nature. Financial (cost) information, among other things, allows managers to

(1) make planning decisions effectively and economically;

(2) provide attention to deviations from plans;

(3) direct day-to-day operations economically, efficiently, and effectively; and

(4) make effective decisions on the best solutions to problems faced by the organization.

Once it is accepted that financial data is needed for effective management, and

that information should be managed as a resource, it would seem logical that a mechanism to develop financial data about the cost of *obtaining* and *processing* information is needed.

## How Does Financial Information Facilitate Good Management?

Management can be defined as the planning, organizing and directing, controlling and decisionmaking involved in running an establishment.

Developing financial information about how much information processing activities cost an organization facilitates good management. By collecting and presenting data about the cost of information activities, e.g. collecting, inputting, processing, storing it, and the elements of these costs, e.g. personnel, training, equipment, supplies; better decisions can be made about these activities.

For instance, with financial information, management can better develop answers to necessary information management questions such as:

• Do we need the information and is it worth the cost?

• Are we processing the data in the best way and at the least cost?

• Can we streamline or change existing methods, save money, and improve operations?

• Are there duplications or other unnecessary processing steps and how much can we save by eliminating them?

• Should we automate or use more

*MOREY J. CHICK, a CPA, is Manager, Computer Technology, for the U.S. General Accounting Office, where he specializes in studies of computer operations. He has identified and reported to Congress significant problems in automated decisionmaking, computer security, and data standardization as well as problems in specific computer applications.*



recent technology and how much will we save if we do?

• How else can we reduce information costs without compromising quality?

• How much should be charged for an information product?

• What is the risk in dollars of taking or not taking certain actions?

With cost information, a manager can rationally look at alternatives, cost them out, and make decisions about what to do with the knowledge that certain actions will result in a probable dollar impact. Managers, with this information, will be able to determine

(1) where is management attention needed most,

(2) the elements of each processing step that need the most management attention, and

(3) whether certain information activities should be continued or changed.

## How Much Does Information Cost

There are no effective mechanisms available today to help answer this question. Costs are accumulated, in accounting records and through cost estimating procedures, by standard accounting classifications and these costs are accumulated by organization, program, and/or project; not by information product, data storage location, or data element. So no one really knows for sure.

But, emerging leaders in the field of information resources management (IRM) estimate that a high percentage of activity, and its costs, are related to preparing for (design), obtaining, processing, storing, and outputting data and information for use in running an organization. One corporation which is gaining experience in estimating information costs under Federal contract

believes that about 70 or 80 percent of Federal personnel costs are incurred for the purpose of performing some form of data processing (information) activity. Other estimates coincide with this approximation, although the percentages vary between organizations because their missions and functions vary. Examples of other cost elements that are incurred by organizations that involve performing information activities are shown in Table 1.

The portions of the cost elements that are incurred for performing all of the actual data to information processing, as well as those incurred for developing and implementing systems to facilitate such processing, are all part of information costs that should be measured for management purposes. Considering their significance, the potential for reduction could be significant with appropriate management action.

### Costly Information Management Problems

Effective management of information and information resources is essential to reducing costs. Mismanagement of information and information resources creates excess and unnecessary costs. Because of the potential massive costs involved, improved information management could save significant amounts of money.

Information problems creating excess costs are too numerous to fully delineate here. However, some examples of information problems and their costs can be useful by demonstrating the enormity of the problem and need for improved management. The examples are taken from my presentation of "Audit and Management Responsibilities for the Paperwork Reduction Act of 1980," dated November 19, 1981. Most of the examples are taken from various reports of the U.S. General Accounting Office (GAO). Agency names are deleted because these problems are not peculiar to just one agency. Information management problems depicted include:

- duplicate collection of information
- the costs of unreliable information
- the costs of failing to obtain and/or use pertinent information
- failure to use current information processing technology
- storage and/or retrieval problems
- collecting unneeded data

#### Duplicate collection of information

A classic example, although not very current, involves two separate Federal agencies, each employing its own ships to collect the same and similar geophysical data. This data could have been collected once and shared. GAO estimated unnecessary costs of \$20 million because of this duplication.

A more recent example includes duplications of data in criminal information systems. GAO estimated that more than 600,000 duplicate files (44

percent of the total files) existed in two systems operated by one agency, resulting in unnecessary input and other costly duplications.

