

# Management Adviser

---

Volume 10 | Number 5

Article 9

---

9-1973

## Management Adviser, Volume 10, Number 5, September-October 1973 (Whole Issue)

American Institute of Certified Public Accountants

Follow this and additional works at: <https://egrove.olemiss.edu/mgmtadviser>



Part of the [Accounting Commons](#), [Business Administration, Management, and Operations Commons](#), and the [Management Sciences and Quantitative Methods Commons](#)

---

### Recommended Citation

American Institute of Certified Public Accountants (1973) "Management Adviser, Volume 10, Number 5, September-October 1973 (Whole Issue)," *Management Adviser*. Vol. 10: No. 5, Article 9.

Available at: <https://egrove.olemiss.edu/mgmtadviser/vol10/iss5/9>

This Article is brought to you for free and open access by the Archival Digital Accounting Collection at eGrove. It has been accepted for inclusion in Management Adviser by an authorized editor of eGrove. For more information, please contact [egrove@olemiss.edu](mailto:egrove@olemiss.edu).

# management adviser

September-October, 1973

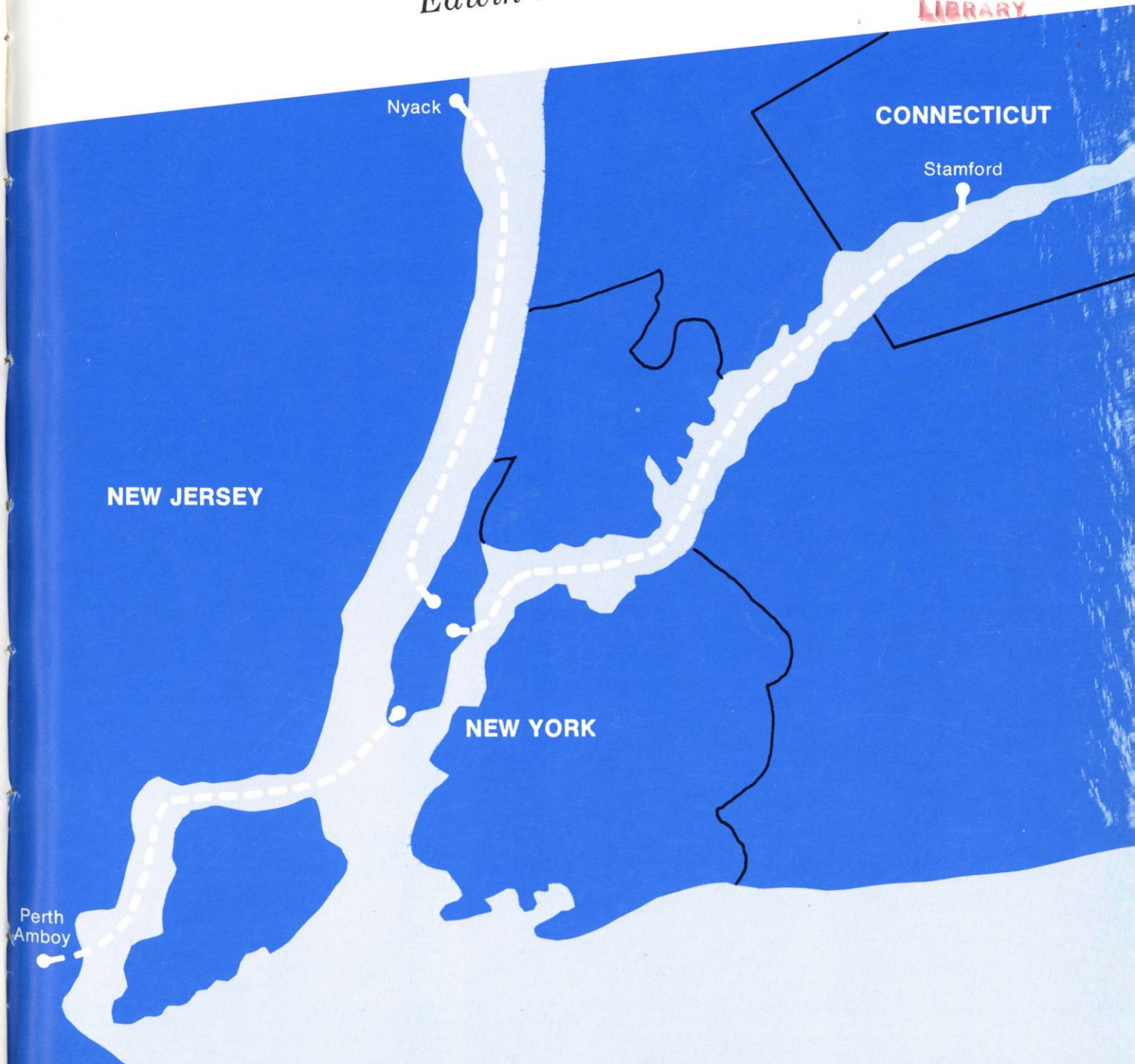
## Planning a New Urban Transit Complex

*Edwin T. Boyle*

UNIVERSITY OF  
MISSISSIPPI

SEP 14 '73

LIBRARY



PROPOSED NEW ISSUE

**45,000 Shares**

**UNITED STATES OF AMERICA**

**United Negro College Fund**  
*Investment Advisor*

The United Negro College Fund invests in futures.

The futures of 45,000 students attending 40 private, U.N.C.F. supported colleges across the country. Young black men and women fighting their way out of the rural backwaters and urban ghettos of this country and into 20th century America.

78% of our students come from families earning less than \$5,000 a year. And our funds for scholarships, books, teaching facilities and living expenses are often their only means to a career in business, law, education, medicine or public service.

We believe that our investment in young America is one of the best you can make. Yes, the price of a four-year education is considerably higher than that of any single stock on the market. But the returns are virtually unlimited.

This year, you can help us turn young America into a bull market. All we need is your money.

---

**Proposed Share Price: \$8500**

---

*(Share price is the average cost of tuition, books, room & board for the four-year education of one student.)*

---

**Give to the United Negro College Fund**

55 East 52nd Street, New York,  
New York 10022

**A MIND IS A TERRIBLE THING TO WASTE**



advertising contributed for the public good.





# The Intellectual Giant.

**The objective: to design the ultimate computer for accountants—one that can contain a complete accounting system in memory—with programs that can do better and more intricate work than anyone ever thought possible.**

We *have* designed the ultimate computer for accountants. It has a memory so large (two to seven times as large as any office computer in its class) you can have an entire accounting system in memory—and still have room for data storage. *All* the room you'll need.

This means, among other things, that you can go from books of original entry to general ledger to financial statement work, to work sheets, depreciation, amortization—and so on—just by pressing a few buttons.

It also means you won't have to rely on a service bureau any more—because you can now do complex jobs you once sent out.

(But remember, we're talking about a machine that fits in a corner of your office. One that actually costs less than machines with half the memory—and one that can still be operated by a competent clerk or secretary.)

Now the programs we've designed for this machine:

As you'd expect, they're better, more sophisticated and more useful than anything you've ever seen before.

They'll give you complex Financial Statements in just about any design.

And Statement of Changes in Financial Position.

**The result: The new Litton ABS 1251.**

Scheduling. Allocations. Partner Profit Splits. (All automatic.) Branch and Multi-Corporation Accounting. Automatic condensation of general ledger accounts (for easier management reading).

Computer selection of accounts (for detail auditing).

And so much more—including your everyday routine work—that you may find it difficult to believe. At first. Write or call us—or use our coupon—and we'll give you all the good news. (It's very good.)

From the people who specialize in computers and systems for accountants—the ultimate in computers and systems for accountants: The Litton ABS 1251.



**LITTON ABS**  
Automated Business Systems

AGY45-MA9

To Litton ABS: Please send information on the new 1251, the ultimate computer for accountants.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Mail to: Litton ABS, Accountants' Division, Box 228  
Rutherford, N.J. 07070 (201) 935-2200.



---

**Edwin T. Boyle • Planning a New Urban Transit Complex . . . . . p. 15**

Any competent bookkeeper can record a company's profit and loss information after the fact; the CPA can do it before the fact, this practitioner maintains. The trick is in projecting possible situations as if they had already occurred, doing financial reports on them,

and analyzing the reports to see if the company will make a profit. In this "nuts and bolts" article, Mr. Boyle shows how he helped the management of a hydrofoil line, that plans to service New York and its suburbs, see its potential profit position.

**Robert O. Redd • Now—What Do You Do With Him? . . . . . p. 27**

How does a company choose a management consultant and what does it do with him once it hires him? The history of consulting is filled with stories of en-

agements in one area where the company's problem finally turned out to lie in a completely different area, Mr. Redd cautions.

**William E. Arnstein and Ray W. Cheesman • Providing Help for the Company in Trouble . . . . . p. 31**

A company in trouble has little to lose and much to gain by calling in an outsider. Its CPA firm's audit partner and MAS staff can work together to benefit

the ailing client. The important point is that they begin their study of the problem in time, even if it has to be suggested by the CPA firm, the authors say.

**Louise H. Dratler • Ninth Annual AICPA Computer Conference . . . . . p. 38**

If you did not attend this year's conference even though it was in New York, or maybe because it was, here is your chance to find out what you missed. Top-

ics included: ASR 126, integrated test facilities, potential EDP liability situations, and installing a client's EDP system. Next year we're in Chicago.

---

*A publication of the American Institute of Certified Public Accountants. Opinions expressed in MANAGEMENT ADVISER are those of the editors or contributors, and may differ from policies of the AICPA and its committees.*

# management adviser

(formerly *Management Services*)

---

**P. Bruce Buchan • Corporate Risk Policies . . . . . p. 45**

Managers should not be "risk-takers" but "risk-makers," this author believes. Lower and middle managers should have an instinct for taking chances, while

upper level managers should be more conservative. Dr. Buchan recommends a company evaluate its staff's risk attitudes and establish an explicit risk policy.

**George H. Rittersbach • Data Processing Security: A Selected Bibliography . . . . . p. 52**

Ever since the Equity Funding scandal was uncovered, businessmen have been thinking, "It can't hap-

pen here—or can it?" Perhaps some reading will help you to answer that question for yourself.

## DEPARTMENTS

**People, events, techniques . . . . . p. 5**

**What people are writing about . . . . . p. 57**

Cover design by Ann D. Kahaner

---

EDITOR: Robert M. Smith

ASSOCIATE EDITOR: Louise H. Dratler

BOOK EDITOR: Lois Stewart

ADVERTISING MANAGER: S. L. Mason

ADVERTISING PRODUCTION: Linda Cote

CIRCULATION MANAGER: Mitchell Gresser

SUBSCRIPTION MANAGER: Fred Tedor

CONSULTING EDITORS: Peter P. Skomorowsky, Alexander Grant & Company, New York, Chairman; William A. Anderson, Bunker Ramo Corporation, Oakbrook, Ill.; Edwin T. Boyle, Hackensack, N.J.; C. Craig Bradley, Coopers & Lybrand, Louisville, Ky.; Stanley L. Cohen, North Miami Beach, Fla.; Thomas S. Dudick, Ernst & Ernst, New York; Herbert A. Fraenkel, International Telephone and Telegraph Corporation, Hamburg, W. Germany; Granville R. Gargiulo, Arthur Andersen & Co., New York; Kenneth Gordon, Main Lafrentz & Co., Boston; Bernard B. Greenwald, J. K. Lasser & Company, Chicago; Henry Gunders, Price Waterhouse & Co., New York; Leander W. Jen-

nings, Peat, Marwick, Mitchell & Co., Chicago; L. Thomas Kelly, *Natural History*, New York; John D. Lesure, Laventhol Krekstein Horwath & Horwath, Orlando, Fla.; Michael R. Moore, Arthur Young & Company, New York; Robert D. Niemeyer, Haskins & Sells, New York; James H. Palsmeier, Elmer Fox & Company, Wichita, Kan.; Shelton C. Rogers, Grisanti & Galef, Inc., Los Angeles; Daniel M. Sledz, Chicago, Ill.; John P. Sullivan, Hurdman and Cranstoun, Penney & Co., New York; Donald J. Trawicki, Touche Ross & Co., New York; Paul D. Warner, Eisner & Lubin, New York; Herbert J. Weiser, Long Island University, Brooklyn, N. Y.

# What's wrong with this picture?



Photo by Van Bucher

Somebody forgot to include the women. Each day decisions are being made in all-male boardrooms, in city councils, on the boards of education, and elsewhere, that affect all of our lives. Intelligent, educated women — and they are legion these days — belong in this picture. They can help to build the kind of society we all want. What's wrong with this picture is that half the talent and brainpower of our country is missing... an important half — women.

## Womanpower. It's much too good to waste.

For information: NOW Legal Defense and Education Fund Inc., 127 East 59th Street, Dept. K, New York, N.Y. 10022



# people, events, techniques

## **RIA Issues Study Outlining Various Means Management Can Take to Lessen or Eliminate Strike Losses**

Strikes need not be carried out strictly on the union's terms, a report by The Research Institute of America, Inc., maintains. Management can minimize losses if it has a solid program of foresight and preparedness, an assessment of the strengths and weaknesses of all parties involved, and a knowledge of its rights, the RIA states.

The 44-page study, "When Strike Threatens—A Management Action Guide," points out that the National Labor Relations Board has moved more and more in the direction of permitting lockouts. Consequently, the RIA suggests this is one offensive step that should

be considered when a strike seems inevitable, especially in highly seasonal businesses. Unions prefer to go on strike during peak season but a lockout can beat the union to the punch and have the workers back in time for peak season, the study suggests.

### ***Lockout that worked***

As an example, the RIA cites the case of the American Ship Building Co., which did most of its work during the winter months. It was struck in each of its five prior contract renewals and, when its sixth contract expired on August 1

and bargaining reached an impasse, it locked its employees out. The settlement was reached toward the end of October and the employees were back the next day. The lower courts upheld the union's charges of unfair labor practice, but the Supreme Court did not.

In reversing the lower courts' rulings, the Supreme Court observed, "It is true that recognition of the lockout deprives the union of exclusive control of timing and duration of stoppages . . . but there is nothing in the (National Labor Relations Act) that 'carries with it' the right exclusively (of the union) to determine the timing and

duration of all work stoppages.”

In considering a lockout, the employer should bear in mind: locked out employees are eligible for unemployment compensation; there are severe restrictions on replacing locked-out employees that do not cover the replacement of strikers; the ill will of labor may be aroused; and the company image may suffer.

If a strike is inevitable, the RIA advises that management should try to arrange an orderly shutdown with the union. The report includes a checklist of steps to be taken prior to a shutdown. It suggests that supervisors be told, “Each foreman shall exercise his best judgment and is responsible for the proper protection of material and equipment in his area.”

The report is available to non-members of the RIA at \$8.00 a copy and to members at \$4.00 a copy. Reduced rates are available for orders of more than six copies. Orders, with checks attached, should be sent to The Research Institute of America, Inc., Department 111, Mt. Kisco, N.Y. 10549.

## New Flexible Work Schedules Started In Two U.S. Firms

Flexible work schedules have been given quite a bit of publicity in the last year or so (see M/A, July-August, '72, p. 14). Often these schedules have either forced workers to use time clocks, anathema to unions, or to be checked in by supervisors, a time-consuming task in a large operation. A German firm has recently introduced to Americans an alternative system for controlling flexible time schedules which has successfully been implemented by many companies in Europe.

Flextime Corporation, New York, is the American wholly-owned subsidiary of J. Hengstler KG, a manufacturer of electro-mechanical

counters and controls. It offers a system that is based on an automatic personal time totalizer which accumulates the number of hours each worker puts in during an accounting period.

Employees are issued keys with their name and photograph on them. They slip their key into the accumulator as they enter their work area and remove it when they leave. The accumulators continuously display the number of

hours the employee has worked during the accounting period, and, as a result, the employee knows how much time he has to put in.

The firm provides the consulting services involved in a company's implementation of the Flextime system, including: analysis of company procedures and policies, education of personnel, and introduction of equipment.

Two U.S. companies that have tried Flextime are Alexander Hamilton Institute, a New York publisher of business newsletters, and Industrial National Bank, Providence, R.I.

### *Publisher's productivity rises*

Alexander Hamilton set up flexible starting times, 8 to 10 a.m., and quitting times, 3 to 6 p.m., but retained a fixed lunch break of noon to 12:45 and a core time to be worked by all employees of from 10 a.m. to 3 p.m.

According to Hamilton's materials manager, Joseph Cook, “Since the introduction of Flextime we have been able to handle an increased number of subscribers to the Institute's publications with no increase in personnel. There also has been no appreciable increase in overtime.”

### *Bank expands program*

Flextime was introduced into an 85-member consumer loan department of the Industrial National Bank. Different core times (i.e., when personnel must be on the job) were set up for different sections of the department according to their workload. The collection section found its least lucrative hours were 3 to 5 p.m., and, consequently, it set its core time as 9 a.m. to 3 p.m.

Although the trial program was supposed to run for ten weeks, the bank decided to purchase the Flextime equipment after only five weeks. It now plans to install Flextime equipment on an experimental basis in its accounting department.

### AIR MAIL SUBSCRIPTION SERVICE AVAILABLE

Readers of *Management Adviser* — particularly those living and working abroad — have asked from time to time whether there is any way we can get the magazine to them more quickly.

There is. We have just set up a new service which will enable our readers to receive *Management Adviser* via air mail simply by paying the additional postage. The rates are indicated below.

Subscribers who wish to take advantage of this air mail service should write to our subscription department at the address shown below. They will be billed for the postage on the remainder of their present subscription, plus an additional year's subscription at air mail rates.

### AIR MAIL POSTAGE RATES (Subscription cost *not* included)

Europe and South America	\$ 8
Central America and Caribbean	5
Africa, Australia, Near East and Far East	11
Canada	7
United States	6

MANAGEMENT ADVISER  
666 Fifth Avenue  
New York, New York 10019

## Most Businessmen Ignore Proven Management Techniques Because They Are Satisfied With Status

Many small businessmen are not utilizing proven management techniques because they feel they are not doing badly using just their own judgment, observes Bennett M. Alban, CPA.

If a businessman is running his company profitably just by the seat of his pants, he'll do even better if he adopts some orderly techniques, maintains Mr. Alban, tax manager in the Chicago office of Lester Witte & Company. Writing in a recent issue of his firm's newsletter, he suggests that businessmen should try using a five-step decision making process that embodies both scientific analysis and common sense:

"1. Define the problem. . . . Make sure you are dealing with the problem and not symptoms of it. And get employees who will be involved in the solution to agree on the nature or definition of the problem.

"2. Get all the facts. . . . The 'hard' economic questions should be evaluated as much as possible on the basis of information available from the accounting system. Presuming the accounting system includes sales and income forecasts, a feasible budget and good historic records, it should provide most of the necessary economic facts.

"3. Develop alternatives. There should always be an opportunity for decision between at least two possible courses of action. . .

"4. Test possible solutions. . . . Testing may be strictly a mathematical computation based on accounting data, as in comparing purchasing and financing costs to leasing. Or it may be a test of equipment under actual or simulated conditions. . .

"5. Decide and implement: Overanalysis is paralysis. . ."

Mr. Alban estimates that perhaps 40 per cent or more of all major business decisions are primarily, if not exclusively, economic. Consequently, the accounting system should provide all essential data on business operations.

"An accounting system that is designed to produce information for tax purposes only will not meet the need," the tax manager says. "Perhaps it is safe to say that accounting systems and techniques provide the small business (employing up to 500 people) with all the OR it needs."

### A hypothetical case

As an example of how structured decision making can be used in a common situation, Mr. Alban sets up a hypothetical case in which a self-employed individual is trying to decide if he should incorporate his business. A test-analysis of the individual's contemplated plan versus his present situation is shown in the chart below:

#### TEST OF ALTERNATIVES

	Contemplated Plan		Present Situation
	Corporate Taxable Income	Individual Taxable	
Net Income (\$50,000 — \$10,000)	\$40,000	—	\$40,000
Salary	(\$32,000)*	\$32,000	—
Pension and Profit Sharing Contribution	(\$ 8,000)*	—	(\$ 2,500)*
Gross Taxable Income	<u>\$ 0</u>	\$32,000	\$37,500
Allowable Deductions plus Personal Exemptions (4 x \$750)		(\$ 8,000)*	(\$ 8,000)*
Taxable Income		<u>\$24,000</u>	<u>\$29,500</u>
Federal Income Taxes		<u>\$ 5,660</u>	<u>\$ 7,675</u>

\* Subtract

Reprinted from *The Lester Witte Report*, Vol. 5 No. 1, published by Lester Witte & Company, Chicago.

In the hypothetical case "the individual has three choices. He must decide whether his family can adjust its standard of living to an annual after-tax income of \$26,430 (\$32,000 less tax of \$5,660) from the corporation or must modify the corporate plan to provide more income or needs all of the present-situation income of \$29,825 after taxes (\$37,500 less \$7,675).

Mr. Alban warns that the managerial function is by no means usurped by fact analysis, and the businessman must overcome his natural self-reliance and use management techniques to seek optimum results.

## Average Clerical Pay In U.S. Now \$123, AMS Survey Reports

The average U. S. clerical worker is earning \$123 per week, reports the 27th Annual Salary Survey conducted by the Administrative Management Society. This is an increase of \$6 per week from last year's average, AMS notes.



Surveying seven data processing jobs, the AMS finds the average weekly salary is \$154, up \$9 from last year's figure for the same group.

The Canadian average salaries for the same posts are lower. The average Canadian clerical worker receives \$110 per week, compared with \$107 last year. The average Canadian data processing worker earns \$139 per week, compared with \$125 last year, according to AMS figures.

The complete salary survey is available from the Administrative Management Society, Willow Grove, Pa. 19090. It is free of charge to AMS members and \$30 a copy to all others.

## **Survey Shows R&D Chiefs Moving Higher In Company Hierarchy**

Every year the recruiting firm of Heidrick and Struggles performs an in-depth survey of a key executive post. This year it has focused on the chief research and development executives. (The firm's profile of a corporate president was discussed in M/A, January-February '73, p. 8.)

Seventy-two per cent of the FORTUNE 500 responded to the firm's questionnaire.

### **Most highly educated group**

The R&D chiefs are the most highly educated of any executive group, H&S finds. A majority of them hold doctorates, mainly in chemistry or engineering with undergraduate study in engineering. The University of Illinois and MIT hold a commanding lead as the schools from which the R&D executives hold degrees. H&S comments, "Harvard and Princeton no longer appear among most popular schools for technical chiefs."

Five years ago, when H&S last did a similar profile, only two out of three R&D executives were offi-

cers of their company. In the present survey the firm found eight out of every 10 to be officers.

The median age of these executives was 53, as compared to 51 in the 1968 study. H&S observes, "This increase in age, as well as lengthening tenure, reflect lower mobility within the R&D functional area during the last five years."

While the chief R&D executives still earn less than their counterparts heading the finance and marketing functions, they do earn considerably more than they did five years ago. R&D chiefs earn \$40-59,000 annually in cash compensation, while financial executives earn \$50-75,000 and marketing heads \$60-79,000. Five years ago, about half of the R&D executives earned less than \$40,000. Now more than 25 per cent of them in companies with sales volumes of over \$1 billion earn \$100,000 or more annually.

No formal measurement of return on investment in research was reported in 57.2 per cent of the companies responding. The 42.8 per cent that do perform such measures mentioned three techniques equally: the ratio of R&D expense to net sales; the ratio of R&D expense to total pretax profits; and the ratio of R&D expense to pretax profits from market introductions.

Copies of the Heidrick and Struggles study, "Profile of a Chief Research and Development Executive," are available from the recruiting and consulting firm, at 20 Wacker Drive, Chicago, Ill. 60606.

## **Job Redesign Key to Productivity Rise?**

To redesign or not to redesign, that is the question. Hay Associates, management consultants, believe job redesign may be the key to increased productivity (for an opposing view see M/A, May-June, '73, p. 5).

"To say that proper compensa-

tion is vital begs the question; without it, nothing works. But, by the same token, no longer is it quite enough," the firm states in its newsletter, *Men & Management*, Number 258.

Hay points to the successes of AT&T and Texas Instruments with job redesign. Both companies experienced improved employee attitudes and quality and quantity of work.

### **Five essentials**

For successful job redesign, five requirements are essential, Hay maintains. These are:

"1—Top management understands the concept, is convinced of its validity, and will commit its support and resources to the undertaking.

"2—An initial study group will be designated to assemble background data and identify probable target areas and jobs; the subsequent 'permanent' redesign project team then tailors the individual changes. An investment of substantial time and effort will be required.

"3—It is essential that two types of assessments be available in order to accurately track results—production measurements and a kind of climate analysis or mirror which will reflect attitudinal changes as they occur.

"4—Specific steps to be taken, each with its end results, must be indicated, and the means of implementation must be identified or formulated.

"5—Progress must be measured and reported to management—preferably to a top echelon executive whose interest is assured."

Hay points out that job redesign is a long-term project and results may not be evident for many months. Management has to commit itself to the project despite short-term cost pressures or temporary setbacks.

Although the firm advises that employees to be affected should be told about the redesign project, it should be minimized to allay their natural fears and suspicions.

Employees may provide the an-

swers to productivity problems, Hay suggests. "With increased satisfaction stemming from redesigned work, people are more willing to utilize their knowledge, ingenuity, ability and native intelligence while striving to reach even higher levels of accomplishment."

Complimentary copies of the newsletter are available from Hay Associates, 1845 Walnut Street, Philadelphia, Pa. 19103.

## **Greater Challenge Seen As Major Inducement In Job Movements**

When a high-ranking executive considers moving to a new company, the most critical factors affecting his decision are the increased level of job responsibility measured against the anticipated family-related problems, a survey conducted by four executive recruiting firms states.

Fifty high echelon executives who had undergone a job change and relocation within the past 12 months completed five-page questionnaires for the purposes of this survey. It was conducted by Hergenrather & Company, Los Angeles; Thomas A. Buffum Associates, Boston; John W. Siler & Associates, Milwaukee; and The Hunt Company, New York.

### ***Salary relatively unimportant***

Only four of the executives questioned cited a higher salary as the key reason for leaving their old companies.

"But," said Thomas Buffum, president of the Beston firm, "only in the rarest of circumstances does an executive switch companies without some upward move in salary. This is understood."

While half of the executives surveyed said that they changed jobs for greater challenge and/or opportunity for advancement, a few said their move was motivated by a dislike of their boss. For exam-

ple, the president of one major entertainment company switched to another because of this sort of personality clash.

"We are finding that an executive such as those covered in this survey, a man in his 40s, high on the executive ladder, with a list of solid managerial accomplishments, is seeking to increase his estate. Ownership opportunities through stock or direct partnerships are attractive lures," said Bridg Hunt, president of The Hunt Company.

The executives were asked what problems they faced in moving into a new job. Four areas were generally mentioned: learning the business; learning the unofficial lines of communication and power; finding and training subordinates; and working with a new group of executives.

### ***Many companies neglect novices***

"It is actually surprising how many companies apparently feel that since the incoming man is a 'crackerjack' administrator, there is no need to tell him very much, if anything. He is going to know it or find out what he needs to know without difficulty, they think," Mr. Hunt commented. "Well, this just isn't so."

According to the executives, the most important things their new companies gave them were: a briefing by other executives; a gradual increase in responsibility; and an introduction to other executives to open the lines of communication.

The family-related problems encountered by executives shifting to a new community included: finding a new house; selling the old house; leaving old friends; making new social contacts; homesickness for the old community; and school problems. These problems were even cited by executives who had gone through the experience of changing communities more than once.

Most of the companies provide substantial financial assistance for relocation, the executives said. The

majority of the companies paid all the moving and transportation costs involved in the personal relocation, as well as hotel bills during the move. Visits to the new community by the executive and his wife prior to his accepting the job were also usually paid for by the company.

The study notes that assistance given to an executive apparently did not depend on his title, but, rather, on company policy for all new managers.

## **New Tax Legislation Leads to More Direct Corporate Giving**

The increased cost of building up reserve funds under the Tax Reform Act of 1969 is influencing many companies to turn to more direct corporate giving, a recent Conference Board survey finds.

Executives associated with 240 company foundations were questioned. The Conference Board learned that 24 companies are phasing out their foundations completely, 34 are reducing their activities in favor of direct company giving, and several others are reassessing their use of foundations.

The Board explains, "The TRA legislation leading to this situation requires the foundation to disburse all gifts of appreciated property within 2½ months following the taxable year of receipt. If this is not accomplished, the company's tax deduction is no longer based on the full value of the property, but on depreciation cost plus 37½ per cent of appreciation less recapture. Tax benefits on large gifts such as outgrown facilities and equipment, appreciated securities and real estate are smaller under the TRA; and restraint must be exercised on lesser donations so that the maximum tax deduction applies."

Businessmen are becoming increasingly wary of grants that could

in any way be construed as being primarily in the company's interest. One executive told The Conference Board, "If there is the slightest question about the propriety of a contribution . . . we simply do not make the contribution."

In light of the Tax Reform Act's new legislation, leases and payment for services between the sponsoring company and its foundation are under review, the Board observes.

It advises, "Company foundations supporting private founda-

tions must assume 'expenditure responsibility' by establishing adequate procedures to see that the grant is spent for the purpose for which it was made, obtain full reports from the grantee and make a report on the grant to the Treasury."

### For the Management Consultant—

## ADL Says Performance Measurement Techniques Can Lead To Dramatic Improvement in Computer Operations

The symptoms of an ailing computer may be excessive run time, channel thrashing, poor I/O performance, or a number of other problems, a recent issue of the ADL Systems, Inc., newsletter, *The Casebook* explains. When these symptoms occur the application of performance measurement techniques may result in a 30 to 60 per cent improvement in operations, the firm estimates.

There are two principal approaches to performance measurement, analog and digital. Analog devices are attached at various points in a computer system to record the voltage changes in CPU circuits or data channels, indicating the level of system activity at a given point. The digital approach calls for separate programs,

running inside a system concurrently with applications or operating software, sampling the programs at specific intervals, ADL Systems explains.

*The Casebook* outlines the advantages and disadvantages of each technique (see chart below) and concludes that for a modest effort in a relatively simple environment, analog techniques are more useful. Digital approaches are essentially for an extensive measurement effort on a system where high-speed equipment and heavy multi-programming are in use.

### Large savings possible

When the proper measurement techniques are applied thousands of dollars can be saved annually,

ADL maintains. It gives several examples, including:

"Through analog monitoring, it was found that several jobs were interacting and queuing for access to the same channel. Reorganizing the data files led to 40% reduction in run time for the job stream."

"Elapsed time for an inventory update run was reduced 60% by using digital techniques to identify the potential benefit of using core indices for ISAM files."

### Complete plan first step

ADL advises that once it is decided that there is something wrong with a system a plan describing the problem, the data needed to cure it, and the technique for gathering that data should be written. This should include the sampling plan, decision breakpoints, and appropriate alternative diagnostic approaches. Tools for collecting the necessary data should be selected on the basis of the symptoms noted, budgets, and resources. Finally, analysts should be selected who understand the applications and operating systems, the equipment in use, the inter-relationships of hardware and software, and the measurement tools.

"The payoff, of course, will be measured in dollars and cents—as well as in better vision when making decisions on additional equipment," the firm advises.

Copies of *The Casebook* are available from ADL Systems, Inc., Acorn Park, Cambridge, Mass. 02140.

Pros and Cons of Analog and Digital Measurement Techniques

	Advantages	Disadvantages
ANALOG	1. Easy to use—requires no software modifications	1. Detail information not readily available
	2. Information available quickly—can be observed as system operates	2. Difficult to focus on a particular program while multi-programming
	3. Good measure of overall activity	3. Requires experienced technician for proper analysis
	4. Can readily modify data gathering plan	4. Requires knowledge of, and access to, internals of the hardware
	5. Little disturbance to the system	
DIGITAL	1. Can provide very detailed data about activity within a program	1. Requires software setups
	2. Can focus upon particular programs while multi-programming	2. Best used to research a particular problem
	3. Can be used to analyze activity in operating systems	3. Cannot make variations within a test session
	4. Can be used to analyze interaction between programs	4. Measurement and output operations when using this technique can impair system performance

Reprinted from *The Casebook*, published by ADL Systems, Inc., Cambridge, Mass.



## California Studying Bill That Would Require State Licensing of Management Consultants

California's Senate Committee on Government Organization is presently restudying a bill that would require management consultants to be licensed by the state.

The proposed legislation, Senate Bill 567, was introduced by Senator Ralph Dills on March 29, 1973. After meeting with representatives of several professional organizations this summer, the senator moved to refer the bill back to his committee for "interim study" on August 13. He will probably reintroduce the measure in January, 1974.

### *Summary of provisions*

Wilbur H. Stevens, California CPA, served as representative of the AICPA committee on legislative policy at a special meeting called by the California Society of CPAs to determine its position on SB 567. In reporting back to the AICPA's Board of Directors, Mr. Stevens summarized some of the proposed bill's provisions:

"1—Persons who perform management consulting services, must be registered by a state board of registration for management consultants. . . .

"2—Persons otherwise licensed, certified, or registered by the state are exempted, as are employees performing services solely for their employers, persons serving less than 25 clients in one year, and those who serve clients only doing business outside the state.

"3—The seven-member board is composed of two public members and five management consultants, at least two of whom are members of a nonprofit organization established to serve the professional needs of management consultants.

"4—The board is to consider the feasibility of classifying registered management consultants (RMCs) as specialists in designated fields of expertise, and the feasibility of requiring continuing education for

renewal of registration, and to report to the Legislature by January 30, 1977.

"5—Among other requirements, an applicant must meet the educational requirements established by the board, have at least five years of experience, and pass 'a process examination for competence.' (The board may waive the examination requirements for applicants who apply for registration within one year following the effective date of the law.)

"6—A temporary (60 day) authorization to practice may be granted, for specific projects, to one who (otherwise) maintains no office in the state, who is qualified to practice in another state or country where his office is maintained, and who 'demonstrates sufficient knowledge of management consulting.' A six month extension of the 60 day authorization may be granted."

When the California Society of CPAs first heard of SB 567, it secured exemption for licensees of the State Board of Accountancy, based on the concept of duplicated regulation. Notwithstanding this exemption, it recognized the broader implications of the proposed legislation and actively opposed the bill. The CSCPA asked the AICPA to support this position.

### *AICPA termed law premature*

The AICPA's Board of Directors adopted a resolution declaring that any legislation for the examination, registration, and regulation of management consultants is premature at this time.

In addition, the Board directed its legislative committee to give specific consideration to SB 567. The Board also directed its MAS committees to explore all aspects of this type of legislation, including accreditation and standards of practice, and to submit a report and recommendations to the Board. The committees are expected to meet

with other consulting organizations.

Though the Institute of Management Consultants supports this type of legislation, it does not support SB 567 because the organization feels it needs more time to develop a model accreditation bill that it can support in all states.

## Large Minority of Mini Users Dissatisfied With Software, Support

Many minicomputer users are dissatisfied with the technical support and software their machines get, a Datapro survey finds.

Subscribers to *Datapro 70* were sent a minicomputer reader survey form and 83 responded. These users had a total of 1,268 installed minis. Although 41 per cent of the respondents had only one machine installed, the average number of machines per organization was 15.3, with one maintaining 500.

Sixty-nine per cent of the respondents said they acquired their minicomputers from a manufacturer, while the remaining 31 per cent acquired theirs from a system supplier.

Datapro asked the users who wrote the programs for their minicomputer applications. Sixty per cent of the users said in-house personnel did; 22 per cent attributed their programs to minicomputer manufacturers; 28 per cent said system suppliers; and 3 per cent answered independent software firms. In some cases, the respondents called on two or more program sources.

The 83 respondents are using their minicomputers for the following applications: 30 for data communication, 30 for industrial data acquisition and control, 14 for laboratory automation, 12 for data entry, 10 for education, seven for business data processing, six for automated testing, five for publishing and word processing, three for graphics, three for time-sharing,

	Excellent	Good	Fair	Poor
Overall performance	42%	46%	10%	2%
Ease of programing	19%	58%	17%	6%
Ease of operation	34%	57%	7%	2%
Hardware reliability	40%	44%	12%	4%
Maintenance service	24%	46%	23%	7%
Technical support	13%	38%	30%	19%
Manufacturer's software	16%	44%	25%	15%

Subscribers to Datapro 70 were asked to rate the features of the minicomputers they are utilizing. The overall picture given by the 83 respondents is summarized in the chart above.

two for scientific calculations, and nine for miscellaneous applications.

The entire Datapro 40-page report, *All About Minicomputers*, is available for \$10 per copy from Datapro Research Corporation, Moorestown, N.J. 08057. It includes comparison charts which describe the characteristics of 128 minicomputers from 47 manufacturers.

Datapro has also recently conducted its first annual survey of proprietary software users. Seventeen packages were rated "excellent" in the overall user satisfaction category.

They were: Alltax (Management Information Service), Amigos (Comress, Inc.), Dump/Restore/ Copy (Westinghouse Tele-Compu-

ter Systems Corp.), DUO 360/370 (renamed UCC TWO; University Computing Co.), DYLAN-250 (Dylakor Computer Systems, Inc.), Easytrieve (Ribek Corp.; marketed by Pansophic Systems, Inc.).

Other "excellent" packages listed were: EPAT (Software Design, Inc.), Grasp (Software Design, Inc.), The Librarian (Applied Data Research, Inc.), Panvalet (Pansophic Systems, Inc.), Power (IBM Corp.), Quikjob (System Support Software, Inc.), RPG II (IBM Corp.), Score (Programming Methods, Inc.), Spooler (Boothe Computer Corp.), SyncSort (Whitlow Computer Systems), and Total (Incom Systems, Inc.).

*User Ratings of Proprietary Software*, the evaluations of 174 different packages by 191 users, is available at \$10 per copy from Datapro Research Corporation.

### ***For the Executive in Finance—***

## **Worker Representation in Management Decision Making Growing Throughout World, Conference Board Reports**

Worker participation in management decision making is winning increasing acceptance by top level executives in 50 countries. Although the executives feel their ultimate authority in making big decisions must not be usurped, some degree of worker participation is seen as a way of improving productivity, motivating job satisfaction, and resolving labor-management problems, a survey by The Conference Board has found.

The Board questioned 143 executives. Only 27 categorized worker participation as a "non-issue."

According to the Board's report, "... when asked to assess the present status and future impact of worker participation in their countries and companies, most panelists say that greater participation by workers in decisions affecting their immediate job or allied responsibilities is probable, if not inevitable. Some say they welcome, at

least within certain limits, the advice and counsel of worker representatives in even higher echelons of corporate decision-making."

From the answers of the 143 executives, The Conference Board found that three principal forms of participation emerge: worker representation on boards of directors, supervisory boards, and management boards; worker councils and similar consultative or joint advisory committees at plant and company levels; collective bargaining and associated forms of union-management activity.

### ***Do workers want participation?***

"Whatever the mechanics of participation, the crucial point of controversy revolves on whether workers are to have—or even want or need—a direct voice in the top-management prerogatives of planning, marketing, financing and

similar long-range decisions affecting the broad operation of the company. Really pertinent participation, many managers argue, occurs on the shop floor, not in the board room," the report says.

The Netherlands has this year initiated a plan which gives workers an indirect but equal voice with shareholders and management in the selection of members of corporate boards of supervisory directors. Works councils can propose supervisory board candidates, just as management and shareholders do, in companies with 100 or more employees. The board then chooses its own directors, subject to the veto of the shareholders and the workers. However, a veto can be appealed by the board to the Social Economic Council of the Netherlands.

One Dutch executive said that the main aim of worker participation was to provide a safeguard

against "obscure management policy, which may lead to unpleasant surprises," for the employees.

The Conference Board found "many executives consider some increase in participation to be a natural manifestation of the evolutionary process of change sweeping many of society's basic institutions."

"Worker Participation: New Voice in Management," is available from The Conference Board, 845 Third Ave., New York, N.Y. 10022, at \$3 per copy for associates and educators and \$15 per copy for all others.

## **Bonuses Mandatory in Most Countries of EEC, Consultants Report**

Bonuses are required for all levels of employees in most EEC countries, Towers, Perrin, Forster & Crosby, management consultants, observes in its latest study on "Total Remuneration in the European Economic Community, Japan, and the United States."

While in the EEC these bonuses amount to one month's pay or less, in Japan bonuses, which are traditionally paid in July and December, can total from two to six months' salary each year.

In the United States it is considered reasonable to give a terminated employee one week's pay for each year of service, TPF&C state. In Belgium, it can cost an employer up to three years' pay to terminate a \$30,000 executive.

TPF&C notes, "A Belgian court recently awarded an American expatriate 2½ years' pay after he was terminated by his employer for refusing a transfer back to the United States."

Perhaps part of the expatriates' distress could have been overcome if he looked at TPF&C's comparative tax figures. Based on a married individual with two dependent children, standard deductions excluding social security contribu-

tions where applicable, on a gross earned income of \$40,000 (\$U.S.) the executive would pay 21 per cent tax in the United States, but 58 per cent in Denmark, 57 per cent in Ireland, and 50 per cent in the Netherlands. Of the countries in the study, only France has a tax rate as low as the U.S. rate, 21 per cent. For \$10,000 gross income the French rate, 7 per cent, is less than the U.S. rate, 9 per cent.

The government has largely taken over the responsibility of providing employee benefits for the workers in Europe; Social Security costs are financed by the employer and the employee in the United States; and in Japan the employer is expected to provide a wide range of special forms of compensation, the report states.

"In the past, stock options and awards have been almost exclusively confined to the United States. Favorable legislation in France and the U.K., however, has revived interest in such awards. And recent legislation in Japan allowing Japanese to invest in non-Japanese securities, may encourage their use among foreign firms there," TPF&C observe.

A copy of the firm's study, "Total Remuneration in the European Economic Community, Japan, and the United States," can be obtained by writing to: Editor, TPF/C LETTER, Three Penn Center, Philadelphia, Pa. 19102.

## **New Products and Services—Has IBM Finally Stubbed Its Toe?**

In March, IBM announced a 48-month lease plan for its System/370 computers. Now that several months have passed and users have had a chance to consider this plan, *EDP Industry Report* says IBM may have "finally goofed in reading the user marketplace."

The plan has been offered to

users of the System/370 Models 125, 135, 145, 158, and 168 and their associated multi-system units, channels, consoles, and power and coolant units. It enables users to run their applications round-the-clock at no added rental cost. The charge under the four-year contract is the same as the standard monthly lease charge for these machines.

*EDP Industry Report* sent questionnaires to 2,000 users of various types of IBM equipment. Of those using the System/370s, 76 per cent said they considered using the four-year plan, but only six per cent said they had signed up for renting their 370s on the new contract basis.

The four-year lease plan seems to guarantee a long life for the 370s and, consequently, more users are considering purchase and third-party leasing of the machines, *EDP Industry Report* postulates.

The newsletter found that although the users calculate that they would achieve monthly savings of about 13 per cent under the new contract, the inflexibilities of the plan, such as lock-in and extension, and termination constraints, make it undesirable.

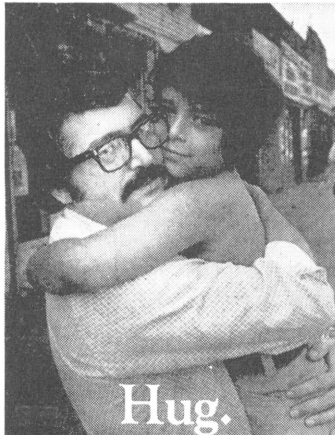
IBM's decision to offer a four-year term lease may have been as important to the computer marketplace as its unbundling decision was, the newsletter suggests: "IBM's 4YTL may mark the beginning of true user independence in thinking about equipment acquisition methods. The delay in taking IBM up on its offer, if that's all that's going on, would indicate that users are thinking a little harder . . . and are beginning to consider computers as part of an overall capital equipment picture. So 4YTL may mark the beginning of the end of the computer industry as a truly rental one."

*EDP Industry Report* is published by the International Data Corporation, 60 Austin Street, Newtonville, Mass. 02160. Single copies of its May 11, 1973 issue, excerpted above, are available at \$10 per copy for non-subscribers, \$3 per additional copy for subscribers.



# Wanted!

700,000 busy executives who can:



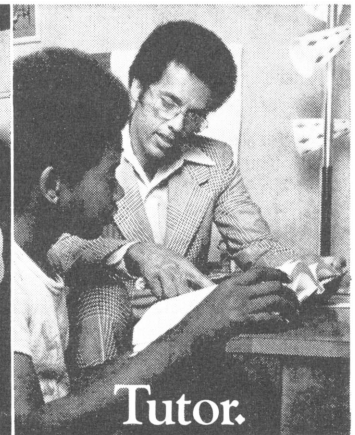
Hug.



Talk.



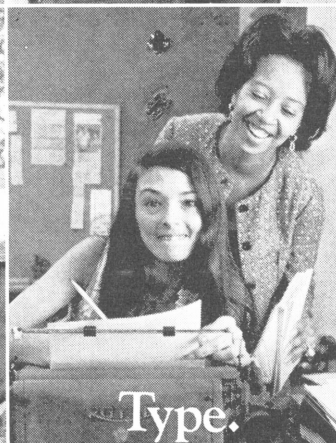
Listen.



Tutor.



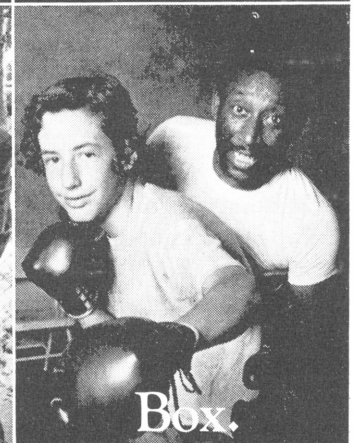
Play.



Type.



Swing.



Box.



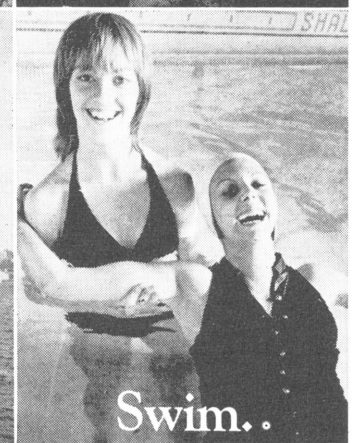
Tickle.



Cry.



Fish.



Swim..

If you can spend some time, even a few hours, with someone who needs a hand, not a handout, call your local Voluntary Action Center. Or write to: "Volunteer," Washington, D.C. 20013 **We need you.**



The National Center for Voluntary Action.



advertising contributed for the public good

*The nation's major metropolitan area is about to get a new method of transportation from its suburbs. But first a whole range of accounting figures had to be developed to see whether it was financially feasible. Here's what was done —*

## **PLANNING A NEW URBAN TRANSIT COMPLEX**

*by Edwin T. Boyle*

**I**N ALL the hue and cry, the shouting and the tumult, as to whether CPAs should predict the future financial course of a company, it seems to me that one vital point has been overlooked.

The difference between what any competent CPA can predict with certainty and the area of the subjective, the predictions and assumptions that only company management can make and that only management should be responsible for.

Roughly any business has a market (its sales), its costs, and the quantity of that market it can reach

at the price it hopes to establish. It seems to me that those are management's responsibilities and predictions and it must stand or fall by them. What the CPA—any CPA—can do is figure out what management's profit position would be at any time provided those sales are realized. Or 20 per cent of those sales. Or 50 per cent. Management's sales predictions can be wildly exaggerated—or they can be too low. The CPA can still tell management whether the proposition is viable and at what point. Actually any competent bookkeeper can record information after the fact; the

CPA can do it before the fact.

The trick is in merely projecting future possible situations as if they had already occurred, doing complete financial reports on them, and seeing what the reports show—"is" the company making a profit or not? It can be done for any level of sales—50 per cent of the client's projected figures, 30 per cent, or 120 per cent. In other words, once the basic calculations are made, the CPA can slot any given percentage of anticipated sales into the projection and see where the company would stand if that particular level of sales were achieved.