#### Costs of unreliable information

Unreliable information, defined as data that is not current, accurate, or complete has three major cost impacts. The first involves the unnecessary information processing steps applied to the unreliable data, the second involves the costs to correct the data when and if it is found to be unreliable. The third impact, a major one, involves the excess costs of poor managerial or operational decisionmaking made based on uncorrected unreliable data.

Specific examples for the first two impacts are rare because of the very absence of accounting mechanisms to measure the costs of information activities. However, it is not difficult to comprehend that all activities involving the collection, processing, storing, and using of information requires resources and resources applied to processing incorrect data are wasteful. In addition, it takes resources to correct data when it is found to be wrong and these resources also cost money. Excessive incorrect data is costly to correct.

The processing and use of unreliable information for managerial purposes can result in incorrect decisions and actions potentially wasting billions of dollars. For instance, GAO has reported:

- overpayments of more than \$1 billion by an agency because of missing and inaccurate data in automated files, and

- unnecessary purchase and overhaul of equipment by another agency at an excess cost of \$10 million a year because of data inaccuracies.

#### Cost of failing to obtain and/or use pertinent information

Information management includes determining what data is needed and how it should be used. Omissions in obtaining and using pertinent and needed data can result in unnecessary costs which far outweigh all of the costs of obtaining and using it. For instance, an agency recently made overpayments of \$125 million in benefits in a year because critical data about the recipients were not collected. Revised data collection procedures were recommended by GAO.

#### Failure to use current information processing technology

An information resources management problem of current importance is

### EXAMPLES OF COST ELEMENTS INVOLVING INFORMATION ACTIVITIES (In addition to personnel costs)

COST ELEMENT (Examples)	DESCRIPTION AND/OR OTHER COMMENTS ABOUT COSTS ALLOCABLE TO INFORMATION ACTIVITIES
Automatic Data Processing (ADP)	All costs incurred for ADP are for information activities. ADP costs have been estimated at more than \$15 billion a year. These, however, may include some aspects of personnel costs discussed previously.
Telecommunications	These, like ADP costs, are fully accountable as an information cost, because they are used entirely for information purposes.
Facilities (rent, depreciation utilities, etc.)	The cost of facilities housing information activities are partially or fully allocable to information costs, depending on the use of the facilities.
Supplies	Supplies obtained for the purpose of processing data (pencil, pen, paper, forms, etc.) are information costs.
Transportation	Costs for public or private transportation incurred for obtaining, verifying, and/or correcting information or for performing other information activities are information costs.
Travel Expenses	Cost of hotel, meals, and other out-of-town living costs incurred for the purpose of obtaining, verifying, and/or correcting information or for performing other information activities are allocable as information costs.
Maintenance	Cost of maintaining facilities and equipment used for processing information are information costs. All costs involving maintaining ADP or other equipment used directly for information processing are allocable. Costs of maintaining equipment used partially for information activities, e.g. vehicles used by officials to collect, verify, review data, are partially attributable to information.
Training	Costs of training personnel involved in any aspect of information processing are attributable to information costs.

the use of the best information processing technology possible to assure economy, efficiency, and effectiveness of operations. GAO addressed the use of obsolete computers and suggested that millions of dollars in savings were possible by replacing older equipment. Dollar savings involved lower operating and maintenance costs, lower energy costs, decreased personnel and facility costs, and other savings. Other benefits included better reliability, faster speeds, and greater capabilities.

#### **Storage and retrieval problems**

Another costly problem involves the inability to retrieve data from systems when it is needed. Excess costs involve resources used in unsuccessfully attempting to obtain data from the information system, and problems involved in making decisions without the needed information.

A Federal agency had inadequate numbers of communication parts at a data processing center. This resulted in only 19,000 successful attempts at accessing data from a system out of about 250,000 total attempts (in a 1-month period). Resources used in unsuccessfully attempting to access data (people, hardware, software) could involve millions of dollars in waste. Further, as stated previously, decisions made without appropriate information can be quite costly.