**EXHIBIT I**  
**INTERNATIONAL HYDROLINES, INC.**  
**TRI STATE AREA**  
**Proposed Hydrofoil Operations**

**Basic data used in projections:**

**Cost of boats:**

Based upon purchase of 10 boats	\$550,000.00 each boat FAS San Diego
(Cost includes \$65,000 per boat payable to International Hydrolines, Inc., for engineering drawings and design)	
Delivery costs to New York area — estimated	30,000.00 each boat
Communications and radar equipment — estimated	5,000.00 each boat
Total cost — estimated	<u>\$585,000.00</u>

**Method of financing:**

Title XI Maritime insured loan	
75% of basic cost	<u>\$412,500.00</u>
Terms of loan:	
Interest cost including mortgage insurance premium	8%
Monthly payments — including interest — based upon a 15 year payout	\$ 3,943.50
Total annual cost of above payments	<u>\$47,322.00</u>

Cash required to acquire each boat \$172,500.00

Estimated useful life of boats 15 years  
Estimated salvage value per boat at end of 15 years \$50,000.00

**Capacity — 72 passengers**

**Cruising speed — 40 miles per hour**

40 mph less 10% for dockage, delays, etc. = 36 mph  
average speed used in calculations

**Operating costs:**

Crew: one licensed captain \$ 4.75 per hour  
one engineer 4.25 per hour  
one seaman 2.50 per hour

**Fringe benefits:**

For 3 employees — general benefits \$12.15 per day  
For 3 employees — holiday benefits 2.10 per day  
\$14.25 per day

Fuel: 48 gals. per hour — main engines } 51 gals. per hour @ \$.17 per gallon = \$8.67 per hour  
3 gals. per hour — aux. engine }

Lubrication: 1 qt. per hour both engines @ \$.60 per qt. per hour = \$ .60 per hour

Insurance: All coverage (T.L.O.) annual cost per boat \$35,000.00

Oil changes: Two engines — every 150 hrs. = 17 gals.  
Two transmissions — every 150 hrs. = 11 gals.  
U Drives — every 150 hrs. = 5 gals.  
Auxiliary engines — every 150 hrs. = 4 gals.  
Total consumption — every 150 hrs. = 37 gals.  
37 gals. x \$2.40 per gal. = \$88.80 every 150 hrs. = \$ .59 per hour

**Annual maintenance:**

**Hauling costs:**

Twice a year @ \$2,000 per haul \$4,000.00 per year

**Cleaning, painting bottom:**

Twice a year @ \$700 each 1,400.00 per year

**Painting topsides:**

Once each year @ \$200.00 200.00 per year

Propellor damage and replacement — estimate 700.00 per year

Bearings, pump, and electric repairs — estimate 300.00 per year

Lines and fenders — estimate 50.00 per year

Total \$6,650.00 per year

**Overhaul:**

Engines at 5,000 hours @ \$2,500 per engine — total \$5,000.00 = \$ 1.00 per hour

**Foils and outfitting:**

V Drive \$ 1.00 per hour

Foils — cleaning and repairing 2.00 per hour

Routine — (all unscheduled maintenance) 1.00 per hour

Cabin cleaning, burp bags, cups, etc. 1.00 per hour

Miscellaneous — including life raft inspection when required 1.35 per hour

\$ 6.35 per hour



## EXHIBIT 2

### INTERNATIONAL HYDROLINES, INC. TRI STATE AREA Description of Services

#### Commuter service:

Commuter service is based upon the following:

- Boat to make one 45 minute to 60 minute run in the morning, leaving point of origin at 7:00 AM to arrive in New York City at 8:00 AM
- Return trip to be made in the evening from 5:30 PM to 6:30 PM
- Price per trip \$3.00 per passenger each way
- Assumed load factor 75% = 54 passengers—average

#### Shuttle runs:

- Each boat to make eight round trip shuttle runs (15 minute block time each run) between 8:00 AM and 10:00 AM (5 minute running time each way) and eight round trip shuttle runs in the afternoon between 3:30 PM and 5:30 PM
- Total one way trips each day 32
- Price per trip—one way \$1.00
- Assumed load factor 50% = 36 passengers—average

#### Excursion trips:

Excursion service is based upon the following:

- Four—50 minute excursion trips daily between 10:00 AM and 3:00 PM to operate 210 days per year
- Price per trip — \$3.00 for ½ hour trip  
\$6.00 for 1 hour trip
- Assumed load factor 50% = 36 passengers—average
- Estimated commissions expense on excursion ticket sales 20%

#### Weekend and holiday charter service:

Charter service is based upon the following:

- Boat available 52 weekends = 104 days
- Assumed utilization 50%
- Assumed utilization on holidays
- Total assumed utilization
- Price to be charged for 1 day charter service

52 days
6 days
<hr/> 58 days
<hr/> \$1,000.00

It's a do-it-yourself technique in other words. It also allows the CPA-consultant to prepare a pro forma balance sheet in the full realization that it won't be accurate to the last digit any time in the next 25 years. Yet figures placed in the balance sheet format are the acid test of financial health; they point up any weakness that might otherwise be overlooked in the projected operational study.

This technique also shows:

- When the probable useful life of the equipment will be exhausted per depreciation schedule, showing need for replacement.
- Status of cash account—or the extent of the cash deficit.
- The book value of the equipment.
- The current status of other asset and liability accounts.
- The net worth account, including retained earnings.
- Tax liability to correlate with prior losses and the depreciation method to be followed.

Thus, the approach of recording

future events as though they had already occurred, gives us the advantage of "hindsight" in at least structuring our operations; it shows us the crossover point of operations at which cash will start flowing in; it signals the need for new expenditures for equipment.

This sounds like simulation. In a way it is. But it requires no computer and no elaborate mathematical formulas. The only thing simulated is various demand (sales) levels at a given price. All the other figures, the actual dollars and cents figures, then become quite accurate for each given percentage point of demand.

Although we have always been heavily involved with computers, invariably we perform our work first by the manual, "long way" method, with all the mulling over that manual methods imply. Then and only then do we program our computers to duplicate the manual methods we've already worked out.

We feel this approach is ideal

for our "simulation" method. Events in business take place without benefit of computer. The recording of these events does not require computer operations either. And always the time-consuming manual methods are a safeguard against any possibility being overlooked, any contingency forgotten.

The CPA or financial executive who doesn't have a computer available can work out his feasibility study exactly as we did, in the case we're about to describe; that is, step-by-step—and he can be fairly certain that if he follows the traditional reporting format he has always used in the past he will be



EDWIN T. BOYLE, CPA, is a private practitioner in Hackensack, N.J. He is a consulting editor of *Management Adviser*. Mr. Boyle has also served on the AICPA Council and its computer and computer users committees. He recently held the post of president of the Chamber of Commerce of Bergen County, N.J. Mr. Boyle is a past president of the New Jersey Society of CPAs.



The company felt it could reasonably expect a market of 72 passengers per day . . .

all right. That is if he reports the most likely probabilities as though they had already occurred, he will come up with a reasonably complete set of assumed figures for the new venture.

Actually this sort of projection into hypothetical situations should be quite common to CPAs. Anyone who has ever participated in estate planning has done it almost automatically. He's calculated what the consequences would be if the husband died first, or if the wife were the first to die, what the taxes would be against the estate of the deceased spouse, what the after-tax remainder would be to the surviving spouse. Then the accountant selects the plan of distribution that most appropriately ex-

presses the client's wishes. Most importantly, the client has a preview of the future based upon his current will.

But in order to do this, the CPA has to make a set of assumptions. He has to run a simulation in other words. He must show what the various beneficiaries would receive; he drafts a pre-administration of the client's estate.

Then the client and his adviser select the plan that most accurately expresses the will of the writer.

It works exactly like this in a business situation—except that there is one important additional variable—the demand for the product at the price management wishes to establish for it.

Let's take the case of a job we

did recently for a company planning an entirely new type of business venture. Their project was establishment of a transportation complex—hydrofoil boats—between several suburban communities and New York City. (The projections shown herein contemplate that the actual operations of the vessels will be performed under franchise type arrangements and not by International Hydrolines itself.)

The company felt it could reasonably expect a market of 72 passengers per day, or 144 passenger trips per day (once to the city in the morning, once back from the city to the particular suburb in the evening) for every boat. (Hydrofoils, the units chosen, are particularly luxurious transportation

EXHIBIT 3

INTERNATIONAL HYDROLINES, INC.  
TRI STATE AREA

Range of Gross Income Dependent Upon Utilization of Boats

		Commuter Service	
		Factor	Amounts
<b>Maximum utilization — one boat</b>			
Capacity of boat:			
Number of passengers		72	
Price per trip, per passenger		\$3	
Total income per trip			\$ 216.00
Number of trips per day		2	
Total income per day			\$ 432.00
Estimated number of days in operation		210	
Total income — based upon above factors			\$90,720.00
<b>Gross income based upon degree of utilization — one boat:</b>			
	Average Number of Passengers	Gross Income	
100%	72	\$90,720	
90%	65	81,648	
80%	58	72,576	
75%	54	68,040	
70%	50	63,504	
60%	43	54,432	
50%	36	45,360	
40%	29	36,288	
30%	22	27,216	

Encircled items represent load factors used in these projections

in comparison to the train service available and the traffic-congested highways, so the company felt that a charge roughly equivalent to the train fare could be made for the daily round trip.)

Based on these predictions we drew up figures for the proposed operation. In every instance, except for passenger utilization, we subjected each figure to the harshest examination by knowledgeable people outside the company that we could find. This resulted in everybody being on the audit team. All data for operations were compiled in this way, and were massaged in the light of these third-party objections.

Based on these predictions, we first produced a cost statement, showing all major direct costs associated with the enterprise—costs per boat, methods of financing each boat, and costs for fuel and oil changes. There would have to be insurance on each unit, there



The hydrofoils, air cooled, fast, and new, offer definite advantages to harried commuters.

would have to be annual maintenance, there would have to be engine overhaul periodically, there would be costs for all unscheduled maintenance, for cleaning of the passenger quarters, and a fund for miscellaneous costs including inspection of auxiliary equipment

when required. See Exhibit 1, page 16.

In other words, we put ourselves in a frame of mind as if we were already in the company. And the data were inspected by engineers, labor people, insurance specialists, and management itself.

Shuttle Runs	
Factor	Amounts
72	
\$1	\$ 72.00
32	\$ 2,304.00
210	
	\$483,840.00
Average Number of Passengers	Gross Income
72	\$483,840
65	435,456
58	387,072
50	338,688
43	290,304
36	241,920
29	193,536
22	145,152

Excursion Trips	
Factor	Amounts
72	
\$6	\$ 432.00
4	\$ 1,728.00
210	
	\$362,880.00
Average Number of Passengers	Gross Income
72	\$362,880
65	326,592
58	290,304
50	254,016
43	217,728
36	181,440
29	145,152
22	108,864

Charter Service	
Factor	Amounts
Not applicable	
Not applicable	\$ 1,000.00
	\$ 1,000.00
Weekend days 104	
Holidays 9	\$113,000.00
	113,000.00
52 Weekend days & 6 Holidays	\$58,000



# EXHIBIT 4

## INTERNATIONAL HYDROLINES, INC. TRI STATE AREA

### Pro Forma Income Statement for Each Boat — One Year's Operation

	General Explanation or Basis of Apportionment	Total All Services
<b>Factors used in this projection:</b>		
Number of passengers and load factor	Capacity 72	
Price per trip		
Total income — per trip		
Number of trips — per day		
Total income per day		
Estimated number of day's operation		
Total annual income		\$549,400
Running time — hours		2,186
Estimated miles @ 36 mph		78,696
<b>Projected income:</b>		
Gross income — shown above		\$549,400
Less: Commissions expense	20% Excursion trips	\$36,288.00
Dockage and City Franchise	6% of gross income	32,964.00
I.H.I Franchise	3% of gross income	16,482.00
Total deductions		85,734
Gross income — adjusted		\$463,666
Gross income — adjusted	Per running hour	\$ 212.11
<b>Projected costs — direct:</b>		
Running hours worked		2,186 hrs.
	Per Hour	
Wages — direct	@ \$19.74 per hour	\$ 43,157.40
Wages — burden time	Calculated elsewhere	15,971.80
Fuel and lubrication	@ \$9.27 per hour	20,264.22
Oil changes	@ \$.59 per hour	1,289.74
Annual maintenance	@ \$6,650 per year	6,650.00
Overhaul	@ \$1.00 per hour	2,186.00
Foils and outfitting	@ \$.635 per hour	13,881.10
Insurance	Estimate \$35,000 per year	35,000.00
Depreciation	Calculated elsewhere	35,958.00
Total direct cost of operating boat — forward		\$174,358.26

Now we had the basic costs for each boat, purchase price, operating costs, and overhead or maintenance costs. Now we had to project anticipated income against these costs to see where we were.

The basic commuter service from three points in New York State, New Jersey, and Connecticut to the city, given the known speed of the hydrofoils, would be from 45 minutes to one hour. The possible commuting load each day would be hydrofoil capacity—72 passengers. Management assumed a twice daily proportion of 75 per cent of this or 54 passengers on an average. Thus a total passenger run load

of 108 commuter trips was assumed—once in the morning between 7:00 and 8:00, once out again from 5:30 to 6:30 at night. Management also assumed that it could charge \$3.00 for each commuter run, a rate roughly competitive with other far less comfortable methods of transportation, as is the running time for the trip.

That would leave, then, the hydrofoils lying idle much of the time between 8:00 in the morning and 5:30 in the afternoon. But people in the city have to get from one of its boroughs to the others. New York is an island, Manhattan, surrounded by four subsidiary bor-

oughs (Brooklyn, Queens, Staten Island, and the Bronx). Most New Yorkers have a deep and abiding hatred for subways, cabs are scarce and prohibitively expensive, and if a private car is used there's never any place to park. So if shuttle runs could be made between points in the city, during the day hours from 8:00 to 10:00 in the morning and 3:30 to 5:30 in the afternoon, the idle hydrofoils could be kept busy. It was management's opinion that the customers would be infinitely better off on a cost basis than they would with any other means of transportation except the subway.

So the entrepreneurs figured that

Commuter Service		Shuttle Runs		Excursion Trips		Charter Service	
75% = 54 passengers		50% = 36 passengers		50% = 36 passengers		Not applicable	
\$3 one way		\$1 each run		\$6 each trip		\$ 1,000 net per day	
\$ 162.00		\$ 36.00		\$ 216.00		\$ 1,000	
2		32		4		1	
\$ 324.00		\$ 1,152.00		\$ 864.00		\$ 1,000	
210		210		210		58	
	\$68,040.00		\$241,920.00		\$181,440.00		\$58,000.00
441		567		714		464	
<u>15,876</u>		<u>20,412</u>		<u>25,704</u>		<u>16,704</u>	
	\$68,040.00		\$241,920.00		\$181,400.00		\$58,000.00
\$ 4,082.40		\$14,515.20		\$36,288.00		\$ 3,480.00	
2,041.20		7,257.60		10,886.40		1,740.00	
	6,123.60		21,772.80		52,617.60		5,220.00
	<u>\$61,916.40</u>		<u>\$220,147.20</u>		<u>\$128,822.40</u>		<u>\$52,780.00</u>
\$ 140.40		\$ 388.27		\$ 180.42		\$ 113.75	
441 hrs.		567 hrs.		714 hrs.		464 hrs.	
Per Hour		Per Hour		Per Hour		Per Hour	
\$19.74	\$ 8,706.50	\$19.74	\$11,194.08	\$19.74	\$14,096.24	\$19.74	\$ 9,160.58
3.76	1,658.00	13.16	7,462.71	6.39	4,560.55	4.94	2,290.15
9.27	4,088.07	9.27	5,256.09	9.27	6,618.78	9.27	4,301.28
.59	260.19	.59	334.53	.59	421.26	.59	273.76
3.04	1,341.56	3.04	1,724.86	3.04	2,172.05	3.04	1,411.53
1.00	441.00	1.00	567.00	1.00	714.00	1.00	464.00
6.35	2,800.35	6.35	3,600.45	6.35	4,533.90	6.35	2,946.40
16.01	7,060.84	16.01	9,078.22	16.01	11,431.84	16.01	7,429.10
16.45	7,254.10	16.45	9,326.71	16.45	11,744.74	16.45	7,632.45
\$76.21	\$33,611.00	\$85.61	\$48,544.65	\$78.84	\$56,293.36	\$77.39	\$35,909.25

each boat in the commuter service could make eight round trips per day between points in the city at a total running time of 15 minutes (five minutes each way plus docking time) for a total cost per passenger trip of one dollar. Less than one-fifth average cab fare, a little less than three times single subway fare.

The managers assumed they could safely calculate a load factor of 50 per cent, or 36 passengers on the average, for each of the 16 intracity round trips each boat would make during the day.

Assuming the shuttle runs only between 8:00 and 10:00 in the

morning and 3:30 p.m. and 5:30 p.m., that would leave the boats idle between 10:00 and 3:30. One of New York's oldest traditions is cruising around Manhattan, the central island. Again assuming that \$6.00 could be charged for a one-hour cruise on the water, there seemed to management to be a good possibility of getting a load factor of 50 per cent, or 36 passengers on average. Here presumably the price could be higher than that charged for the daily commuter run—\$6.00 seemed possible for each passenger for each boat. See Exhibit 2, page 17.

What about weekends? It should

be at least possible to rent the boats for charter service on weekends and holidays. One day of each weekend and each holiday through the year became the assumed utilization of the boats, and the price to be charged the charter operator was set at \$1,000.

### *Two crews per boat*

Obviously, if the hydrofoils were to be given such heavy use, all the costs for each boat in service would rise sharply but labor costs would climb most steeply of all. So we figured two crews for each boat, three men to a crew, each working



11.5 hours per day for three days each week—a total of 34.5 hours per week.

Next we figured the range of gross income depending on the utilization of the boats and the fare charged each passenger or charter boat operator for each type of service. This is the unique part of the work we did on the hydrofoil engagement because we figured gross income not only on the percentage of load capacity management was reasonably certain it could expect on each type of service, but also on all percentages ranging from 100 per cent of load capacity for each boat all the way down to 30 per

cent of load capacity. See Exhibit 3, pages 18-19. (Obviously all these figures could be changed at will, including unit price for the various fares. The encircled items on pages 18-19 are the ones management felt would be most feasible.)

*Finding a breakeven point*

Our next step was to figure the percentage of passenger utilization that would be required on each type of service to reach breakeven point.

We found that breakeven would be reached at a much lower percentage of utilization than man-

agement was confident it could get: 55.02 per cent on commuter runs, whereas management had assumed 75 per cent capacity; 14.47 per cent on shuttle runs within the city, whereas management had assumed it could achieve 50 per cent; 29.27 per cent on excursion runs, whereas management had assumed 50 per cent utilization; and 47.01 per cent utilization on charters against management's confidence in 50 per cent utilization.

Even though one entity, total operations, was programed into components (commuter runs, shuttle runs, charter runs, etc.) so as to note the volume point at which

**EXHIBIT 5**

**INTERNATIONAL HYDROLINES, INC.  
TRI STATE AREA**

**Pro Forma Income Statement for Each Boat—One Year's Operations—Continued**

	General Explanation or Basis of Apportionment	Per Hour	Total All Services
Gross income—adjusted	Brought forward	\$212.11	\$463,666.00
Direct costs of operating boats	Brought forward	\$ 79.76	\$174,358.26
Apportioned costs:			
Estimated costs when 10 boats are in operation:	(Allocated to services on the basis of direct running time)		
Supervisory maintenance of boats	One tenth normal budget	\$ 1.82	\$ 3,980.00
General and administrative expenses	One tenth normal budget	10.12	22,120.00
Total apportioned costs	Per boat	\$ 11.94	\$ 26,100.00
Total cost of operating boat		\$ 91.70	\$200,458.26
Interest expense—per boat	First year cost	\$ 14.85	\$ 32,454.00
Total cost per boat—including finance charges		\$106.55	\$232,912.26
Net profit—per boat—prior to income taxes		\$105.56	\$230,753.74
Statistical data:			
Total costs, including first year interest			\$232,912.26
Passenger capacity (72) × trips per day			
× No. of days in operation			
= Maximum passenger trips			
= Cost per passenger seat, per trip			
Total cost per mile traveled:			
Number of running hours		2,186 running hours	
Miles traveled × est. 36 mph =		78,696 miles	
Cost per mile traveled		\$2.96 cost per mile	
Cost per seat per mile traveled		\$ .041	

## Our next step was to figure the percentage of passenger use needed to reach breakeven . . .

each separate operation could be expected to become self-sustaining, as well as the potential profit which each type of operation could contribute to profits at various levels of utilization, the breakeven levels were not presented with the same certainty as the other figures. They were indicators mainly, subject to all the usual caveats normal to all accounting forecasts: the inability to forecast future events, to make

ironclad guarantees, etc. (All other figures used throughout were subject to the same caveats, but we felt a lot more certain about other figures than we did about passenger utilization; that was always the most debatable figure of them all.)

Next we worked out the figures for the operating costs, and interest expense of one boat, less the income estimated to be generated by one boat for one year, to arrive

at the amount of profit that could be expected to be generated by one boat during one year. (Operating costs included all the costs shown in Exhibit 4, pages 20-21, labor, fuel, docking, maintenance, repairs, etc.)

From this we deducted the overhead costs—the administration and supervision costs of the operations, based on a projected fleet of ten boats, and estimated the necessary

Commuter Service		Shuttle Runs		Excursion Trips		Charter Service	
Per Hour		Per Hour		Per Hour		Per Hour	
<u>\$140.40</u>	<u>\$61,916.40</u>	<u>\$388.27</u>	<u>\$220,147.20</u>	<u>\$180.42</u>	<u>\$128,822.40</u>	<u>\$113.75</u>	<u>\$52,780.00</u>
<u>\$ 76.21</u>	<u>\$33,611.00</u>	<u>\$ 85.61</u>	<u>\$ 48,544.65</u>	<u>\$ 78.84</u>	<u>\$ 56,293.36</u>	<u>\$ 77.39</u>	<u>\$35,909.25</u>
<u>\$ 1.82</u>	<u>\$ 802.92</u>	<u>\$ 1.82</u>	<u>\$ 1,032.33</u>	<u>\$ 1.82</u>	<u>\$ 1,299.95</u>	<u>\$ 1.82</u>	<u>\$ 844.80</u>
<u>10.12</u>	<u>\$ 4,462.45</u>	<u>10.12</u>	<u>5,737.44</u>	<u>10.12</u>	<u>7,224.92</u>	<u>10.12</u>	<u>4,695.19</u>
<u>\$ 11.94</u>	<u>\$ 5,265.37</u>	<u>\$ 11.94</u>	<u>\$ 6,769.77</u>	<u>\$ 11.94</u>	<u>\$ 8,524.87</u>	<u>\$ 11.94</u>	<u>\$ 5,539.99</u>
<u>\$ 88.15</u>	<u>\$38,876.37</u>	<u>\$ 97.55</u>	<u>\$ 55,314.42</u>	<u>\$ 90.78</u>	<u>\$ 64,818.23</u>	<u>\$ 89.33</u>	<u>\$41,449.24</u>
<u>\$ 14.85</u>	<u>\$ 6,547.22</u>	<u>\$ 14.85</u>	<u>\$ 8,417.85</u>	<u>\$ 14.85</u>	<u>\$ 10,600.25</u>	<u>\$ 14.85</u>	<u>\$ 6,888.68</u>
<u>\$103.00</u>	<u>\$45,423.59</u>	<u>\$112.40</u>	<u>\$ 63,732.27</u>	<u>\$105.63</u>	<u>\$ 75,418.48</u>	<u>\$104.18</u>	<u>\$48,337.92</u>
<u>\$ 37.40</u>	<u>\$16,492.81</u>	<u>\$275.87</u>	<u>\$156,414.93</u>	<u>\$ 74.79</u>	<u>\$ 53,403.92</u>	<u>\$ 9.57</u>	<u>\$ 4,442.08</u>
	<u>\$45,423.59</u>		<u>\$ 63,732.27</u>		<u>\$ 75,418.48</u>		<u>\$48,337.92</u>
2 trips	144	32 trips =	2,304	4 trips =	288		
210 days		210 days		210 days			
30,240 pass. trips		483,840 pass. trips		60,480 pass. trips			
\$1.50 per pass. seat		\$0.13 per pass. seat		\$1.25 per pass. seat			
441 running hours		567 running hours		714 running hours		464 running hours	
15,876 miles		20,412 miles		25,704 miles		16,704 miles	
\$2.86 cost per mile		\$3.12 cost per mile		\$2.93 cost per mile		\$2.89 cost per mile	
\$ .040		\$ .043		\$ .041		\$ .040	



# EXHIBIT 6

## INTERNATIONAL HYDROLINES, INC. TRI STATE AREA

### Pre-Operating Expenses — Prior to Delivery of First Boat

Classification	Month 1	Month 2	Month 3	Month 4
<b>Start-Up Costs:</b>				
Maintenance Manager	\$ —	\$ —	\$ —	\$ —
Crew Training	—	—	—	—
Operating Costs — Survey Boat	—	—	—	—
Miscellaneous — Including Payroll Taxes	—	—	—	—
Depreciation — Survey Boat	—	—	—	—
	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>
<b>General and Administrative:</b>				
Operations Manager	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500
Assistant Manager	—	—	—	—
Secretary	650	650	650	650
Office Rent	500	500	500	500
Office Supplies	2,500	200	200	200
Telephone	250	250	250	250
Ticket Stock and Schedules	—	—	—	—
Advertising and Promotion	—	—	10,000	—
Travel and Entertaining	500	500	500	500
Legal and Audit	1,000	1,000	1,000	1,000
Payroll Taxes	350	300	200	150
Miscellaneous — Including Reserve for Contingencies	2,500	2,500	2,500	2,500
	<u>\$10,750</u>	<u>\$ 8,400</u>	<u>\$18,300</u>	<u>\$ 8,250</u>

# EXHIBIT 7

## INTERNATIONAL HYDROLINES, INC. TRI STATE AREA

### Pro Forma Flow of Funds Statement — Exclusive of Capital Contribution

	Month 1	Month 2	Month 3
<b>Source of funds:</b>			
Depreciation expense — not requiring a cash expenditure:			
Survey boat	—	—	—
Total funds provided	<u>—</u>	<u>—</u>	<u>—</u>
<b>Funds applied</b>			
Net losses from operations — exclusive of insurance expense listed separately	\$ 10,750	\$ 8,400	\$ 18,300
Deposit on boats	5,000		45,000
Purchase of work — survey boat	<u>\$ 15,750</u>	<u>\$ 8,400</u>	<u>\$ 63,300</u>
Net change during month	<u>\$(15,750)</u>	<u>\$( 8,400)</u>	<u>\$(63,300)</u>
Net change to beginning of month	—	(15,750)	(24,150)
Change — period to date	<u>\$(15,750)</u>	<u>\$(24,150)</u>	<u>\$(87,450)</u>

Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Total
\$ —	\$ —	\$ —	\$ —	\$ —	\$ 1,000	\$ 1,000	\$ 2,000
—	—	—	—	—	3,000	3,000	6,000
200	200	200	200	200	200	200	1,400
—	—	—	—	—	500	500	1,000
100	100	100	100	100	100	100	700
<u>\$ 300</u>	<u>\$ 300</u>	<u>\$ 300</u>	<u>\$ 300</u>	<u>\$ 300</u>	<u>\$ 4,800</u>	<u>\$ 4,800</u>	<u>\$ 11,100</u>
\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 27,500
—	—	—	—	—	1,000	1,000	2,000
650	650	650	650	650	650	650	7,150
500	500	500	500	500	500	500	5,500
200	200	200	200	200	200	200	4,500
250	250	250	250	300	300	300	2,900
—	—	—	—	500	500	500	1,500
—	—	—	—	2,000	2,000	5,000	19,000
500	1,000	1,000	1,000	1,000	1,000	1,000	8,500
1,000	1,000	1,000	1,000	1,000	1,000	1,000	11,000
50	50	50	—	—	—	—	1,150
2,500	2,500	2,500	2,500	2,500	2,500	2,500	27,500
<u>\$ 8,150</u>	<u>\$ 8,650</u>	<u>\$ 8,650</u>	<u>\$ 8,600</u>	<u>\$11,150</u>	<u>\$12,150</u>	<u>\$15,150</u>	<u>\$118,200</u>

Pre-Operating Period

Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11
—	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100
—	<u>\$ 100</u>	<u>\$ 100</u>	<u>\$ 100</u>	<u>\$ 100</u>	<u>\$ 100</u>	<u>\$ 100</u>	<u>\$ 100</u>
\$ 8,250	\$ 8,450	\$ 8,950	\$ 8,950	\$ 8,900	\$ 11,450	\$ 16,950	\$ 19,950
50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
	10,000						
<u>\$ 58,250</u>	<u>\$ 68,450</u>	<u>\$ 58,950</u>	<u>\$ 58,950</u>	<u>\$ 58,900</u>	<u>\$ 61,450</u>	<u>\$ 66,950</u>	<u>\$ 69,950</u>
<u>\$( 58,250)</u>	<u>\$( 68,350)</u>	<u>\$( 58,850)</u>	<u>\$( 58,850)</u>	<u>\$( 58,800)</u>	<u>\$( 61,350)</u>	<u>\$( 66,850)</u>	<u>\$( 69,850)</u>
<u>( 87,450)</u>	<u>(145,700)</u>	<u>(214,050)</u>	<u>(272,900)</u>	<u>(331,750)</u>	<u>(390,550)</u>	<u>(451,900)</u>	<u>(518,750)</u>
<u>\$(145,700)</u>	<u>\$(214,050)</u>	<u>\$(272,900)</u>	<u>\$(331,750)</u>	<u>\$(390,550)</u>	<u>\$(451,900)</u>	<u>\$(518,750)</u>	<u>\$(588,600)</u>



## Upon commencing operations, the pro forma figures would constitute a natural budget . . .

annual income for each boat (in a ten-boat fleet) that would be required for final breakeven of the costs of administering a ten-boat organization, Exhibit 5, pages 22-23. (Calculations on the price per boat assumed an initial order of ten hydrofoils.)

Next we determined the pre-operating expenses for the first year of proposed operations. See Exhibit 6, pages 24-25. Obviously, trained hydrofoil crews are not available at the nearest employment agency. So there would have to be some money allotted to training seamen in operations of the hydrofoil. Equally obvious, such training would not have to extend over the entire year so we allowed Months 10 and 11 of the year prior to operations for crew training. Operating costs of a survey boat fell into the same category, except that we allotted Months 5 through 11 to these costs. As soon as the survey boat went into the water it would begin to depreciate in value. Depreciation was figured from Months 5 through 11.

Thus, we phased in each boat in accordance with delivery schedules.

Administrative expenses had a different timetable, however. As soon as the company began its first organizational moves, it would have to have a manager. So his salary was included from Month 1 of the first year. However, although he would need a secretary as soon as he came on the job, he wouldn't need an assistant until actual operations were imminent. Similarly ticket stock and schedules wouldn't be needed until Month 9 of the year although legal and audit expenses, office rent, telephone, and office supplies would be needed for each of the 12 months.

This projection for the year of preparation for actual operations, of course, resulted in a negative figure, since no income would flow in until

the hydrofoils actually started carrying passengers. Thereafter, assuming one boat was phased in each month for 10 months during the first year of operations (we drew up a pro forma income statement for operating 10 boats for a period of 15 years) the totals for the first year showed we would exceed our operating breakeven point by several thousand dollars during the second month of operations.

We also prepared a pro forma flow of funds statement for the year prior to operations to show what major outlay of funds would be required in any given month, exclusive of capital contributions, Exhibit 7, pages 24-25, and then prepared pro forma balance sheets for the first 15 years of operation. Although the results from the first year's flow of funds statement were negative, this negative figure was eliminated during the second year and a slight positive figure was recorded. The retained earnings from the second through the fifteenth years of operation showed consistent reduction of the Title XI mortgage payable and a substantial retained earnings figure for each year net of income taxes.

Upon commencing operations, the pro forma figures would, we felt, also constitute a natural budget—so that any variances could be noted immediately and projections changed. So our pro forma would also constitute a “keep the fingers on the pulse” measure, to assist management in its future operations and to permit us to update our figures and our estimates.

Long-time readers of this magazine will perhaps find a ring of familiarity about this article. I wrote in one of MANAGEMENT ADVISER's earliest issues about our experiences in conducting a similar feasibility study for a hydrofoil shuttle service between Manhattan and the New York World's Fair in Queens (“The Feasibility Study—Fiscal Insur-

ance,” May-June, 1964). That venture did not work out for a number of reasons, including: the inadequacy of capital realized as compared to the capital required under our pro forma flow of funds statements and the very poor attendance finally foreseen for the Fair.

All that has changed. Modern hydrofoils are much larger than the 1964 model, and they can operate in New York harbor year round instead of just during the summer season. They are equipped with radar so they can navigate even in bad weather. The capitalization—from sources in other states—is more than adequate. And our new technique of deriving all our figures from “future events considered as though they'd already occurred” and of computing the widest possible range of sales (passenger tickets) gives our figures a probable reliance factor they couldn't have had before.

Then too, the physical circumstances of the city have changed in such a way that the hydrofoil venture looks a much more certain thing this time. The commuter runs are all between points at which management feels the fares are competitive with other means of transportation and the hydrofoil offers a time advantage over the commuter railroads as well. Hydrofoils will be air cooled during the summer months; highballs and mixed drinks will be available on the trip home at night, and coffee and light breakfasts in the morning; the boats can be docked at the low-cost suburban locations from which they will make their first run into the city every weekday.

Since the time the figures were prepared certain costs have changed because of inflation, because of escalation clauses in labor agreements, the rise in the cost of fuel, etc. But, again, each of these increases can be slotted in according to the formula we have prepared.

*Many companies realize they have problem areas where a consultant would be helpful. Not so many know how to choose the best consultant. Say you've hired a consultant —*

## **NOW—WHAT DO YOU DO WITH HIM?**

*by Robert O. Redd*

*Seidman & Seidman*

**T**ODAY, as never before, industry in the United States faces extensive competition from abroad. Economic stabilization programs have been initiated to improve productivity within our own economy and to shore up our competitive position around the world.

But that's not enough. What more can U.S. industry do to beat the competition? During the past 10 years, intensive work in the management consulting field has led to the following conclusions:

(1) Many lackluster operations could be substantially improved by more alert and progressive

management thinking and skills;

(2) Consultants can help managers identify problems and suggest improvements. Once the decision has been made to use the services of a management consultant, there are basic principles that must be adhered to if the best utilization is to be made of his knowledge.

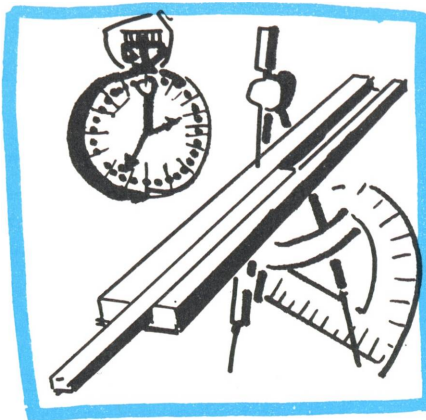
All right. You decide to hire a consultant. You check reputations carefully and you finally select one who has a good standing in the particular area where your main problem seems to lie.

That deceptively simple sen-

tence has a great many ramifications. Management should always clearly identify the objective of the consulting assignment. It should determine the extent of the work and the procedures to be utilized—or definitely avoided.

Second, management should identify the needed expertise. Does the project require a high technical competence or is it a situation which requires people skill?

After the work is roughly defined, the executives should seek consultants and examine their credentials. They should evaluate thoroughly the capabilities of those



Does the project require high technical competence or is it a situation which requires people skill?

consultants and request an initial survey and proposal from selected firms. These surveys should always be paid for, so that management is not under any obligation to any consultant at any time.

#### *A major caveat*

There are two things management should guard against in such selection. Management may feel its problems lie in inventory control and the consultant may indicate that he feels sales fulfillment lies at the heart of the problem. He should not be dismissed out of hand. His reasons should be checked through carefully. The history of consulting is filled with stories of engagements in one area where the problem finally turned out to lie in another area altogether.

Another thing that a cautious management should do is to ensure that the consulting arrangement will be run as smoothly as possible. The consultant will have an

intimate arrangement with management for some time. He has to be able to talk their language and they his. So management should use the same standards that would apply to someone joining the executive staff to judge how well the consultant's style fits theirs.

All these qualifications having been satisfied, you (management) have finally retained your consultant. Now what do you do with him? How do you get your money's worth?

#### *Get an engagement letter*

First of all, management should request an engagement letter from the consultant selected. This describes the problem that exists and the consultant's recommendation as to how to attack it. Furthermore, the proposal should outline the action steps in the engagement and name the particular staff member from the consulting or CPA firm to be assigned. The letter will also describe the work and responsibility of the client's personnel, the start and completion date for each step within the project, and the final date for report by the consultant. Exhibit 1, page 29 displays a typical project planning chart for a consulting arrangement.

The proposal should also include biographies and references for the individuals to be assigned to the project, and should discuss fees, expenses, and payment.

It is important that the client have an agreement with the consultant regarding the method and frequency of project status reviews. These should occur at key junctures of the engagement. The proposal is somewhat in the nature of an informal contract, in other words, setting forth what will be done, and what fees will be charged for it.

Following submission and acceptance of the proposal letter, a final project plan should be provided by the consultant describing the steps of the engagement. Whenever possible the arrival of the consultant should be announced in advance to the involved employees, so that they will understand the purpose and method of operation of the consultant.

In addition, a liaison man from the client's staff should be assigned to the consultant to provide information and to introduce him to other members of the staff.

#### *Choose liaison man carefully*

The level of the liaison man in the client company is something that should be given some thought. Obviously, if the work the consultant is to do is quite limited, is restricted to one particular area of a company, the choice is fairly easy. Anyone thoroughly familiar with that particular area—and in a position of some authority in that area—will be suited to the liaison role. It is when several different areas are to be affected that the choice becomes more difficult. In general, the liaison man should be someone who knows the work to be done in any one area or series of areas, who has authority over those areas, and who knows the people working in them. In the case of a free ranging study covering an entire company, the president or executive vice president might be the logical choice. It doesn't do any harm either if the liaison man is a "quick study"; the chances are good that whatever the consultant recommends will have to be put into effect at least par-



ROBERT O. REDD, CPA, is with the Grand Rapids, Mich., office of Seidman & Seidman. He is a registered engineer in Ohio, Michigan, and California, and also is a certified data processor. Mr. Redd is a graduate of Ohio State University.

He spent 15 years in manufacturing management and has worked in management consulting for eight years.





## Consultants can also provide services during internal peak loads . . .

At times too, the consultant must serve as a bridge builder. Rapid technological advances over the last decade have resulted in specialized functional groups in management. Production and inventory control, financial reporting, new product planning, and data processing have become departments with highly sophisticated systems. Once a company reaches a critical size, more techniques for interfacing the systems are essential. Systems are documented and procedure manuals prepared. The effective management consultant provides valuable guidance in the development of integrated systems.

Consultants can also provide services during internal peak loads for an interim project. It may not be prudent to employ a qualified expert permanently. Consultants can come in, do the job, and leave. This is often the most economical way of getting the work done.

Outsiders can also be objective when management desires an evaluation of an activity. The consultants have not been involved in past corporate decisions and are not building a career within the business. They are free to make independent, non-biased observations and constructive suggestions.

Do you really need a consultant? Can your staff do the job? Consultants *are* expensive. Fees may

range from \$250 to \$400 a day plus expenses. But for the company that doesn't have the in-house talent to do the job itself, that knows it, and that sees no possibility of developing that talent in time to meet the need, the outside consultant is essential.

### *Should work in your office*

It is recommended that consultants work in the client's office whenever possible. This has a number of advantages: first, the consultant becomes familiar with the operation of the business more quickly and, second, it reduces the time involved in securing information to support the analytical work.

Each week you should ask to compare a summary of the hours charged to the project with the progress of the project. This will help you determine whether the project is on schedule and whether your people are providing the necessary support. It is helpful to have your personnel prepare for the consultant interviews in advance. They can secure sample forms, organization charts, procedure manuals, etc., before the consultant arrives.

Strict limits on what is to be included in the project should be established. Some consultants attempt to expand the assignment

during the engagement. In order to maximize the effectiveness of the consultant on the primary engagement, keep him within the limits established for that project until it is completed. As a final note, it is recommended that the client secure a written wrap-up of the engagement including a report of the findings and recommendations and, in some cases, procedure manuals and implementation plans for ongoing use by the client. These are questions you may ask yourself after the project is done:

- Was the work carefully planned and efficiently executed?
- Did the consultant work in a professional manner?
- Did our personnel receive an upgrading as a benefit of the engagement?
- Do we have the ability to carry forward the tasks that were recommended by the consultant?
- Were the recommended solutions practical and economical to implement?
- Was the work performed within the time and fee limits?
- Did the consultant follow up after the engagement to ensure that we are satisfied and proceeding as planned?
- Would I feel comfortable using the consultant on an engagement in the future or in recommending him to someone else?



The major problems of yesterday's "efficiency experts" were employee morale; their arrival signaled layoffs, a general unease among employees

*Companies in financial trouble often seek outside help, either from their auditor or from a management consultant affiliated with their CPA firm or independent. What are the guideposts to choosing the right adviser?*

## **PROVIDING HELP FOR THE COMPANY IN TROUBLE**

*by William E. Arnstein and Ray W. Cheesman*

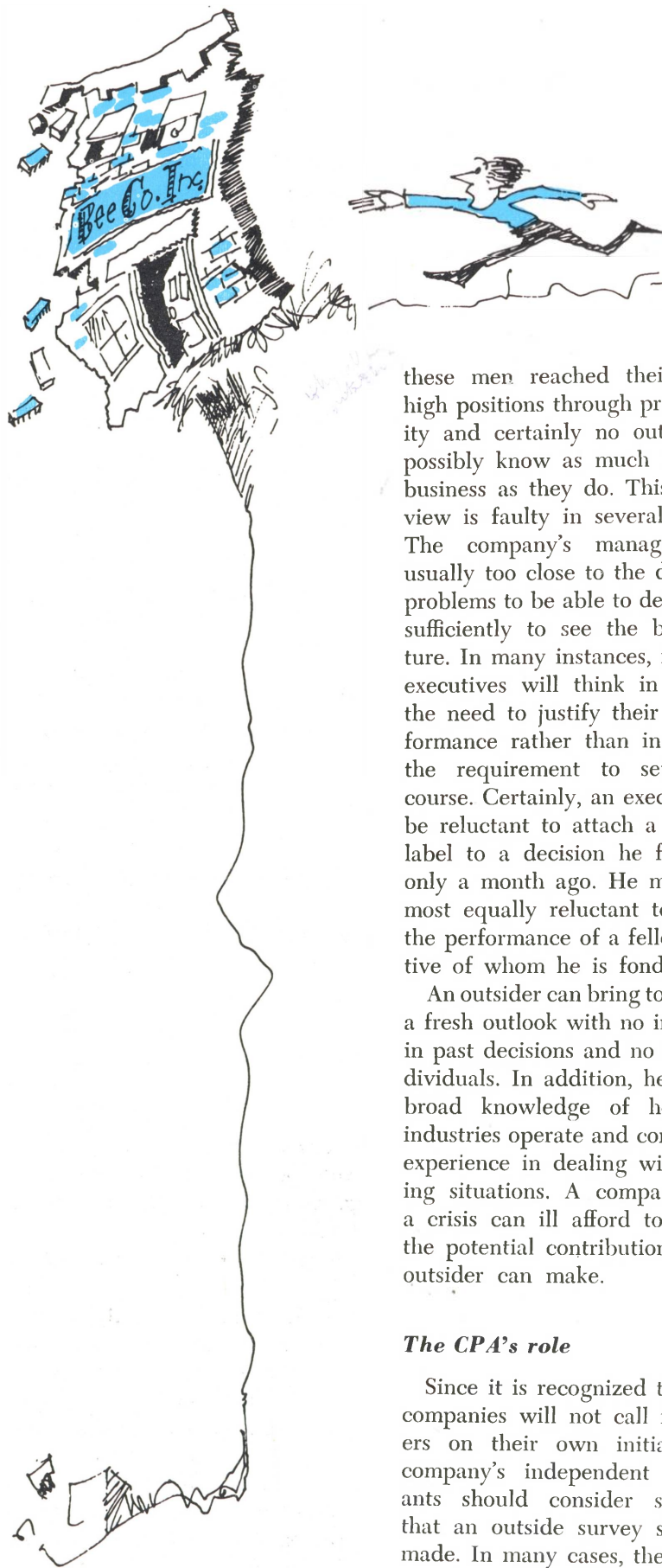
*Main Lafrentz & Company*

**E**VERY year a large number of well established companies with long and successful histories find themselves with declining profits, losses, or a cash squeeze. Quite a few of these companies end up in bankruptcy. Needless to say, each company's management has done all it could to bring the company back to profitability but still the result has been a costly receivership followed all too often by a liquidation which wipes out the investment and leaves many creditors only partially protected. Often the human tragedy of lost jobs and lost opportunities exceeds the financial waste.

Could an outsider have helped turn the company around? In most cases the answer is "Yes" if the outsider is called in early enough and if he is sufficiently knowledgeable and experienced. Then why doesn't every troubled company take advantage of this possibility? Too often management will blame a series of losses on specifics: three years ago our sales manager was out ill for six weeks; two years ago the paint on our product was defective and caused a lot of returns; last year our production of one product was held up for a month while a machine was being repaired; etc., etc. Management assumes no bad

luck will occur this year so there is really no problem. Realistic managements know that operations should be planned to show respectable profits at year end despite a little hard luck. Unfortunately, some hard luck normally characterizes every year.

Even when management recognizes that the company is in trouble it does not always call in outsiders. The president is human enough to believe that if he thinks a little longer or a little harder he can resolve the difficulty. Or he calls his executives together and they jointly seek a solution. After all, the president tells himself,



Even the well-established company with a successful history can find itself in trouble, even in bankruptcy.

these men reached their present high positions through proven ability and certainly no outsider can possibly know as much about the business as they do. This point of view is faulty in several respects. The company's management is usually too close to the day-to-day problems to be able to detach itself sufficiently to see the broad picture. In many instances, individual executives will think in terms of the need to justify their past performance rather than in terms of the requirement to set a new course. Certainly, an executive will be reluctant to attach a "mistake" label to a decision he fought for only a month ago. He may be almost equally reluctant to criticize the performance of a fellow executive of whom he is fond.

An outsider can bring to the study a fresh outlook with no investment in past decisions and no ties to individuals. In addition, he brings a broad knowledge of how other industries operate and considerable experience in dealing with changing situations. A company facing a crisis can ill afford to overlook the potential contribution such an outsider can make.

### ***The CPA's role***

Since it is recognized that many companies will not call in outsiders on their own initiative, the company's independent accountants should consider suggesting that an outside survey should be made. In many cases, the accountants have a perspective which will cause them to perceive the seriousness of the problem before

management recognizes that the trend cannot be explained away in terms of a few specific nonrecurring events. In many cases, the independent accounting firm is in a position to make the necessary study itself. Yet, relatively few accountants will suggest that they be employed for such an assignment.

The reasons that independent accountants rarely offer their services are several but none are very good in the writers' opinion. Firstly, they may fear the client will consider that they are merely trying to make a profit at the client's expense. Secondly, they may fear that the company will be unable to pay the bill and, accordingly, their time would be more profitably spent on routine assignments for financially sound clients. Lastly, they may wonder if the providing of fundamental operating recommendations will impair their audit independence.

Of course the client may react that the whole purpose of the suggestion is to provide a profit for the accounting firm. But this reaction is true of any effort on the part of the provider of a service to explain the merits of his services. If the assignment is properly presented and is successful, the client will be properly grateful—in fact very grateful. If the assignment is unsuccessful, the accounting firm has no one but itself to blame.

It is true that financially troubled companies pay for professional services more slowly and less surely than other clients. However, the long-range benefit to an accounting firm in saving clients can hardly be underestimated. Not only does the firm retain a live client for auditing for many years in the future, but a client that has been saved is hardly likely to switch auditors because of finding a pleasant golfing companion from another firm.

As to independence, the outsider's help should always be in terms of advice and technical assistance. Management decisions should be



## Management decisions remain management's. No other approach is practicable . . .

left to the company's management. No other approach is sound or practicable and this approach does not affect audit independence.

There will be instances in which the accounting firm is not qualified to advise management. Before accepting an assignment which may mean the difference between prosperity and bankruptcy for a client, the accounting firm should carefully consider its competence in this type of work and particularly whether it has sufficient prior experience in this type of problem. Knowledge of the industry is very important. At this point a conscientious accountant may well disqualify himself and his firm. In these cases its obligation is still to suggest an outsider but the suggestion will be that another firm be used, either a larger CPA firm, a broad range management consulting firm, or a management consulting firm specializing in a particular industry, problem, or technique.

### *Avoiding a common error*

Many companies regard their accounting firm and, more particularly, the partner in charge of their audit as a business adviser. When the company has had some months of unsatisfactory profits and the president meets with the audit partner, an interchange of ideas often takes place. A common occasion for such an interchange might be when the annual financial statements are delivered and both parties realize just how bad the situation really is. If during this conversation, the two men explore the problem for an hour or two each may leave the meeting feeling that something worthwhile has been accomplished. Usually it hasn't. The president's use of the accounting firm's partner as a sounding board has merely reinforced his preconceived ideas with no chance for the outsider to provide independently

developed data which might indicate that the problem was entirely different from the one seen by the president.

This is the time for the accountant to propose a study in depth to determine what is really wrong with the company's operations. Is it in marketing, production, planning, or financing? Are the president's complaints based on facts or on impressions arising from a few isolated instances? It is very unlikely that the company's ills can be cured without an intensive study which will ordinarily include the gathering of considerable information from outside the company.

### *Selection of the right man*

If the company accepts the recommendation for a comprehensive survey, the audit partner will decide what type of man with what background should be assigned to do the work. In some accounting firms the audit partner will himself conduct the survey. He may assign certain analysis work to other audit personnel and the highly technical aspects of the study to specialized management advisory services personnel. In other firms, the responsibility for such an assignment is given to a generalist in management advisory services who, however, works very closely with the audit partner. Depending on the skills and experience of the individuals involved, either plan may produce good results. In order to consider the best approach, the contribution which is most likely to come from each will be considered.

### *The auditor as consultant*

The one person who usually knows more about a company's business than anyone else outside the company is the audit partner

who is responsible for the annual examination of the financial statements. As a result of his participation in the annual audit over a number of years, he has developed a thorough understanding of the company and its business. He has acquired a general knowledge of the industry as well as a more detailed knowledge of the specific business of the company. Through periodic discussions with management concerning audit and tax matters, the audit partner is generally familiar with the company's objectives. As a result of his past association, the audit partner will undoubtedly receive greater cooperation from company personnel than any other outsider.