#### **Collecting unneeded data**

The problem of collecting data that is unneeded is not new. In many cases when systems are designed there is a real need for certain data. However, because of changing circumstances, requirements for data, once needed, may no longer be valid. To continue to collect and process such data can be very costly. Resources should be applied toward reviewing information needs and eliminating the collection and processing of data no longer needed.

Other methods of reducing the data collection function are possible with appropriate management direction. For instance, statistical sampling and/or reducing the frequency of data collected can be achieved in certain instances. In recent studies, GAO pointed to potential savings of millions of dollars annually involving just two agencies by the use of reduced collection frequency and statistical sampling.

#### **Other information and information resource problems**

The examples presented here merely scratch the surface of problems requiring management attention. We can get management's attention, provide the tools for measuring the significance of problem areas, and the means for problem correction through analysis and action, by providing a mechanism for financial management through information cost accounting and/or estimating.

There are many other information

related problem areas that increase information costs and require management attention. Some of them are listed below but many other problems exist.

#### **Other information problems**

A partial list of other information and information resource problems include:

- Excess data output
- Poor data design
- Unnecessary data dissemination
- Inadequate data dissemination
- Inadequate software criteria
- Inadequate edits
- Poor internal controls

#### **Other information resources problems**

- Acquisition considerations
- Software development problems
- Equipment management problems
- Equipment maintenance considerations
- Personnel management problems
- Processing standards needed
- Security and data protection costs and requirements.

- Records management considerations

- Facilities management problems

To summarize, because information is probably very costly, and because there are many problems associated with collecting and processing it, a mechanism is needed to measure

(1) total information costs,

(2) costs of processing by element, i.e., processing functions (collection, input, etc.) and cost element (personnel, equipment, etc.). Such a mechanism is needed as part of an effort to manage and reduce the costs while getting pertinent, accurate, timely, and useful information to those that truly require it.

Without such financial cost information, it is difficult to systematically identify the significance of problem situations, some of which were described, to help determine which problems should be addressed first (establishing management priorities) and measure the costs and benefits of applying resources to correcting problems identified.

Such financial information is also important to management in identifying problems. Having knowledge of the significant aspects and cost elements involved in information processing would allow management to center its attention on the most significant processes and cost elements first, assuring that the most significant cost reduction steps are taken first. This way, the largest savings could be achieved as early as possible, an important goal. Such a mechanism would allow managers to obtain answers to often asked questions such as

- "How much is the information product I am receiving costing me?"
- "How can these costs be reduced?"
- "Is the product worth the cost?"

#### **Other Reasons for Determining Information Costs**

There are at least three other

important reasons for determining the costs of information. They are

(1) Assuring that prices charged to others for information products are correct.

(2) Maintaining accountability for decisions made by management about information activities.

(3) Making cost vs. value decisions about information activities.

#### **Accountability for decisions about information activities**

Accountability deals with holding persons and organizations responsible and answerable for the impacts of decisions they make. Decisions made by organizations and persons about what systems and information are needed to accomplish a mission or objective cost money. Related decisions about how, where, and how often to collect it, how to process it, and whether it should continue to be collected also have significant monetary impacts.

Good management calls for holding persons and organizations responsible for justifying their decisions. In order to do this, information about the monetary impact of decisions that could be and are made, should be available. A mechanism to make such financial information available is obviously needed for making decisions about information activities.

#### **Cost vs. value decisions about information**

Many decisions to do or not do something should be based on whether the value to be received from an action is worth its cost. Regarding information activities, costs vs. benefit analyses is needed in order to make sound decisions about information processing activities, i.e., what, where, how, how often, etc.

Today, we neither have the mechanisms to adequately determine costs nor the value of information and information products. This document deals only with the cost side of this equation. Quantifiable financial data is needed for both, but the value of information is another subject; a difficult but soluble one.

#### **SUMMARY**

Costs incurred for processing information, although currently unknown, are significant enough and problems that exist severe enough to warrant increased management of information. The Paperwork Reduction Act of 1980 has called for such increased attention. Some major tools for managing resources are financial in nature. No tool or mechanism exists today to measure the financial impact (cost) of information processing. Managerial decisions, using such a tool or mechanism could help identify problems which, when corrected, could result in actions that could save vast amounts of money. Financial tools are also needed to assure accountability and proper product pricing. A need for such a tool exists today.

**END**