His knowledge of key personnel below the top management level and their responsibilities, enables him to develop necessary information without wasting time. In dealing with these people, he can quickly evaluate the information received and he can separate the personal gripes from the construc-



**WILLIAM E. ARNSTEIN, CPA**, is a partner of Main Lafrentz & Co., New York. He is on the panel of advisers of this magazine's "Management Advisory Services Forum." Mr. Arnstein is the author of *Management Services by*

*Accounting Firms*, Ronald Press, 1967. He is presently on the AICPA's Economic Stabilization committee and the committee for liaison with the Cost Accounting Standards Board. Formerly, he was on the management services committee.



**RAY W. CHEESMAN, CPA**, is a partner of Main Lafrentz & Co., New York. He is a member of the New York State Society of CPA's committee on insolvency and bankruptcy. In addition, he is a member of the AICPA.

Since 1968, Mr. Cheesman has performed special investigations for the government of Liberia with respect to its major concessionaires.

tive ideas. He is also aware of certain characteristics of top management personnel including the philosophy and approach, experience, and performance. Such information enables him to determine which of the possible solutions will most likely be acceptable to management. An important part of the annual audit is the study and evaluation of the company's system of internal control primarily for the purpose of determining the nature, timing, and extent of the audit procedures to be applied. While fulfillment of this purpose is a professional requirement, the review also enables the audit partner to develop constructive suggestions for improving control, and therefore increasing efficiency or otherwise improving profitability. As a result of the review of the system of internal control, the audit partner is familiar with the accounting system employed and the controls which are part of that system. Since he is already familiar with the company's activities and its accounting system, he does not have to spend valuable time to develop this information. Since he knows what records are maintained by the company, he can quickly locate infor-

mation required to prepare analyses and he won't be told it isn't available when it is.

An audit partner, especially one who has not specialized in a single industry, generally has had many years of experience involving a wide range of business activities; therefore, he has developed an overall business perspective. This experience, along with continuing education programs, both within his firm and outside, provide the audit partner with a thorough understanding of the complex functions of modern business management including planning, organizing, coordinating, and controlling.

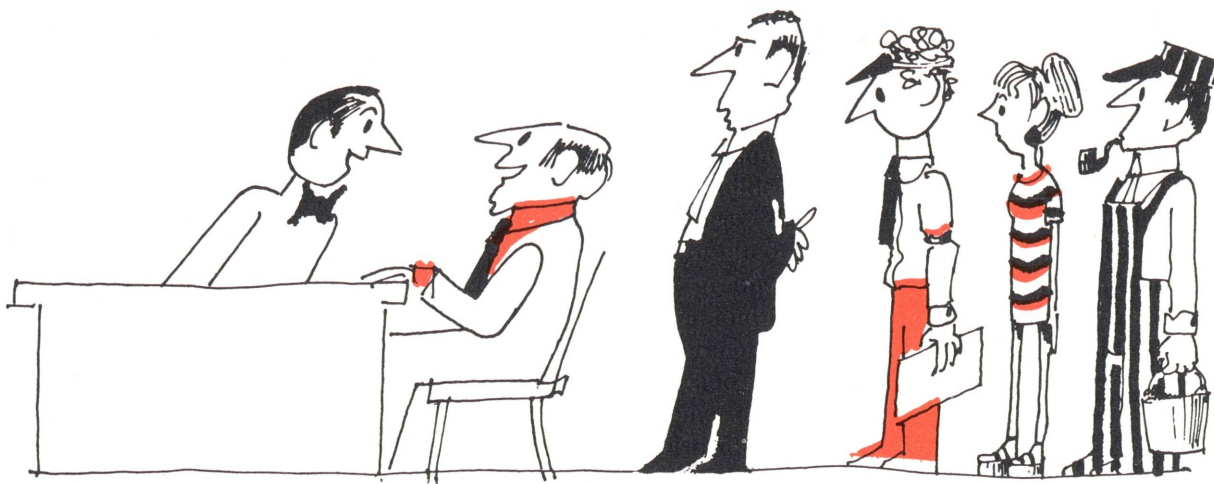
Effective financial management of cash and related short-term investments and of debt is important to the success of every business venture. The lack of competent management of this area is a frequent contributor to business failure. Small business is especially vulnerable when management lacks financial sophistication, and fails to appreciate the difference between reported profits and cash flow. Because of his training and experience, the audit partner is particularly capable of reviewing the financial function of the company.

He is well aware of the long-term and short-term considerations of cash management. Over a long period he considers the relationship between cash requirements for debt repayment and internal growth and cash flow from operations. Adequacy of working capital must also be reviewed. Short-term considerations include the maintenance of adequate daily cash balances to provide for smooth operations and the investment of temporary excess cash for maximum profitability. The audit partner can prepare budgets and cash flow projections.

The projections will enable the company to see if its planned improvements are practical in terms of its needs to meet payrolls, continue to purchase materials and merchandise, and meet its commitments to banks and other creditors. The audit partner is not likely to recommend a program which would assure substantial profits five years from now if the program spells bankruptcy three months from now. The audit partner can assist in the preparation of information on past operations and he can assist in the preparation of a forecast of future operations acceptable to banks and other lending institutions. This in-



The audit partner can assist in the preparation of information on past decisions and he can assist in preparing forecasts of future operations acceptable to banks and other lending institutions.



The MAS specialist, on the other hand, is likely to start by interviewing workers of every rank, beginning with the company's executives.

formation should include results of operations as well as cash flows.

Since the salvation of many companies in trouble depends on being able to borrow funds or renew loans, guidance by the audit partner in the preparation of information for submission to banks may be extremely important. In somewhat different circumstances, a troubled company's future may depend on its ability to go public. The audit partner should be quite helpful in advising management with respect to public offerings of its securities.

Today, more than ever before, tax considerations play an important role in many management decisions. Because of his training, the audit partner can, without extended research, evaluate the tax consequences of management's proposed decisions. Certainly he will not overlook the tax angles of any recommendations he might make. If a privately held company plans to improve its cash position by further support by its owners, the audit partner can advise the owners on the best method of putting in the cash from the viewpoint of tax considerations and estate planning for the individuals.

It is also likely that the audit partner will be quite fee conscious. His long association with the client will cause him to make every effort to keep the charges for this special work at a minimum in view of the

critical financial condition of the client.

### *The MAS generalist*

In the usual case, the firm's MAS generalist will have had no previous contact with the client and therefore starts with no preconceived ideas. He ordinarily begins his work by interviewing the company's top executives to obtain their views as to what caused the situation and what can be done about it.

However, he regards this as only a first step and a very inconclusive one. Too often the company's executives sincerely believe certain things are so when they are not. A recent customer's complaint may cause the sales manager to believe deliveries are often late when an analysis may reveal this complaint reflects a very rare occurrence. The production manager may feel that maintenance is sloppy when the reverse is true. The controller may be worried about collections because his interest in them has been intensified since the crisis developed, but an analysis may show that they are as good as they have ever been. On the other hand, a deep look into the figures may show deterioration in product mix, sales returns, or idle time which had escaped the notice of the executives. Often an outsider will ask why a certain thing is being done a certain way and will be told, "It

has always been done that way," or "We don't know any other way to do it."

Since the MAS man has been called in as a professional, he will not be tempted to stop his investigation until he has done as much work as appears productive. Superficial answers which might come from his acting as a sounding board for management will not satisfy him. Since he regards his study as a distinct and separate assignment, the work planned will relate to the reasonableness of a fee for such an assignment and he will not tailor his work with the idea of keeping the charges so low that they can be absorbed in a small increase in the audit fee.

The MAS man is likely to be industry-oriented as opposed to being company-oriented. On most broad based assignments, he will seek information on how other executives in the industry operate either through cross-examining the company's executives on their knowledge on this point or through personal contacts. Frequently, he will seek information from editors of trade papers or trade association executives. He will certainly review any industry statistics which are available from government or other sources. This approach, at worst, improves his perspective and, at best, may provide all or part of the solution to the company's problem. Although any outsider is less likely



***The MAS man is more interested in the income statement than in the balance sheet. In most, but not all, companies in trouble, the strengthening of the balance sheet is a temporary expedient which will not guarantee a permanent solution.***

than an insider to be protective of individuals within the management, the MAS man in most cases has had no previous contact with the client's executives and therefore has no personal loyalties.

The MAS man is more interested in the income statement than in the balance sheet. In most, but not all, companies in trouble, the strengthening of the balance sheet is a temporary expedient which will not guarantee a permanent solution. The MAS man will ordinarily look beyond the next fiscal year end. He will recognize the need to show improvement by the next loan renewal date but he regards this objective as only a first step, not a complete solution to the problem. The MAS man is interested in marketing effectiveness, production efficiency, and warehousing and distribution costs. He has experience and education in these areas. When he looks at marketing he is more concerned with a sales decline than with the consequent increase in selling expense percentage. He will emphasize those aspects of the investigation which might reverse the unfavorable sales trend even if the recommendations produce an increase in selling costs in dollars and as a percentage of sales. He may even suggest price cuts to bring up volume because the resulting volume increase will provide a higher dollar contribution towards meeting fixed costs. These price cuts might even bring the selling price of some products below full costs and will certainly hurt operating ratios. However, they may save the company.

Similarly, the MAS man will concern himself with production costs in a manufacturing company and operating costs in any company. Again, he is more concerned with the actual methods of operation and the potential for savings than with comparisons with past periods or with budgets. The past period may reflect inefficiencies and so may the budget. He goes into the plant or operating area and seeks better methods whether these be

in production, operations, material handling, or product design. He will undoubtedly tour the plant and in doing so get a pretty good idea as to whether the workers' efforts are above or below average. Where warehousing and transportation costs are significant, the MAS man will consider whether these can be cut. The fact that such costs are often buried in the selling expense account may mean they have not been given proper attention in the past, particularly if the marketing management is completely sales-oriented. Although a study of the traffic department can frequently pay off, a more likely approach is the reduction of small orders by pricing differentials and the elimination of emergency shipments by improved production scheduling procedures.

The MAS man will realize that the efficiency and accuracy of office procedures are important but that it is unlikely that this area will be the most fruitful in terms of turning a loss operation into a profit-maker.

#### ***Services offered by the MAS man***

When an MAS man accepts an assignment to look into a troubled company, he usually is in a position to devote full time to the job until it is completed. The writers once knew an MAS man whose prescription for every troubled client was to "increase sales, improve gross profit percentage, and reduce costs"; however, he never said how this was to be done. Fortunately, few MAS men operate this way. In fact, a major advantage of the MAS approach is that it stresses the "how" to arrive at the "what to do." A client who follows an admonition to reduce inventories, cut expenses, or watch bad debts without recognizing that there is a right way and a wrong way to do each of these, can do itself more harm than good. How is it possible to follow logical advice and get into trouble? Examples from the writers' experience may be helpful. One client observed

a rise in raw materials and work-in-process inventories during a sales decline. He instructed purchasing to suspend operations until inventories came into line. However to be converted into finished goods, most of the raw materials and work-in-process required parts not yet on order. Results were that shipments virtually dried up and inventories rose further as materials previously on order were delivered. Another client was told his indirect labor costs were too high and a study should be made as to where they could be cut. He decided to forego the study but laid off ten per cent of the indirect labor in every department. This was too much in some departments and not enough in others. Those departments which could not operate on the reduced staff caused chaos. Eventually, many of the laid-off men had to be replaced, in many cases with a high cost of training and the waste caused by untrained personnel during the interim.

In the final example, a credit manager was criticized for his bad debt losses. He tightened his credit policy to the point where so many orders were being rejected that the loss of gross profit greatly outweighed the savings in bad debts. This unfortunate decision had the additional disadvantage of discouraging the salesmen whose orders were being turned away.

The MAS man will not only advise the client on the specific techniques which apply in his case but will often offer his services to help the client carry out the program. For example, if the major profit decline has been caused by loss of customers due to missed delivery dates, the MAS man can design a system of production planning and scheduling and help to install it. If it appears profits have been lost through the sale of unprofitable products, the MAS man can estimate the cost of each product to determine which are below average profitability and, more important, which have variable (out-of-pocket) cost above or so close to the selling price that they provide

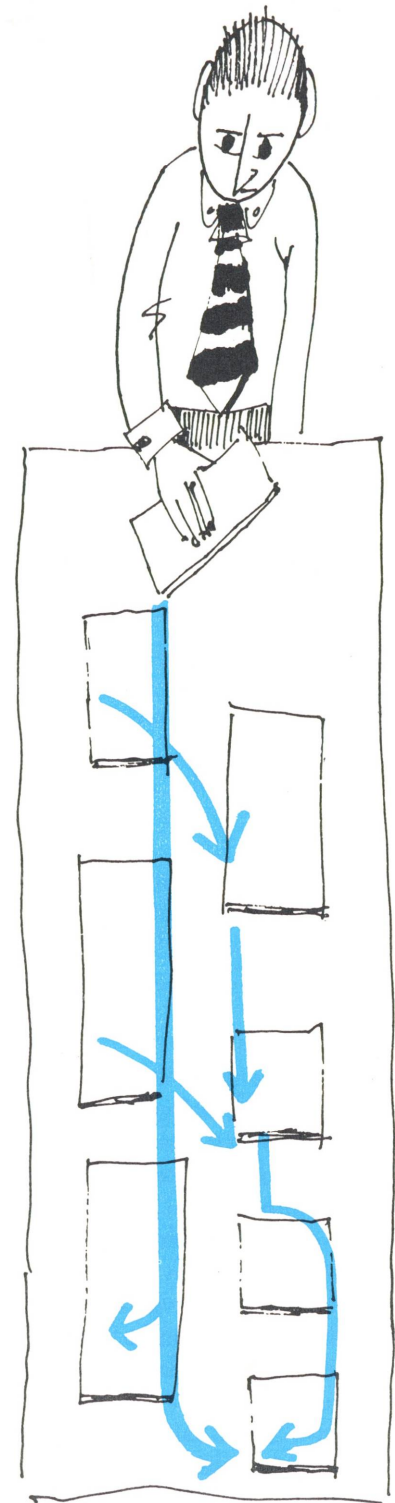
no contribution toward fixed costs.

The MAS man can study sales territories to determine reasonable quotas for salesmen. In other instances, he can design and implement an inventory management system which will serve the dual purpose of generating cash through inventory reductions and improving customer service by having wanted items rather than overstocks of slow moving items. Finally, almost all MAS men have the ability to design management reporting systems which will aid management in its decision making. None of the foregoing implies that every MAS man can do all of these things. On the contrary, one of the advantages of the MAS man's approach is that he recognizes the need for particular expertise in some of these areas. When it appears that a specialist's services are required, he is most apt to realize the requirement and call for the right man to take over that part of the job.

At this point, it should perhaps be mentioned that the function of any outsider, whether it be the MAS man or another, is to advise management and give it technical assistance. Only management can properly run its business. History is replete with instances of consultants taking over the operations of troubled companies usually with dire results, though there have been a few notable exceptions.

### Conclusion

A company in trouble has little to lose and much to gain by calling in an outsider. In many instances, the best consultant available will be found in the company's independent accounting firm. The company's audit partner and the MAS staff of the firm each has much to contribute and they will work together for the greatest benefit to the client. The suggestion for a survey in depth can properly originate with either the client or the accounting firm. The important point is that the study be undertaken in time.



Similarly, the MAS man will concern himself with production costs in a manufacturing company and operating costs in any company. Again, his major interest is with actual methods of operation and the potential for savings rather than with comparisons with past periods or with budgets.

*Divergence of views on the degree to which CPAs should be involved with computers noted among speakers, legal pitfalls outlined at the—*

## **NINTH ANNUAL AICPA COMPUTER CONFERENCE**

*by Louise H. Dratler*

*Associate Editor*

**I**F WE AGREE that “a foolish consistency is the hobgoblin of little minds,” then we can safely say there were no such specters bothering the Ninth Annual AICPA Conference on Computers and Information Systems. Maybe the ghost of Equity Funding was in the air, but unanimity of opinion was definitely not one of this conference’s problems.

The two-and-a-half day computer conference was held this year in the New York Waldorf Astoria, May 21-23. Generalizing from the many practical topics covered, the conference seemed to be an attempt to determine what part the accountant should play in an environment that is increasingly being linked to computers. And just how should he prepare for that role? It’s little wonder that consistent hobgoblins were nowhere to be found.

Wallace E. Olson, AICPA executive vice president, said in his keynote address, “the computer has immense relevance to the profession, and every CPA should have, at the very least, a nodding acquaintance with its capabilities and operation. My intent is simply to outline a perception of the computer according to what I believe is a proper perspective from the standpoint of our profession. . . . In my opinion, it begins with a realization that not all practitioners, by a long shot, are going to become highly skilled hands-on experts in computer operation. It follows that the activities of the Institute concerning computers should not include direct or implicit urging of all members to such attainment.”

First, Mr. Olson suggested, the AICPA should identify a combination of hardware and software that would enable CPAs in smaller firms

to apply data processing to various facets of their practice with a minimal amount of training. Mr. Olson urged the Institute to better develop its software exchange program, for the benefit of both small and large CPA firms.

In addition to these tasks, Mr. Olson recommended that the AICPA expand its efforts to provide computer training.

The Equity Funding case was mentioned many times during the conference, and the AICPA vice president anticipated it would be. “Any presentation billed as a ‘keynote address’ at a conference like this one would surely be incomplete if it did not note that the Equity Funding affair has caused computerized accounting data to be conspicuously mentioned in the press from one end of the country to the other in the past few weeks,” Mr. Olson said.



He reminded the CPAs that on May 7 the Institute's president had appointed a committee to examine whether the Equity Funding case indicates a need for new or revised auditing procedures. Mr. Olson cautioned that before procedures can be strengthened, weaknesses have to be identified.

"There's no use in devising a better defense against a play over right guard (if you'll permit a football metaphor) if a rerun of the film shows that the greatest loss of yardage resulted from plays around left end," he said.

"In any event, and even if Equity Funding hadn't occurred, it's plain that independent auditors must be able to effectively audit computer processed accounting data," Mr. Olson observed.

A. Clarence Sampson, Jr., the associate chief accountant of the Securities and Exchange Commission, said that his organization agrees with Mr. Olson that CPAs should be able to effectively audit computerized data. In fact, he said, Equity Funding pointed out that CPAs "have to be experts in EDP" as it affects auditing and recordkeeping.

Mr. Sampson said that the SEC has always viewed management advisory services as logical extensions of auditing services. Program design is part of MAS, but once the CPA moves into recordkeeping, the Commission sees some independence problems. If the accountant is only doing statistical analysis, there is no problem, Mr. Sampson said. However, "when you are generating information that goes into the financial statement, the Commission has long felt that this puts you in a position where you could not be independent in respect to auditing," he told the CPAs. The accountant cannot audit books and records which he has maintained for his client.

Mr. Sampson referred to the guidelines for auditor independence set down by the SEC in Accounting Series Release No. 126, issued July 5, 1972. In it, the Commission states that managerial and

decision-making functions are the responsibility of the client and not of the independent accountant. The auditor cannot be the de facto controller of a company, Mr. Sampson explained. When a company goes public it must either get financial experts of its own or go to another outside auditing firm, he said. The auditor must decide whether he is a public controller or an independent auditor, but he can't be both, the SEC accountant said.

He pointed out some other business relationships that adversely affect the CPA's audit independence include an accounting firm's renting block time on its computer to a client and the performance of statistical studies that become part of the basic accounting records.

"While we may have differing views, I don't think any of us would question for a moment how important the concept of independence really is to the accounting profession," said Clifford E. Graese, partner in charge of management consulting at Peat, Marwick, Mitchell & Co. "And while we may see different roads to getting there, certainly there is no difference in wanting to get to the end objective: to come up with something that is both practical and reasonable and does the job as far as the profession is concerned."

He commented, "It is quite easy for critics to say that of course you can't be independent if you design your client's accounting system. Obviously, you are not totally independent if you had something to do with it. But the more germane question is how, in fact, does it affect your integrity and objectivity when you express an opinion on the financial statements. That's the gut issue."

Independence is a relative, rather than an absolute, term, Mr. Graese stated. For instance, he said it is difficult for him to see how designing an office or a plant layout for a client is going to affect the auditor's integrity or objectivity when he reviews the financial statement.

Mr. Graese quoted from the

AICPA's Ethics Opinion No. 22 and Rule 101-3 in the restated Code of Professional Ethics. He said that it is the intention of the Code, "That the concept of independence should not be interpreted so loosely as to permit situations likely to impair the CPA's integrity or the impartiality of his judgment, nor so strictly that it inhibits the rendering of useful services when the likelihood of such impairment is remote."

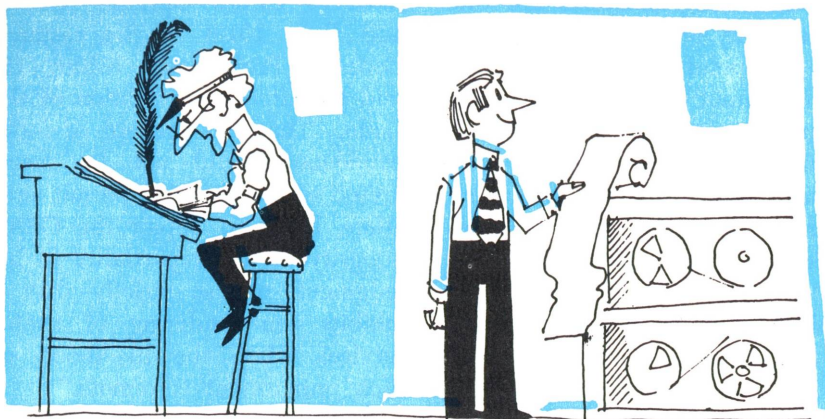
Jerome Farmer, partner, J. K. Lasser & Co., observed that the only abiding issue of differing opinion between the AICPA and the SEC is in the area of writeup work and recordkeeping and the independence of the CPA who offers these services to his client. He called this divergence of views "disturbing."

Writeup constraint dates back to the Interstate Hosiery Mills, Inc., case of 1939,\* Mr. Farmer said. But that was almost 35 years ago, he exclaimed, and the profession and its practitioners have changed substantially since then. "It's about time we lived in the present and future and not in the past," he commented.

"The use of the computer in the accounting practice has somehow come to be considered an outgrowth of writeup work and, accordingly, is measured by the criteria evolving from the Interstate Hosiery case. This analogy is difficult to accept for those of us who have a background in data processing and also have an awareness of the methodology and controls that normally exist in such an environment," Mr. Farmer said.

Rule making will not create integrity, he maintained, and the in-

\* "In this case a senior accountant employed by an accounting firm falsified draft reports and working papers submitted to his superiors as the result of examinations of a client corporation of which he was in charge. The falsifications resulted in material overstatements of assets and profits in the published financial statements of the client company bearing the certificate of the accounting firm"—Editorial, *The Journal of Accountancy*, May, 1939, p. 257.



Writeup constraints date back almost 35 years; they shouldn't be taken as a guide today, Jerome Farmer said.

dividual who is dedicated to perpetrating a fraud will always find a way to do it.

"What troubles me most is that the extension of the writeup concept to the CPA's use of data processing capability has raised a false issue which has inevitably led to an unfortunate conclusion. The logic which pursues a simple line of reasoning and relates manual entries and books of accounts to preparation of input data into computer systems is merely an attempt to bury an issue rather than face it. Whereas manual entries require decision making by the writer or preparer, a proper EDP system is exactly the opposite: It is totally mechanical, subject to many internal controls and checks, and, in many circumstances, beyond operator control," Mr. Farmer stated.

He noted that in many cases the computer center is separated from the audit group. In fact, the computer allows the auditor to be completely independent from report preparation.

"We must accept the fact that the CPA belongs in data processing. . . . Yet by adhering to ASR 126, the SEC is slowly forcing many CPAs to disassociate themselves from this vital tool," Mr. Farmer warned. "In a period when there is concern with the displacement of CPA firms, we find that the policy of the SEC must, inevitably, encourage such displacement." He called on the AICPA and the SEC to dissolve these differences.

One area in which the AICPA and the SEC have recently come to agreement is on the issue of profit forecasts, Leroy Layton, AICPA president, reported to the conference. "The SEC, after many years of forbidding profit forecasts, recently announced that it was considering not only authorizing but actually requiring them. The Institute sent representatives to the hearings and recommended a go-slow policy suggesting that if forecasts were to be tried, the liability provisions of the securities statutes should be changed to limit liability for forecasts to instances of recklessness or bad faith; also that, for the present, forecasts be permitted and even encouraged but not required. The SEC has indicated that it will move in the earnings forecasts area more or less along the lines we suggested."

President Layton used this incident as an example of why CPAs should be continuing their professional education. In the case of forecasting, a reliance on data processing is essential.

"Now, we are all aware of the great many factors that can affect future profits," the AICPA president said. "So many elements are involved that I can't conceive of anyone making a reasonable forecast on a timely basis without relying on electronic data processing. So that is one area on which EDP specialists will surely want to keep an eye."

The computer is an essential tool for CPAs involved in environ-

mental protection engagements and social audits as well, he observed.

"Developments crowd in so fast that it becomes essential, if we are to do our job well, that we anticipate them; that we decide where we want to be and plan how to get there; that we take the steps necessary to avoid unpleasant surprises," Mr. Layton said.

In the age of the computer, the accountant needs different knowledge to testify to an audit, Stephen D. Harlan, Jr., Peat, Marwick, Mitchell & Co., reminded the conference. He said that his firm has committed itself to doubling the number of its computer auditors this year.

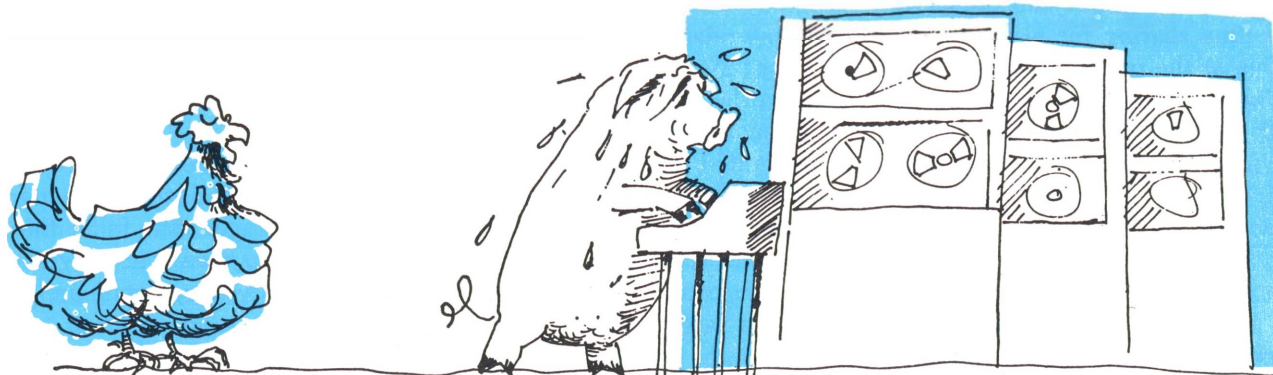
Private industry has also realized the worth of auditors trained in EDP for their company staffs. William E. Perry, supervisor of computer auditing for Eastman Kodak Company, compared the role of the external auditors in EDP to a ham and egg breakfast: "the hen is involved, but the pig is committed. The external auditor is involved in EDP, but the internal auditor is committed to it," he quipped.

"The type of individual whom in internal auditing we see as important is one who is basically a data processing trained individual. This is more important, in my estimation, than the accounting background, although, staff size permitting, the ideal is a team composed of both backgrounds. We feel we can better train data processing people in auditing than vice versa," he said.

Eastman Kodak is looking for people who can be involved in systems analysis work, as opposed to skimming and just trying to take the top off the surface, Mr. Perry explained. He said the bulk of his staff's time is spent on systems development rather than auditing. IBM has stated systems now have a life cycle of from three to five years, including development time, and, Mr. Perry believes, this span is getting shorter.

Because the internal auditor has





Eastman Kodak's Perry compared external and internal auditors in EDP to a ham and egg breakfast: "the hen (outside auditor) is involved but the pig (internal auditor) is committed."

a chance to "live with" a system, he can build in control techniques based on subtleties, Mr. Perry maintains. One control technique used at Kodak is the heavy involvement of user departments during the system development stage; so that the user department and the data processing department are equally knowledgeable about programs. Mr. Perry said, "At Kodak, we consider the user responsible for the system and our data processing people act as a service bureau providing a function for the user."

To check external controls at Kodak, an integrated test facility, also called a mini-company technique, has been implemented (see *The Journal of Accountancy*, February, 1973, page 74). The internal auditors have set themselves up as a color print and processing dealer of Eastman Kodak Company.

"We process transactions like a dealer of the company would; we act completely like a dealer; the difference is we are very small dollarwise," Mr. Perry explained.

"We actually process work through our labs; we get billed for it; and we choose to pay or not pay our bills depending on the particular thing we want to check that time. We let our credit people call us up and tell us that we're delinquent and through this technique we can check the external controls around the computer system," he said.

"It permits you, with very little time and money, to verify the external ramifications of the system,

check system through system (as a document, for example, goes through the billing system, inventory, receivables, and cash) and attest to them, and it also enables you to attest to the cumulation of statistics over a monthly, quarterly, or semi-annual record period. So that when the annual statement is put out on the dealerships, we can test very quickly if our sample dealership is working," the CPA said. He encouraged all companies to get their internal auditors involved in EDP.

"All of you know that one of the essential tools of management, complementing all other elements of management control, is the internal audit function," Joseph Di-Giorgio of the United States General Accounting Office told the conference. "This is also recognized in Government. For many years much emphasis has been placed on the importance of strong internal audit systems. Now the scope of internal audit coverage is expected to be expanded to include reviews and evaluation of all agency computer systems, to provide necessary controls over computer operations."

With all these segments of society asking for auditors trained for an EDP environment, are the colleges answering the call? Yes, but slowly, reported Dr. Gordon B. Davis of the University of Minnesota. Training the necessary professors takes from two to four years and then adding an EDP auditing course into what is essentially a closed accounting curriculum in

most schools presents another problem. If something is added, something else has to be dropped, and it is always a question of whose topic goes, the educator said.

Eighty per cent of the auditing textbook market is held by three books, Dr. Davis said. *Principles of Auditing*, by Walter B. Meigs, E. John Larsen, and Robert F. Meigs, published by Irwin, devotes 44 pages to EDP auditing; *Auditing Principles and Procedure* by Arthur W. Holmes and Wayne S. Overmyer, published by Irwin, covers the subject in 18 pages; and *Auditing Principles* by Howard F. Stettler, Prentice-Hall, gives it 16 pages. "If the second most widely used text only has 18 pages on EDP auditing, something is wrong," Professor Davis said. He believes the accounting curriculum will be enhanced, but change is coming gradually.

The entire computer conference was not devoted to auditing: There were roundtable discussions covering income tax preparation, mini-computers, time sharing, service center operation, management information systems, and use of audit software; Informal evening sessions were held for CPAs considering EDP activities, as well as for those currently involved in them; Seventeen suppliers gave presentations on their hardware, software, and service offerings; And among the topics discussed at the parallel sessions were managing a CPA practice using computers, financial simulation and mod-



eling, minicomputers and the CPA, and time sharing for expert users.

One of the parallel sessions, "Assisting Your Client in Installing an EDP System," was conducted by the jovial team of Barry R. Chaiken, director of finance, Madison Township, N.J., and Stanley Halper, S. D. Leidesdorf & Co. The two decided to cover their topic via role playing. Mr. Chaiken portrayed a typical client, i.e., an automotive parts manufacturer who wants to install a computer because others in his industry have one, as he has found out over drinks at a convention. "I'm a leader in my field and I want one," he tells his CPA, played by Mr. Halper.

The CPA must first determine if this request is "for real," Mr. Halper said. Has the client been unduly influenced by information heard on the golf course or from a computer salesman? Hopefully the accountant is familiar with his client's operations and has discussed possible automation with him before, the CPA said. If not, the accountant must go over with his client what his staff is doing manually, how many people it occupies, and why he is not satisfied with the present arrangements. Also the accountant must find out how the client expects the computerized system to benefit his operation.

"Well this fellow told me he is doing forecasting through exponential smoothing. I want to do that," Mr. Chaiken declared.

"The first thing you have to do is bring this fellow down to earth," Mr. Halper told the audience. You

have to find out what his primary and secondary requirements are, because, if you agree with him blindly, he may end up with a much more expensive system than is warranted. Perhaps, in this case, inventory and receivables, day to day bookkeeping, should be automated and then once a month information could be taken out and run on a larger computer to give the client the forecasting he thinks he wants, the CPA advised.

Then you generally design the system to fill the client's needs, after having discussed these needs not only with him but with the people who are actually working with the procedures to be automated, Mr. Halper explained. The next step is ascertaining priorities; which system, generally, has to be completed on a first level, second level, and third level.

"I agree with your suggested system," Mr. Chaiken said. "Now I want the computer in my plant and running in a month."

Again, Mr. Halper said, the client has to be brought back to earth. Although many people are enamored with having a computer in-house, and this can mean more fees for the CPA over the next 17 years or so, the CPA must be honest with his client and see if an in-house computer is the answer.

"In most medium and small installations, the justification for an in-house computer is basically nonexistent," Mr. Halper said. "If that computer is going to come in and run for an hour and a half a day, you may have a problem justifying

this later on." Existing software packages available at service centers should be considered in light of your client's requirements, he suggested.

If an in-house computer is decided upon and there are no existing packages that fulfill the client's needs, then who is going to write the system, detail design it, program it, and make it operational? The CPA, a vendor, or someone else? Detail system specifications usually go out for bids. Included in these specifications should be language, level of documentation, file handling techniques, etc., Mr. Halper advised. Often the vendor promises to do the software for next to nothing, but it is important to determine what kind of support he is willing to give. Mr. Halper said at this level he would prefer dealing with a company like Burroughs rather than with IBM. Contracting must include delivery date for the software so that it arrives and is ready to run when the hardware is there.

Meanwhile, back at the plant, people have to be hired and trained to work with the new system, a parallel period has to be run, and a conversion made, and the client usually underestimates these tasks, especially the conversion, Mr. Halper observed. "Within the conversion level it is very important to detail design specifically and to properly set up a stringent timetable for it." Vendors often underestimate this time period. He suggested that quasi-parallel processing be done to see



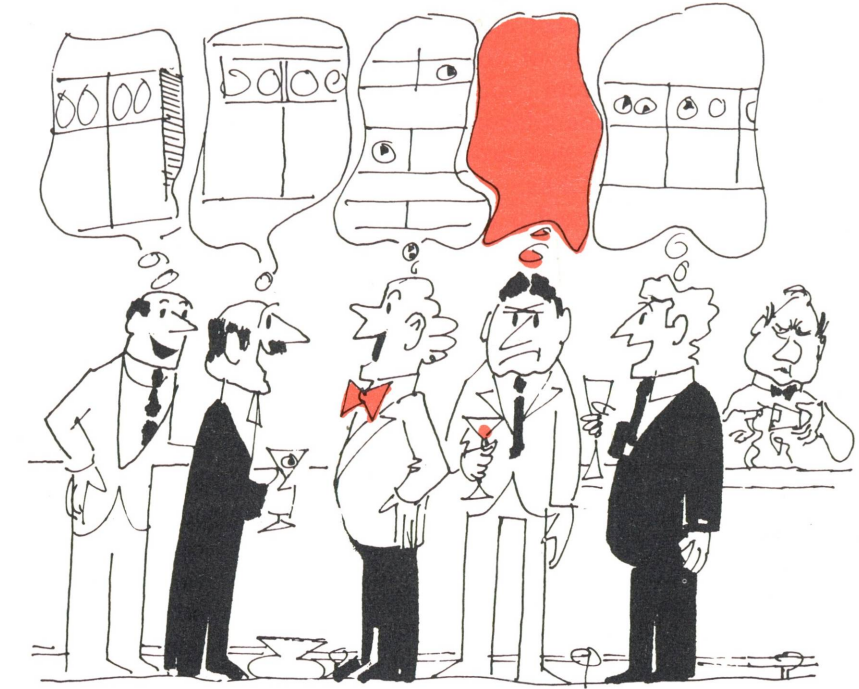
An EDP course added to an accounting school curriculum usually means some other course has to be dropped, said Dr. Gordon Davis.

if the system is operational before the hardware actually enters the shop. This could be done by leasing an outside computer for a month.

"You are not dealing in a professional environment when you are installing an EDP system," Mr. Halper warned the CPAs. Although accountants' professional fees may be \$45 to \$60 an hour, in implementing a system the practitioner is working in a competitive data processing environment where the going rate is about \$30 an hour. Also, if the CPA does go in for implementation, he should be sure that if the client decides to make changes in the system he has those changes in writing with estimated prices, so that there will be no problems when the final bill is presented.

For accountants who are not doing consulting on EDP systems, but are in need of consultation themselves, another parallel discussion, "Time Sharing—Session for Beginners," was being conducted by Burton J. Cohen, Touche Ross & Co. The advantages of time sharing that he cited were: the user pays for only what he needs; it is easily used by people not trained in EDP; it offers fast turnaround, with no waiting for a service bureau or an in-house department; man/machine interaction is possible so that the results of Step One can determine the action taken in Step Two; the user can choose from a selection of languages and application programs; report generating programs are available; there is an existing network; and the data base is portable, because, wherever an individual has his terminal, he can work with the data.

Naturally, time sharing has its drawbacks, and Mr. Cohen outlined these: not all time-sharing networks are reliable; input and output can be slow, for instance, taking five hours to print out a 100 page report; the level of data security is questionable; data storage costs are high; response time can be less than optimal if the vendor runs tight; each time a pro-



A typical client is someone who wants to install a computer because he's heard over drinks at a convention that his competitor has one.

gram is run the user pays for compile time, resulting in low computational efficiency; COBOL is not widely used; and costs can get out of hand.

"Whenever you want to do number crunching and iteration, time sharing is a good candidate for the job," Mr. Cohen said. Some of the tasks Touche Ross has used time sharing for are: statistical sampling; statement regression analysis; imputed interest; estate planning; income tax planning; quarterly tax estimating; corporate tax; executive compensation; calculations of depreciation, rate of return, and cash flow; forecasting and modelling (financial and marketing); lease vs. buy decisions; and specialized industry applications.

Mr. Cohen cited an October-November, 1972, *Datapro* survey which found that of 139 time-sharing users, about 78 per cent were happy with the service they were receiving and the other 22 per cent were unhappy because they either were not using time sharing properly or not getting proper support from their vendor.

In negotiating a contract with a time sharing vendor, Mr.

Cohen recommended the following items be clearly stated: minimum charges; charges for additional services; pricing structure; hours of service availability; length of commitment; termination provisions; and ownership of programs. "Fuzzy contracts make for fuzzy operations," Mr. Cohen cautioned.

His sentiments were echoed by Roy N. Freed, a lawyer with the Boston firm of Peabody, Brown, Rowley and Storey (see M/A July-August, 1973, page 7), who asserted that computer transactions are "very different from the sale of a carload of onions!" Mr. Freed emphasized the importance of early and careful contract negotiation for most EDP applications leading to contracts that ensure performance and help to avoid or cover many potential liability situations.

"Who are involved in liability situations? Obviously, suppliers and users are. But in addition, consultants to users can be involved in different ways," the attorney declared. "I received a call just the other day from an excited lawyer down in Miami, whose client company is suffering badly in a computer installation at the hands of one of the five remaining dwarfs

and the client is looking for blood. It's looking for the blood not only of the supplier, but also of the consultant, someone from your own profession, who made a favorable recommendation in that procurement," he told the CPAs.

In another case Mr. Freed is involved in, a CPA consultant is suing a major supplier for damages he incurred himself, as a professional, because of incorrect supplier representations on which he relied in making favorable recommendations to his own client. That consultant is suffering economic loss because of the supplier's performance failures.

The attorney also pointed out that there are many potential liability situations between computer users and third persons, those persons including their customers, their employees, visitors on their premises, neighbors off their premises, hospital patients, and others. He warned that increasingly in those situations legal claims will be made against software program suppliers because of their particular legal attractiveness or vulnerability. They can be expected especially in failures of factory process control, medical therapy, and transportation control applications. The CPAs were warned not to focus their attention only on MIS and other business uses of computers.

He reminded the CPAs of the more classical liability situations, such as when the supplier is late and the customer suffers badly because of other associated relationships, such as the obligation to pay for communications lines he is not able to utilize. Another is when the supplier delivers a system that is inferior to the one bargained for.

Normally, in those cases attention is focused on liability on the basis of breach of contract, i.e., to what extent was performance less than what the parties bargained for?

Mr. Freed reminded the group that liability in those transactions also can be based on negligence, which includes professional liability,

and on intended harm, such as fraud. With those types of legal claims, liability limitations in contracts tend to be ineffectual.

"Increasingly, the courts are imposing liability on people without regard to legal fault or cause," he stated, "especially in product liability cases." For example, courts have viewed automobiles as "dangerous instrumentalities" and have held their manufacturers liable even for deficiencies that could not have been avoided.

"As time goes on, I think that we're going to find, along the same lines, that computer systems, especially in factory process control and hospital therapy installations, are deemed to be 'dangerous instrumentalities,' in which case the supplier of the element causing the harm, whether hardware or software programs, is liable without regard to whether the harm could have been avoided or not," he said.

Mr. Freed warned that, when cases involving EDP issues are taken to court, strange things can happen. "Judges as a group probably have the lowest level of understanding of the technology that can possibly be conceived of. Therefore, we have a special challenge in communicating the nature of the technology to them either directly in litigation or indirectly in drafting agreements that might be brought to court." He recalled a case in which the judge undertook to clarify the confusing EDP terms used in the trial and promptly, himself, used the word "teleprompter" instead of "teletypewriter" to refer to the input terminals.

Along these lines, users have important opportunities to save money, particularly on sales and use and other taxes, by coming up with well drafted agreements that structure the transactions skillfully. Sloppiness up to now, that appears to involve merely poor communication, actually casts the transactions in the wrong legal light and frequently exposes users to unnecessary tax liabilities. Users should

make up for the defaults of suppliers, Mr. Freed declared, by sophisticated drafting of formal agreements.

As computer users become more sophisticated, as they are becoming in the new marketplace, and the courts are cognizant of that fact, users will have less ability to act before courts as poor innocent victims of the all-knowing suppliers, the attorney said. That makes it more important than ever that the full nature of the applications the user is contracting for—what he expects to get—should be negotiated thoroughly and reduced to a written document. To do this properly takes a lot more time and money than most people have been allotting to procurement transactions, Mr. Freed observed. But he insisted that the results normally justify the expenditures.

### ***Attendance still disappointing***

A lot more people is what Arnold Schneidman, chairman of the committee on computers and information systems, was calling for in one of the conference's concluding talks. He was disappointed that only about 210 people attended the Ninth Annual AICPA Conference on Computers and Information Systems and hoped more would attend next year's conference at the Marriott Motor Hotel in Chicago, May 6-8.

Mr. Schneidman calculated, "Ninety-two thousand members of the Institute; about 12,000 members of the National Society for Public Accountants; almost 16,000 firms; New York City with 1,000 firms; and we have 210. Surely we can do better than that!"

He quoted the late Howard Aiken, the Harvard professor who in 1944 designed the automatic sequence controlled calculator, the Mark I. "The computing machine might be the accountant's best friend," Dr. Aiken once said.

Mr. Schneidman commented, "The trouble is many accountants have not bothered to find out they've got a friend."



*Every company takes risks daily, and every company should be geared to run risks. It is the degree of risk exposure and the sources of willingness to accept chances that must be watched, says this author —*

## **CORPORATE RISK POLICIES**

*by P. Bruce Buchan*  
*Queen's University*

**A**LL COMPANIES have policies regarding the risks their managers should take. Few, however, are well defined: most are simply "implied" by what the company is willing (or not willing) to tolerate. They emerge "after the fact." The manager learns as he sees what happens to his colleagues when their risky ventures fall flat. If the company is particularly harsh with failures this will tend to squelch risk taking and innovation, *especially if top management judges performance based on 20-20 hindsight rather than knowledge of the circumstances at the time the decision was made.* Unfortunately in the absence of a clearly defined and clearly communicated risk policy, a specific occurrence at a given point in time, will tend to distort the picture for the whole company for months, even years, there-

after. In one instance, a medium sized manufacturing company went through a difficult financial period and cut back severely on proposals for new products and new methods. Long after the difficulty had been resolved lower and middle management were exceedingly reluctant to make any innovative proposals—"those guys upstairs always turn them down anyway."

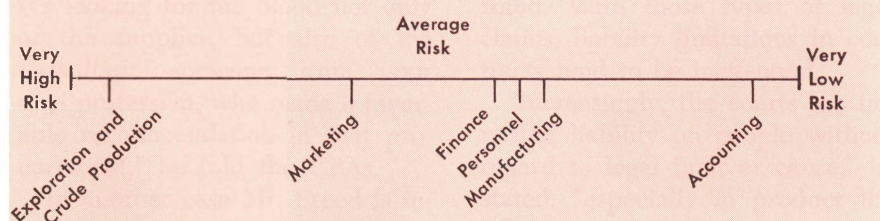
Risks facing a corporation vary greatly in form and stem from a variety of sources. Currently, the actions of the Government regarding the price freeze, currency revaluations, and import/export restrictions add to the uncertainty of the environment in which the manager must operate and add to the riskiness of his decisions. In 1961, the president of American Photocopy saw the firm's main competition coming from Minne-

sota Mining and Eastman Kodak. Earnings dropped sharply in the ensuing years but not because of the actions of either of these two firms but rather a newcomer on the scene, one with the strange name "Xerox." In short, the name of the corporate game is "risk taking."

Companies should have an explicit "risk policy" and it should have the following characteristics:

- 1—It should be *dynamic* not *static*.
- 2—It should differentiate between levels of management.
- 3—It should differentiate between functional areas.
- 4—It should be quantified as much as possible.
- 5—It should be communicated effectively to all in the corporation and it should differentiate between right and wrong outcomes.

# EXHIBIT I



It is important to avoid a policy which does not change or which will give the manager the opinion that risks are something which are beyond his control and/or just a matter of luck.

Managers should not be risk-takers but rather risk-makers. The term "risk-taker" has a passive connotation—it seems to imply that the manager sits back and either accepts or rejects proposals depending on the risk involved. This infers he can do little to affect the chances of success. Quite the contrary, however, the major responsibility of the manager is not simply to accept the risks but rather to go out and influence them, to endeavor to swing the odds in the company's favor.

This appears to be a source of confusion among the critics of the businessman (such as J. K. Galbraith). They accuse managers of being risk averters or risk minimizers. In fact, the manager is simply endeavoring to improve the chances of success—he launches a promotion campaign in order to improve the acceptability of a new product. Is *risk minimization* the same as *success maximization*? The

corporate actions are the same, the interpretation seems to depend on whether one is "pro-" or "anti-" business.

Managers should not accept risks as a "given," a static situation, but rather a variable which has got to be altered in the company's favor. Their primary function should be to improve the chances of success.

Another dimension of the manager's responsibility is to innovate, to seek out new and better ways of doing tasks. Change, deviations from proven ways, always involve elements of risk. These kinds of risk should be taken, they just don't happen, they are caused by aggressive, perceptive managers, managers who, in effect, are *risk-makers*, rather than *risk-takers*!

Because the business environment is continually changing as is the particular circumstances of the company, the company's risk policy should also change. Clearly, the kinds of risks, which a company can undertake are different when it is struggling for survival, compared to when it is extremely profitable. In the former circumstances, the philosophy should emphasize the *avoidance* of ventures, (risks) which might not succeed; in the latter circumstances the philosophy should stress the *search for* new methods, techniques, products which can lead to still higher profits. Note both philosophies are still positive in that they both stress the importance of success.

There are two factors to be considered when determining the degree of risk you wish a manager to assume:

1—The possible impact on the survival of the company, and

2—The impact on the morale, enthusiasm, innovative spirit of the employees.

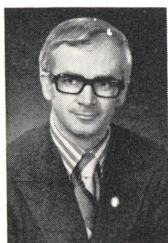
Unfortunately, the higher one rises in the organization the greater the impact his actions will have on both accounts. The key, then, seems to be—how to encourage risk taking on the part of the junior (subordinate) managers while, at the same time, not taking risks which will imperil the company. Too often, in avoiding the latter, the senior manager is put in a position of squelching the proposals of the junior members.

## Encouraging race horses early

This presents us with another dichotomy. Can a manager, who is inclined toward risk taking, (this is probably a prerequisite for advancement; as one senior manager put it, "I would rather have race horses which need restraining than donkeys which need kicking") become more conservative as he ascends the managerial hierarchy? It certainly seems possible. With age, experience, and maturity there seems to be a natural shift towards a more conservative stance.

In order, therefore, to have a vibrant, responsive, innovative organization, the lower and middle managers have got to be race horses; they have to live in an environment which encourages risk-taking and they have to have a matching instinct for risk-taking.

Upper level managers, on the other hand, should be more conservative. Their perspective is that of the total company. Their decisions are more significant in terms of the potential impact on the economic health of the company. Further, the time horizon of the senior managers is usually much longer than that of the junior. The results of decisions made by top management often are not seen for several years after the decision, whereas the results of decisions made at lower levels can usually be seen almost immediately. Because of the greater degree of un-



P. BRUCE BUCHAN is an associate professor at Queen's University, School of Business, Kingston, Canada. He has also conducted courses in management sciences for the Canadian Institute of Chartered Accountants. Dr.

Buchan received his B.S. and master of commerce degrees from the University of Toronto and his Ph.D. from the University of Michigan. He is a member of the Association of Professional Engineers of Toronto, the American Economic Association, and the Institute of Management Sciences.



Corporate risk policy should reflect a more conservative profile at the upper executive level than at the lower.

certainty associated with events to take place in the distant future, decisions of that kind should be more cautious.

According to a recent *Fortune* article,<sup>1</sup> senior managers are conservative, as evidenced by one who said:

"I would not bet the company even if the prospects of the bet were very good, . . . I put a high value on survival, the highest value. It is almost human nature to be conservative in this respect. In a corporation you are trying to conserve a critical mass."

In a recently completed study for The University of Michigan's Bureau of Business Research an independent test found the senior managers of a large integrated oil corporation to be more conservative than their juniors.

In summary, the corporation's policy should reflect a more conservative profile at the upper level than at the lower level, in keeping with the magnitude of the financial risks these men will ordinarily be dealing with. However, the company must be extremely careful to see that this conservativeness is not carried, as an example, down into the lower reaches of the organization. The risky proposals, the bright ideas, have got to rise up

from the roots; if cut off at that level, the plant is sure to wither and die.

A manager is a manager, is a manager, is a manager. Although the accounting manager is often vilified by both the marketing manager and the production manager for being too conservative, it is unlikely they would want him to be any other way. In the best interest of the company, the accountant should not eschew accuracy and certainty for innovation and uncertainty. On the other hand, in the marketing area, risk, uncertainty, and innovation are the name of the game. Clearly too, we would want to match the person's proclivity towards risk taking with the degree of risk involved in the job. Marketing people should be able to live comfortably with uncertainty, so should the exploration manager of an oil company. The accountant, however, either by nature or training, or both, would probably be quite uncomfortable in that environment. Hence, the company's risk policy should recognize the different degrees and kinds of risks which exist in the various functions.

One consensus of managers in a petroleum firm ranked the risk environment of the functional areas as shown in Exhibit 1 on page 46.

The exploration department was clearly seen to be in a major risk area, i.e., there was a high degree

of uncertainty as to success. This was followed by the marketing department, but, interestingly, it was seen to be considerably less risky than the exploration operations, and only somewhat above "average risk." Why? Being a large, successful integrated oil company, it was not felt that there was much chance of failure, even in the marketing function. Sales continued to grow steadily year after year with no serious dips taking place.

The finance, personnel, and manufacturing functions were all considered to be slightly below average in risk proneness, while accounting was felt to be very low in risk.

Within each of these areas, however, it was possible to identify varying degrees of risk. For example, in the finance area, the decision regarding the granting of credit is quite risky, while in personnel the selection of new employees is done in an atmosphere of high uncertainty (selection techniques are notoriously unreliable). In the other direction, it is unanimously agreed that in certain areas no risk whatsoever should be tolerated; e.g., where the health and safety of the employees are concerned.

Even in accounting, however, it is not felt desirable to eliminate all risks. Talking to a senior officer of one company, he emphasized that it was absolutely essential for

1—McDonald, John, "How the Man at the Top Avoids Crises," *Fortune*, January, 1970.



## **Find out what exists first, and then take steps to improve it if it's not what you want . . .**

his people to be constantly on the lookout for new and better systems:

“Don't be hidebound by convention. Look for new, better, more meaningful ways of obtaining; presenting 'information' in its broadest most meaningful sense.”

This reflects the changing attitudes of corporate accountants as opposed to the external auditor who is still strongly committed to the established ways and also reflects the nature of the conflict which must become more and more apparent as the emphasis swings from that of providing financial facts for the sole benefit of the shareholders (and the tax collector) to that of providing management with meaningful information in order to make more effective decisions.

It would be a good idea to carry out an evaluation of the “risk attitudes” of the people who work for you, in order to clarify what is the nature of the risks involved in their work. How do they see the risks involved in other departments? A format similar to that used to derive the information in Exhibit 1 would be useful. It is an open ended type of question which permits the individual to discuss a wide variety of risks (note it is the discussion which emerges from his selection which is particularly important, the actual selection is only useful as a general guide and as a basis for comparing departments, and/or functions).

Having clarified the different perspectives between groups in the company, this information can be used to improve the understanding between departments as to the real nature of the kinds of uncertainties which the various departments face.

This will serve as an effective basis for discussion. It gives the

employer (manager) a chance to project his views and opinions. This is what you primarily want. Find out what exists first and then take steps to improve it if the slant is not as you desire. More directly, it will help managers to pinpoint the variation in risks which exist within the department among the various jobs, and lead to a better understanding of the nature of the risks and their causes.

### ***Controllable risks***

It is essential that the company differentiate between those risks which are within the control of the department and those which are outside. The latter may be due to the actions of other departments (which can then be clarified and lines of communication laid down which may help to minimize the degree of the uncertainty) or may be directly or indirectly due to forces completely outside the company. The latter can be classified into two kinds, rational and non-rational. Rational forces are those which result from a “rational” opponent. “Rational” is used quite loosely here. The important aspect is that it is the act of a “thinking” individual or group such as your competitors, the government, or customers. You do have some leeway (but, perhaps, very little), in influencing their decisions or at least in being able to anticipate their actions. In contrast, the non-rational forces are “states of nature” which are completely unpredictable, such as hurricanes, floods, snow storms, etc., about which you can take no direct preventive actions. Notice that the latter can be protected against through insurance, but you can't influence the chances of such an event taking place.

You now have a profile of the risk environment within and between departments. Its greatest

benefit is that it has given you and all the members of your department a chance to clarify the kinds of risks which have to be faced. This in turn will help you to cope with risk.

a. You will be less inclined to wrongly accuse a man for making an improper decision when the outcome is not as desired.

b. You will be able to trace the sources of the uncertainty and if they are caused by “rational” forces there is probably some course of action at your disposal. If it is caused by Nature, consult your insurance company.

c. You will improve your employees' understanding of other departments and of the sources and nature of the risks which you face. With more enlightened “colleagues” this should at least improve the tolerance level, if not the sympathy level, for your difficulties.

d. Being more aware of the problems of others should enable you to avoid aggravating the situation or creating new difficulties.

### ***Quantify the risk***

This is a most difficult task, particularly in the “behavioral” areas of management decision making. However, it is a good idea to develop a line of thought in which you automatically ask yourself: “*What are the chances of success?*” Then try to put a figure on it such as “one in ten” or “five in ten.” Try to do something more than a general assessment such as “very good” or “fair.” This would be better than nothing, but you will be able to make a better comparison of alternatives if you have a specific figure to refer to. Incidentally, for those of you who practice management by objectives, it is highly desirable that you consider with your employees the probability of success in their various “objectives” (usually it is inferred that the ob-

jectives *will be* reached with 100 per cent certainty). This will help to overcome the problems of the employees who are too ambitious, and set themselves impossible tasks, by getting them to think about the obstacles which have to be overcome and to gauge the severity of those obstacles. Similarly, for those employees who set themselves goals which have a 100 per cent certainty of being achieved, this may be a good opportunity to explore their motivation, their self-confidence and your ability to tolerate an objective which is not reached. Are you creating the proper atmosphere which encourages your employees to take on new tasks, to attempt new methods, or are you asking for only the "sure thing"?

### Capital investment

Perhaps the most obvious area for quantification of risk is in the investment field. Most companies do implicitly take into consideration the degree of risk associated with capital investment proposals, but in most cases there is room for improvement, for making the risk factor more explicit. Following is a suggestion for accomplishing this.

You should consider these factors in establishing the corporations' policy regarding investment:

- Payoff*—the rate of return the company anticipates receiving from the investment.
- Risk*—the chances that the designated rate of return will be realized.
- Expected Rate of Return*—the minimum rate of return the company is willing to accept.
- Investment*—the amount of capital required for the investment proposal.

Exhibit 2A, on this page, shows the combinations of risk and payoff which will yield a specified "expected rate of return," (in this case 10 per cent). It is based on the data shown in Exhibit 2B, above.

EXHIBIT 2A

RISK PAYOFF  
and  
EXPECTED RATE OF RETURN

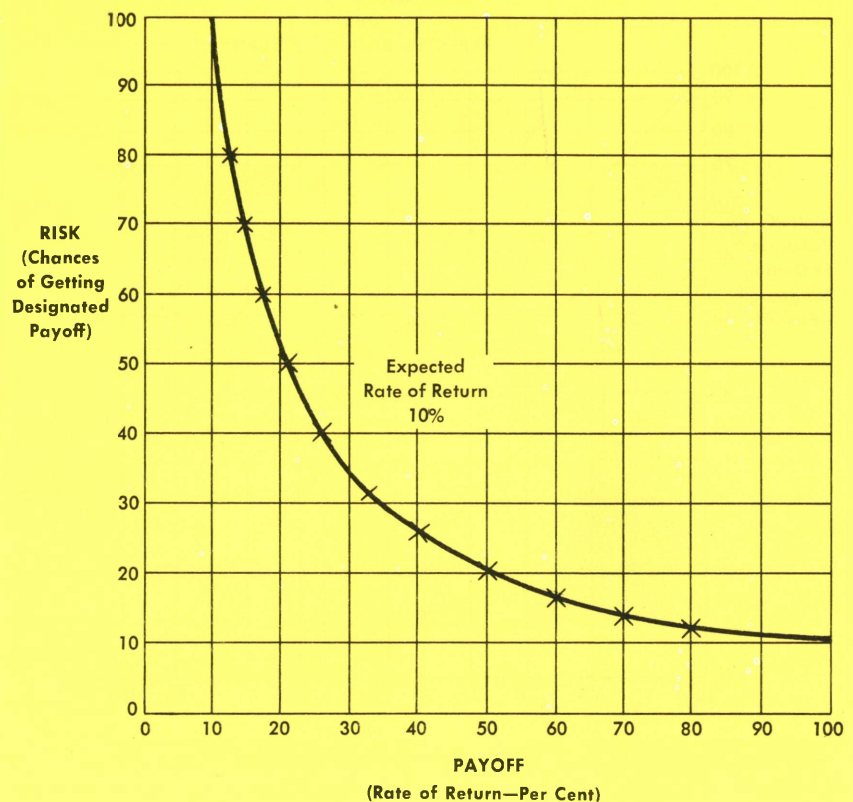


EXHIBIT 2B

RISK (Chances of Getting Designated Payoff) (1)	PAYOFF (Return on Investment) (2)	EXPECTED RATE OF RETURN (1) × (2) (3)
100%	10%	10%
67	15	10
50	20	10
.	.	.
.	.	.
10	100	10

This shape of curve<sup>2</sup> is rather difficult to work with but when the data is plotted on log-log paper it becomes a more manageable straight line. This has been done in Exhibits 3, page 50, and 4, page 50.

If a company had as its policy that it would accept any proposal

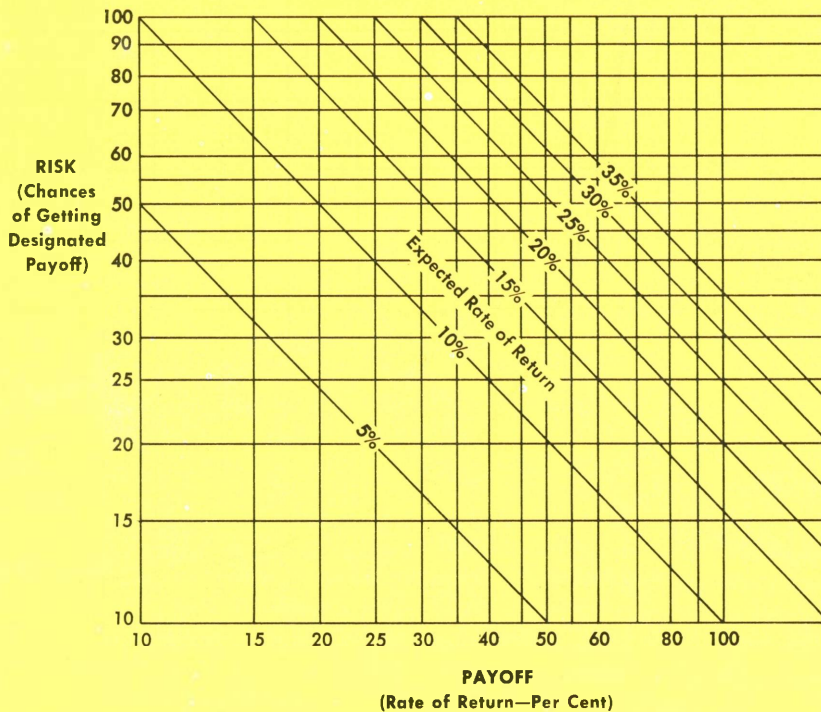
which would yield an "expected return" of at least 10 per cent it would accept any proposal which was either on or above the 10 per cent diagonal because anything above, of course, would yield a return greater than 10 per cent.

It would be unusual for a company to have an investment policy which did not vary with the amount of capital required for the project.

<sup>2</sup>—This is the familiar rectangular hyperbola,  $YX = 10$ .

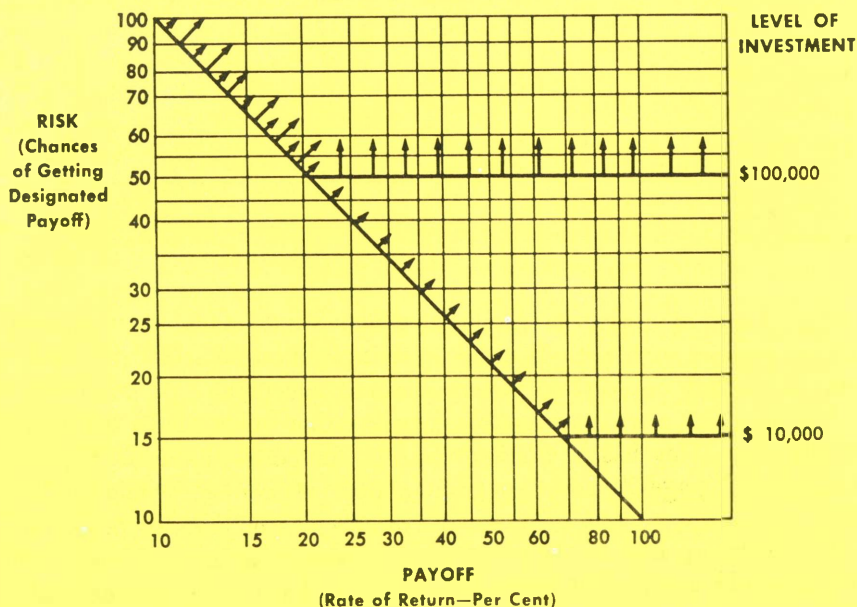
### EXHIBIT 3

RISK PAYOFF  
and  
EXPECTED RATE OF RETURN



### EXHIBIT 4

RISK PAYOFF  
EXPECTED RATE OF RETURN  
and  
LEVEL OF INVESTMENT



Probably none do; however, it is also likely that few have a well-defined policy which spells out the differences between various sums. For instance, Carl Spetzler<sup>3</sup> found that there was a wide variety of opinions among the finance committee members of a large petroleum company, as to what was an appropriate return for different amounts of investment. Eventually, he was able to develop an "acceptable" explicit criteria for the corporate investment policy for sums up to \$300,000, but for larger amounts, the company refused to become pinned down.

Exhibit 4 shows how the corporation can identify (spell out) its criteria for varying amounts of investment. To return briefly to an earlier theme, this policy (criteria) should be dynamic, not static. It should change with changing circumstances within the company, and it should change as rapidly as circumstances change. But, it should be an explicit change which is communicated quickly to those who need to be advised. The format revealed in this exhibit will serve as an excellent vehicle for finance committees to arrive at and evaluate their policies.

The values on the right of the diagram indicate the size of the capital investment being considered. The horizontal line running to the expected rate of return diagonal shows the cut-off point below which the proposals will not be accepted. In this example, if there is less than a 15 per cent chance of making a 67 per cent return the proposal will be rejected; anything to the right of the diagonal and above the horizontal line will be accepted because the expected rate of return will be greater than 10 per cent. Note that it is not necessary to stick to one "expected rate of return" for all investments. It may be appropriate to use a 10 per cent expected return for sums

3—Spetzler's work arose out of a suggestion made by Ralph O. Swalm regarding the need for a Corporate Utility Profile (*Harvard Business Review*, Nov.-Dec., 1966, pp. 123-136).



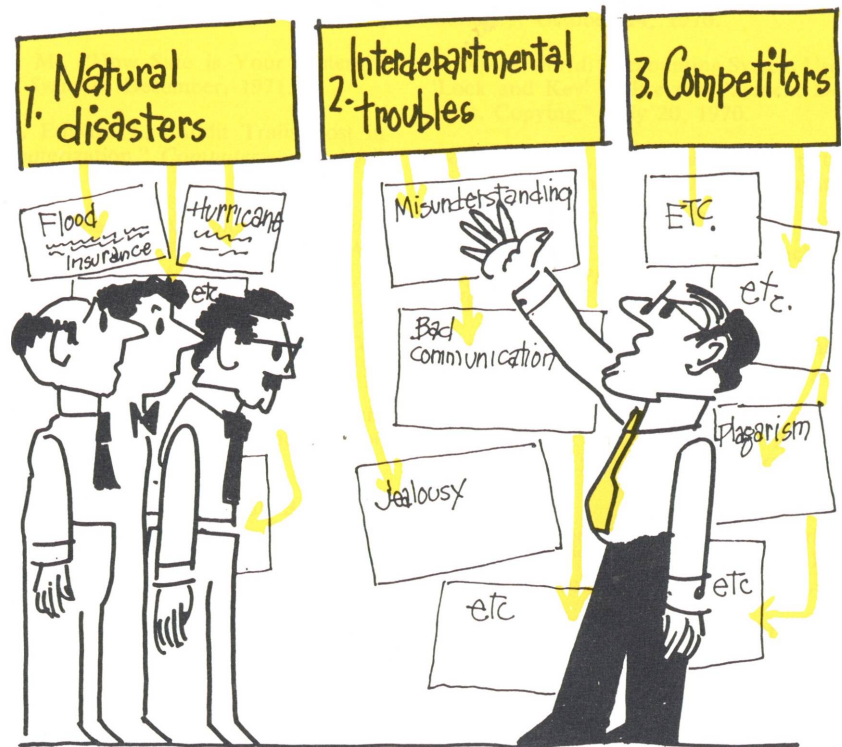
between \$1,000 and, say, \$500,000 but then to revert to either a higher, (say 15 per cent) or even lower figure (say 6 per cent). In any case, the finance committee should spell out the basis or criteria for the shift. These diagrams will be most constructive in focusing the committee's attention on the relevant factors for consideration.

One gremlin you should guard against is the "50-50" syndrome. Our culture is imbued with the concept that anything which has a 50-50 chance is "fair," "just," "equitable." Frequently this is carried over in the decision-making process and has a debilitating impact on the decision. For instance, suppose we had a "50-50" man applying the company's policy regarding the aforementioned "10 per cent rate of return." His interpretation would lead him to reject all proposals which had less than a 50-50 chance of success and to accept all those which had a greater than 50-50 chance. Thus, he would be wrong in all those instances when the odds were less than 50-50 but the payoffs were greater than 20 per cent (i.e., were either on or above the diagonal) and equally wrong in accepting proposals when the odds were greater than 50-50 but the payoffs were less than 20 per cent (i.e., below the diagonal). This "fair," 50-50 concept is so pernicious that one has to be on his guard against using it subconsciously in the decision-making process.

### Communicate your policy

Managers will respond to what they *believe* the company's risk policy to be: Hence, it is what they perceive which is important. To this end it is essential that what is perceived and that which "is," be one and the same.

A manager in a company was released after one of his projects proved to be a bust. This had a traumatic effect on many other managers. The company seemed to be saying that if your proposals do not succeed you will pay with your



When you have a "risk profile" of departments, you have a chance to clarify the kinds of risks to be faced.

job. The net result was that the managers were not particularly inclined to undertake risky proposals because, by definition, there was a significant chance that they would not be successful. The company's actions plus the grapevine, spread a picture of the company's policy which would undoubtedly have an inhibiting effect on the growth of the company unless specific counter measures were undertaken.

The company can avoid this problem by being sure that its policies are carried to the managers clearly by means other than the grapevine. Consider the following lines of action:

- Give examples of risks taken by managers which have been encouraged and have paid off.
- Give examples of risks which have been taken, have flopped, but which have not impeded the progress of the manager.
- Do reward risk taking, innovation, hard work, success through promotions, pay increases, bonuses, profit sharing schemes, and, most importantly, verbal and written recognition.

- Do NOT punish financial flops, provided the cause was beyond the control of the manager—if based on the facts available at the time of the decision it was a "good" decision (i.e., differentiate between the right decision and the wrong outcome).

- Do penalize shoddy, incompetent, risk-averse managers. However, do not go overboard, be positive—concentrate on rewarding the right decisions, rather than penalizing those who make mistakes.

- Be suspicious of a manager who has never had a "flop," or at least will never admit to one. It might indicate he has never made a risky decision or that he perceives an atmosphere which will not tolerate risk taking.

Risks are an unavoidable part of the businessman's world. Without them, there really wouldn't be any need for a businessman—a decision maker. His job is to go out and confront the risks: however, it does pay him to think effectively about the nature of the risks which face him and his company and to govern his actions accordingly.

*The following bibliography resulted from discussions of the AICPA MAS Division's committee on data processing, which felt that such a listing would be helpful to MAS people and consultants at this time —*

## **DATA PROCESSING SECURITY: A SELECTED BIBLIOGRAPHY**

*by George H. Rittersbach  
Peat, Marwick, Mitchell & Co.*

CONSIDERABLE effort is being spent on the development of concepts, techniques, proposals, and products in the area of computer security. There is a wide spectrum of effort designed to determine ways to make more secure the physical computer environment, personnel within data processing activities, operating system and application software, data files, and documentation related to computer applications, systems, and operational procedures. The subject has received widespread attention nationally—indeed, around the world—highlighted by IBM's well promoted \$40,000,000 effort in this area.

It is difficult to develop any type

of expertise in this area without considerable investigation, study, and evaluation. Of course, such activity can benefit significantly from a bibliography on the subject. Such a bibliography follows and may be used as a basis for investigation. Although lengthy, the included bibliography is not exhaustive and we solicit your input regarding any source *you* think valuable. If you will send all such input to the author's attention below, an extended bibliography will be made available at a later date.

*George H. Rittersbach, Principal  
Peat, Marwick, Mitchell & Co.  
345 Park Avenue  
New York, N.Y. 10022*

*ADP Newsletter*, "How Vulnerable is the Computer System?" March 8, 1971.

Aaron, William, "Embezzlement—Detection and Control," Speech before National Retail Merchants Association EDP Conference, 1968.

Adams, Donald L., and John F. Mullarkey, "A Survey of Audit Software," *The Journal of Accountancy*, September, 1972.

Allen, Brandt, "Danger Ahead! Safeguard Your Computer," *Harvard Business Review*, November-December, 1968.

American Federation of Information Processing Societies, *A National Survey of the Public's Attitudes Toward Computers*, Conducted by Time, Inc.

Anderson, James P., "Information Security in Multi-User Computer Environment," *Advances in Computers*, Vol. 12, New York and London, Academic Press, Inc., 1972.

Anderson, J. P. (& Co.), *Computer Security Technology Planning Study*, October, 1972, Fort Washington, Pa.

Autonetics, *Software Validation Study*, February, 1973, Anaheim, Calif.

Babcock, J. D., "A Brief Description of Privacy Measures in the RUSH Time-Sharing System," *Proceedings of the 1967 Spring Joint Computer Conference*, Montvale, N. J., AFIPS Press.

*Banking Administration*, "Standards for Internal Auditing in an Electronic Data Processing Environment," April, 1972.

Banyhaf, John F., III, "When Your Computer Needs a Lawyer," *Communications of the ACM*, August, 1968.

Bantram, P., "Software Security," *Data Systems*, December, 1971.

Baran, Paul, *On Distributed Communications*, "Security, Secrecy and Tamper-Free Considerations," The Rand Corporation RM-3765-PR, August, 1964.

Baran, Paul, "On the Privacy Issue of Time-Sharing Systems," *Time-Sharing Innovation for Operations Research and Decision-Making*, edited by Hugh V. O'Neill and Donald W. King, Washington Operations Research Council, 1969.

Bates, William, "Security of Computer-Based Information Systems," *Datamation*, May, 1970.

Behrens, Carl, "Computers and Security," *Science News*, June 3, 1967.

Berg, Philip J., *The Plain Facts About Data Center Accidents*, May, 1970. Available from Applied Data Research Inc., Princeton, N. J.

Bergart, Jeffrey G., Marvin Denicoff, and David K. Hsiao, *An Annotated and Cross-Referenced Bibliography on Computer Security and Access Control in Computer Systems*, work performed under Contract N00014-72-C-0391, Office of Naval Research, The Computer and Information Science Research Center, The Ohio State University, Columbus, Ohio 43210, November, 1972.

Bigelow, Robert P., "Legal Aspects of Proprietary Software," *Datamation*, October, 1968.

Bingham, Harvey W., *Security Techniques for EDP Multilevel Classified Information*, RADC-TR-65-415, Rome Air Development Center, Griffiss Air Force Base, New York, 1965.

Binns, James, "Why Man to Man Defense for EDP Audit Control?" *Data Management*, October, 1969.

Boni, Gregory M., "Impact of Electronic Data Processing on Auditing," *The Journal of Accountancy*, September, 1963.

Boruch, Robert F., "Security of Information Processing—Implication From Social Research," *Proceedings of the 1972*

*Fall Joint Computer Conference*, Montvale, N. J., AFIPS Press.

Bray, M., "How Safe is Your System?" *Data Systems*, December, 1971.

Bride, Edward J., "Audit Trails Lost in Computerization," *Computerworld*, April 29, 1970.

Brown, William (ed.), *Computer and Software Security*, AMR International, Advanced Management Research, 1971.

Browne, P. S., "Computer Security—A Survey," State Farm Life Insurance Co., Bloomington, Ill.

Buckley, John, "The Future of Computers in Security and Law Enforcement," *Law and Order*, September, 1965.

California Intergovernmental Board on Automatic Data Processing, Subcommittee on Privacy and Confidentiality, *File Security Measures*, October 18, 1968.

California Legislature, *A Final Report of the California State Assembly Statewide Information Policy Committee*, Sacramento, 1970.

Canadian Institute of Chartered Accountants, *Computer Control Guidelines*, 1970.

Carmichael, D. R., "Fraud in EDP Systems," *The Internal Auditor*, May-June, 1969.

Carr, Peter F., "Most DP Centers Lax in Arranging Backup Facilities," *Computerworld*, July 15, 1970.

Carrol, John M., "Snapshot 1971—How Canada Organizes Information About People," *Proceedings of the 1972 Fall Joint Computer Conference*, Montvale, N. J., AFIPS Press.

Carrol, J. M., and P. M. McLelland, "Fast Infinite Key Privacy Transformation for Resource-Sharing Systems," *Proceedings of the 1970 Fall Joint Computer Conference*, Montvale, N. J., AFIPS Press.

Chesson, Frederick W., "Computers and Cryptology," *Datamation*, January, 1973.

Chu, Albert, "Computer Security: The Corporate Achilles Heel," *Business Automation*, February 1, 1971.

Clive de Paula, C., "Problems of Auditing Data: The External Auditor and Computers," *The Computer Journal*, No. 3, 1960.

Collen, M. F., "General Requirements for a Medical Information System (MIS)," *Computer and Biomedical Research*, October, 1970.

Comber, Edward V., "Management of Confidential Information," *Proceedings of the 1969 Fall Joint Computer Conference*, Montvale, N. J., AFIPS Press.

"Computers and Cryptography," presented as part of a short course, "Privacy: Legal and Technological Protection in the Com-

puter Age," University of California, Berkeley, October 14, 1970.

*Computerworld*, "Accounting System Uses 'Lock and Key' to Prevent Payment Default, Copying," May 20, 1970.

*Computerworld*, "Calculated Computer Errors Manipulate Three Banks' Security; \$1 Million Lost," March 25, 1970.

*Computerworld*, "Cryptographic Package May End 360 Program Thefts," June 24, 1970.

*Computerworld*, "Has the Mafia Permeated the Computer Community?" August 28, 1968, September 11, 1968.

*Congressional Digest*, "Data Banks," maintained by Federal agencies, October, 1971.

Cornell University, School of Electrical Engineering, "Study of Sequential Decoding," February, 1972, Ithaca, N.Y.

Dansiger, Sheldon J., "Proprietary Protection of Computer Programs," *Computers and Automation*, February, 1968.

Data Lock, *Data Lock*, 2745 Bernice Road, Lansing, Ill. 60438.

*Data Processing in New Zealand*, "Protection Against Fire," March, 1970.

*Data Systems*, "Privacy and the Computer—An Issue Becomes a Crusade," August-September, 1970.

*Data Systems News*, "Individual Responsibility," February, 1969.

*Data Systems News*, "Protecting Your Computer's Security," February, 1970.

*Datamation*, "Computer Takes Rap in Securities Swindle," August, 1968.

Davidson, Timothy A., "Computer Information Privacy," *The Office*, August, 1969.

Davis, Gordon B., *Auditing and EDP*, New York, American Institute of Certified Public Accountants, 1968.

Davis, L., and J. Terdiman, "The Medical Data Base," *Hospital Computer Systems*, Collen, M. F., Ed., New York, John Wiley & Sons, Inc. In press.

Davis, Morton S., "Service Bureaus Need to Improve Data Security," *Computerworld*, August 26, 1970.

De Lair, W. E., "Security Responsibilities of a Time-Sharing Service Company," Transdata Corporation, October 25, 1969.

Dennis, Robert L., *Security in the Computer Environment*, SP-2440/000/01, System Development Corporation, 2500 Colorado Ave., Santa Monica, Calif. 90406, 1966.

Department of Defense, *Industrial Security Manual For Safeguarding Classified Information*, DD 5220.22-M, July 1, 1966.



Diamond, T. D., and J. C. Krallinger, "Controls and Audit Trails for Real-Time Systems," *Internal Auditor*, November-December, 1968.

Duggan, Michael A., "Software Protection," *Datamation*, June, 1969.

EDP Analyzer, "Computer Security: Backup and Recovery Methods," January, 1972.

EDP Analyzer, "Data Security in the CDB," May, 1970.

EDP Analyzer, "Security of the Computer Center," December, 1971.

Electronics, "Safeguarding Time-Sharing Privacy—An All-Out War on Data Snooping," April 17, 1967.

Evans, D. C., and J. Y. Le Clerc, "Address Mapping and the Control of Access in an Interactive Computer," *Proceedings of the 1967 Spring Joint Computer Conference*, Montvale, N.J., AFIPS Press.

Factory Insurance Association, *Recommended Good Practice for the Protection of Electronic Data Processing and Industrial Automation*, Hartford, Conn.

Fanwick, Charles, *Maintaining Privacy of Computerized Data*, System Development Corporation, 2500 Colorado Ave., Santa Monica, Calif. 90406, report No. SP-2647, 1966.

Federal Fire Council, *Fire Protection for Essential Electronic Equipment*, Washington, D.C. 20405.

Foreign Technology Division Wright-Patterson AFB, Ohio, *Correcting Codes for Exchange of Information Between Computers*, May 10, 1972.

Foreign Technology Division Wright-Patterson AFB, Ohio, *Estimating the Reliability of Operation of a Digital Computer with Testing*, June 23, 1972.

Freed, Roy N., "Legal Aspects of Computer Use in Medicine," *Law and Contemporary Problems*, 32, 1967.

Freed, Roy N., "Computer Fraud—A Management Trap," *Business Horizons*, June, 1969.

Friedman, R. C., "EDP and the Law," Chicago, Foote, Cone & Belding, Advertising.



GEORGE H. RITTERSBACH is a principal in the firm of Peat, Marwick, Mitchell & Co., New York. He is a member of the AICPA MAS committee on data processing and the committee on liaison with the professional development division. Before joining Peat Marwick, Mr. Rittersbach was corporate director of information systems for the IRC Division of TRW, Inc., and manager of the data reduction center of the Missile and Surface Radar Division of RCA. He holds a DPMA certificate in data processing and a B.S. from Temple University.

opment division. Before joining Peat Marwick, Mr. Rittersbach was corporate director of information systems for the IRC Division of TRW, Inc., and manager of the data reduction center of the Missile and Surface Radar Division of RCA. He holds a DPMA certificate in data processing and a B.S. from Temple University.

Gallati, Robert R. J., "Criminal Justice Systems and the Right to Privacy," *Public Automation*, July, 1967.

Garland, Robert F., "Computer Programs—Control and Security," *Management Accounting*, December, 1966.

Garrison, William A., and C. V. Ramamoorthy, "Privacy and Security in Data Banks," Technical Memorandum No. 24, Electronics Research Center, University of Texas, Austin, November 2, 1970.

Gerhand, William D., *Network of Computers*, National Security Agency, Fort George G. Meade, Maryland 20755.

Girdinsky, M. B., "Cryptology, the Computer, and Data Privacy," *Computers and Automation*, April, 1972.

Glaser, Edward L., "A Brief Description of Privacy Measures in the Multics Operating System," *Proceedings of the 1967 Spring Joint Computer Conference*, Montvale, N. J., AFIPS Press.

Goodman, John V., "Auditing Magnetic Tape Systems," *The Computer Journal*, July, 1964.

Gotlieb, C. C., "Regulations for Information Systems," *Computers and Automation*, September, 1970.

Gottlieb, A. E., "Computers and Privacy," *Law and Computer Technology*, February, 1972.

*Government Security and Loyalty Report*, "Sabotage Threats Lead to Reexamination of EDP Security," May 1971.

Graham, G. S., and P. J. Denning, "Protection—Principles and Practice," *Proceedings of the 1972 Spring Joint Computer Conference*, Montvale, N. J., AFIPS Press.

Graham, Robert M., "Protection in an Information Processing Utility," *Communications of the ACM*, May, 1968.

Gruenberger, Fred, "Program Testing and Validating," *Datamation*, July, 1968.

Guise, Robert F., Jr., "Security and Privacy," CTSS Position Paper, Com-Share Incorporated, Ann Arbor, Mich.

H. R. 13315 (Congressman Edwards) "Arrest Record Security and Privacy Act," 92nd Congress, 2nd Session, 1972.

H. R. 9527 (Congressman Koch) and S. 975 (Senator Bayh), "The Citizen's Privacy Act," 92nd Congress, 1st Session, 1971.

Hallman, A. J., "Internal Audit of a Computer Center Disaster Plan," *The Internal Auditor*, November-December, 1970.

Hanlon, Joseph, "10 Students Convicted in 1969 Computer Center Burning," *Computerworld*, April 29, 1970.

Harris, R. D., "EDP Systems Audits," *Data Management*, October, 1971.

Harrison, Annette, "The Problem of Privacy in the Computer Age: An Annotated Bibliography," Memorandum RM-5495/1-PR/RC, The Rand Corporation, Volume 1, December, 1967, Volume 2, December, 1969.

Harrison, William L., "Program Testing," *Data Management*, December, 1969.

Hill, O. A., Jr., "The Role of the Auditor with Respect to Internal Control and Fraud," *The Internal Auditor*, May-June, 1968.

Hirsch, Phil, "The World's Biggest Data Bank," *Datamation*, May, 1970.

Hirshfield, R. A., "Security in On-Line Systems—A Primer for Management," *Computers and Automation*, September, 1971.

Hoffman, L. J., "Computers and Privacy: A Survey," *Computing Surveys*, 1969, Vol. 1, No. 2.

Holmes, F. W., "Software Security," American Management Association Briefing Session #6373-60, April 15, 1970.

Holmes, W. S., "Privacy Techniques for Computerized Medical Data Systems," presented at Use of Computers in Clinical Medicine Symposium, School of Medicine, State University of New York at Buffalo, October 2-5, 1969.

IBM, *The Considerations of Data Security in a Computer Environment*, 1970.

IBM, *The Considerations of Physical Security in a Computer Environment*, 1972.

*Industrial Security*, "Computer Security," December, 1969.

Information Research Associates, Inc., "Reliability Techniques for Computer Executive Programs," San Antonio, Tex., May 17, 1972.

Infosystems, "Fire Protection for EDP Centers," September, 1972.

International Computer Systems Inc., *Programming for Transferability*, Los Angeles, Calif., September, 1972.

Jackson, W. A., "Fire Protection Systems," *Data Processing*, March-April, 1969.

Jacobs, Morton C., "Patent Protection of Computer Programs," *Communications of the ACM*, October, 1964.

Jacobson, Robert V., "Providing Security Protection for Computer Files," *Best's Review*, Property Liability Insurance Edition, June, 1970.

Jasper, David P., "A Discussion of Checkpoint/Restart," *Software Age*, October, 1969.

John, Richard C., and Thomas J. Nissen, "Evaluating Internal Control in EDP Audits," *The Journal of Accountancy*, February, 1970.

- Kahn, David, *The Code Breakers*, New York, The MacMillan Company, 1967.
- Krauss, L. I., *SAFE: Security, Audit and Field Evaluation for Computer Facilities and Information Systems*, Firebrand, Krauss & Co., Inc., 1972.
- Lampson, B. W., "Dynamic Protection Structures," *Proceedings of the 1969 Fall Joint Computer Conference*, Montvale, N. J., AFIPS Press.
- Lampson, B. W., "Protection," *Proceedings, Fifth Annual Princeton Conference on Information Sciences and Systems*, Department of Electrical Engineering, Princeton University, Princeton, N. J., March, 1971.
- Lawlor, Reed C., "Copyright Aspects of Computer Usage," *Communications of the ACM*, October, 1964.
- Leavitt, Don, "Cipher/1 Designed for Assurance of Total File Privacy," *Computerworld*, June 10, 1970.
- Los Alamos Scientific Lab, *Trilogy on Errors in the History of Computing*, March 7, 1972, Los Alamos, N. M.
- Lunin, Lois, "Protection Against Catastrophe: A Plan for Insuring Continuity of Information Transfer," *Proceedings of the American Society for Information Science*, Vol. 5, 1968.
- Management Review*, "Halting the Electronic Hijacker," November, 1968.
- Martin, James, *Design of Man-Computer Dialogues*, Englewood Cliffs, N. J., Prentice-Hall, Inc., 1973.
- Massachusetts Computer Associates, Inc., *Program Transferability—Data Access Representation for Secondary Storage*, Wakefield, Mass., November, 1972.
- McNamara, J. J., "Legal Aspects of Computerized Medical Records," *Journal of the American Medical Association*, 205, 1968.
- Miller, Arthur R., *The Assault on Privacy*, Ann Arbor, Mich., University of Michigan Press, 1971.
- Miller, R. I., "Computers and the Law of Privacy," *Datamation*, September, 1967.
- Mintz, Harold K., "Safeguarding Computer Information," *Software Age*, May, 1970.
- Miroy, Gene P., "Computer 'Bug' Control," *Journal of Data Management*, January, 1970.
- Mitre Corp., *Guidelines for the Design and Implementation of Reliable Software Systems*, Bedford, Mass.
- Modern Office Procedures*, "Record Retention Timetable," April, 1967.
- Modern Office Procedures*, "Halting the Electronic Hijacker," September, 1968.
- Molko, Lee M., "Hardware Aspects of Secure Computing," *Proceedings of the 1970 Spring Joint Computer Conference*, Montvale, N. J., AFIPS Press.
- NCR, *EDP Audit for Management*, Dayton, Ohio.
- National Bureau of Standards, *Federal Information Processing Standards Index*, Washington, D.C., July 1, 1972.
- National Fire Protection Association, *Electronic Computer Systems 1964*, 60 Batterymarch St., Boston, Mass. 02110.
- National Fire Protection Association, *Protection of Records 1970*, No. 232, 60 Batterymarch St., Boston, Mass. 02110.
- Naval Post Graduate School, *Computer Program Fault Detection and Correction*, Monterey, Calif., June, 1972.
- Naval Ships Technical Manual, "Reconditioning of Flooded Equipment," Section X, Chapter 9190, *Preservation of Ships in Service*, Navalships 0901-190-0002, January, 1970.
- New York State, Office of the Comptroller, *Audit Report on Financial and Operating Practices, New York State Identification and Intelligence System*, Report No. AL-ST. 29-71, 1971.
- Norrgard, D. L., "Regional Law Enforcement," *Public Administrative Service*, 1969.
- Occupational Hazards*, "Fire Defenses for Computer Rooms," December, 1968.
- Occupational Hazards*, "Highlights of a Security Plan Devised by Experts," March, 1969.
- Ohio State University Columbus Computer and Information Science Research Center, *An Annotated and Cross-Referenced Bibliography on Computer Security and Access Control in Computer Systems*, November, 1972.
- O'Neill, Hugh, *Computers-Communications Networks—A Technology Assessment Methodology*, a Mitre report distributed by the National Technical Information Service, 1971.
- Orr, Kenneth T., *Introduction to Data Security and Privacy Handbook*, National Association for State Information Systems, Lexington, Ky., March, 1972.
- Palmer, R. R., and W. J. Duma, "Auditing with Computers," *Banker's Monthly Magazine*, January 15, 1969.
- Parker, D. B., *The Nature of Computer Related Crime*, Stanford Research Institute, May, 1972.
- Pauley, Charles, "Audit Responsibilities in the Design of Computerized Systems," *The Internal Auditor*, July-August, 1969.
- Peters, Bernard, "Security Considerations in a Multi-Programmed Computer System," *Proceedings of the 1967 Spring Joint Computer Conference*, Montvale, N. J., AFIPS Press.
- Peterson, H. E., and R. Turn, "System Implications of Information Privacy," *Proceedings of the 1967 Spring Joint Computer Conference*, Montvale, N. J., AFIPS Press.
- Pittsburgh University, Department of Computer Science, "Scrambling and Unscrambling Files for Security," November, 1972.
- Planning Research Corp., *Data Management System Testing and Methodology Validation*, July, 1972, Mclean, Va.
- Pratt, Lester A., *Embezzlement Controls for Business Enterprises*. Order from Lester A. Pratt Company, Washington Building, 15th Street and New York Ave., Washington, D.C. 20005.
- Presnich, Walter, "Protecting Your Computer's Security," *Data Systems News*, February, 1970.
- Prince, T., and W. F. Lewis, "Auditing Concepts and On-Line Computer Systems," *The Arthur Young Journal*, Winter-Spring 1971.
- Project Search*, "Security and Privacy Considerations in Criminal History Information Systems," July, 1970.
- Queeney, Jack, "Computer Spies: New Worry for Business," *Chicago's American*, January 16, 1969.
- Rich, Theodore, "The Data Processor's Responsibility to Society," Speech at the 1968 DPMA International Data Processing Conference and Business Exposition.
- Rofes, William, "Disaster Recovery," *Proceedings of SHARE XXXI/GUIDE 27*, Vol. 2, October, 1968.
- Rothman, Stanley, "The Protection of Privacy and Security in Criminal Offender Record Information Systems," *Proceedings of the 1972 Fall Joint Computer Conference*, Montvale, N. J., AFIPS Press.
- Ruebhausen, Oscar M., and Orville G. Brim, Jr., "Privacy and Behavioral Research," *Columbia Law Review*, Vol. 65, November, 1965.
- Scaletta, Phillip J., Jr., "The Legal Ramifications of the Computer Age," *Data Management*, October, 1970.
- Schafer, John S., "Privacy and the Public," *Inspection News*, Retail Credit Company, Atlanta, Ga., September-October, 1971.
- Schaffer, Benson, "The Defendant's Right of Access to Presentance Reports," *Criminal Law Bulletin*, Vol. 3, No. 10, 1971.
- Schiedermaier, Phil, "The Many Aspects of Computer Security," *The Police Chief*, 1970.
- Scoma, Louis J., Jr., *Environmental Fac-*

tors: *How Vulnerable Are You?* Data Security, Inc., 15 Spinning Wheel Road, Hinsdale, Ill. 60521.

Scoma, Louis J., Jr., "Security in the Computer Complex," *Computers and Automation*, November, 1970.

Senate Judiciary Committee, *Report of the Subcommittee on Right of Privacy*, State of New York, May 2, 1969, pp. 9-17.

Shannon, C. E., "Communication Theory of Secrecy Systems," *Bell System Technical Journal*, October, 1949.

Siler, James W., *Data Center Disaster*, James W. Siler Business Information Services, 690 Building, The Dow Chemical Company, Midland, Mich.

Skatrud, Ralph O., "Cryptographic Techniques in Data Processing," *Computer Services*, July-August, 1970.

Skatrud, Ralph O., "A Consideration of the Application of Cryptographic Techniques to Data Processing," *Proceedings of the 1969 Fall Joint Computer Conference*, Montvale, N. J., AFIPS Press.

Sorenson, J. L., "Common Sense in Computer Security," *Journal of Systems Management*, April, 1972.

Springer, E. W., *Automated Medical Records and the Law*, Aspen Systems Corporation, Pittsburgh, Pa., 1971.

Steffen, R., "Fingerprinting Art for Added Security," *Best's Review*, May, 1972.

Stiefel, Rudy C., *Proceedings of Carnahan Conference on Electronic Crime Countermeasures*, Carnahan House, Kentucky University, Lexington, Ky., April 16-18, 1970, U.S. Dept. of Commerce, PB 190-589.

Stolle, C. D., "Computer-Based Audits," *Management Adviser*, May-June, 1971.

Supp, Robert J., "Catastrophe Prevention Management of the Computer Complex," American Management Association Briefing Session, #6373-60, April 13-15, 1970.

Taylor, Robert L., and Robert S. Feingold, "Computer Data Protection," *Industrial Security*, August, 1970.

Texas University Austin Electronics Research Center, "Rollback and Recovery Strategies for Computer Programs," January 17, 1972.

*The Office*, "Fire Hazards in New Buildings," October, 1970.

*The Office*, "Firebombs Damage a Computer Center," August, 1970.

Thompson, T. R., "Problems of Auditing Data: Internal Audit," *The Computer Journal*, No. 3, 1960.

Thorne, J. F., "The Audit of Real-Time Systems," *Data Management*, May, 1970.

Tiffany, W. D., "Are Computer Files

Vulnerable to Magnets?" Stanford Research Institute, Menlo Park, Calif.

Titus, James P., "Security and Privacy," *Communications of the ACM*, June, 1967.

Turn, Rein, and H. E. Peterson, "Security of Computerized Information Systems," *Proceedings of Carnahan Conference on Electronic Crime Countermeasures*, Carnahan House, Kentucky University, Lexington, Ky., April 16-18, 1970, U.S. Dept. of Commerce, PB 190-589.

Turn, Rein, and Norman A. Shapiro, "Privacy and Security in Databank Systems—Measures of Effectiveness, Costs, and Protector-Intruder Interactions," *Proceedings of the 1972 Fall Joint Computer Conference*, Montvale, N. J., AFIPS Press.

U.S. House of Representatives, "The Computer and Invasion of Privacy," Government hearings, July 26-28, 1966.

*U.S. News and World Report*, "A City Where Computers Will Know About Everybody," May 15, 1967.

U.S. Senate, Subcommittee on Administrative Practice and Procedure, Committee on the Judiciary, "Survey of Information Contained in Government Files," 90th Congress, 1st Session, 1967.

U.S. Senate, Subcommittee on Constitutional Rights, Committee on the Judiciary, "Federal Data Banks, Computers and the Bill of Rights," 92nd Congress, 1st Session, 1971.

Van Brunt, E. E., M. F. Collen, L. S. Davis, E. Besag, and S. J. Singer, "A Pilot Data System for a Medical Center," *Proceedings of the IEEE*, 57, 11, November, 1969.

Van Tassel, Dennis, "A Contingency Plan for Catastrophe," *Datamation*, July 1, 1971.

Van Tassel, Dennis, "Advanced Cryptographic Techniques for Computers," *Communications of the ACM*, December, 1969.

Van Tassel, Dennis, *Computer Security Management*, Englewood Cliffs, N. J., Prentice-Hall, Inc., 1972.

Vanderbilt, D. H., "Controlled Information Sharing in a Computer Utility," M.I.T. Project MAC, MAC-TR-67, 1969.

Ware, W. H., *Computer Data Banks and Security Control*, The Rand Corporation, P-4329, March, 1970.

Ware, W. H., "Security and Privacy in Computer Systems," *Proceedings of the 1967 Spring Joint Computer Conference*, Montvale, N. J., AFIPS Press.

Wasserman, Joseph J., "Auditing the Computer," *Management Review*, October, 1968.

Waterman, J. J., Jr., *Uninterruptible Power Systems*, The Avtel Corp.

Weisman, C., "Security Controls in the ADEPT—50 Time-Sharing System," *Proceedings of the 1969 Fall Joint Computer Conference*, Montvale, N. J., AFIPS Press.

Weiss, Harold, "Reducing the Risk of Destruction," *Proceedings, 1969 International Data Processing Conference and Business Exposition*.

Weissman, Clark, *Trade-Off Considerations in Security System Design*, Systems Development Corporation, SP-3548, September 10, 1970.

Wessel, Milton R., "Computer Services and the Law," *Business Automation*, November, 1970.

Westin, Alan F., "Civil Liberties and Computerized Data Systems," in M. Greenberger (Ed.) *Computers, Communications and Public Interest*, Johns Hopkins Press, 1970.

Westin, Alan F., "Legal Safeguards to Insure Privacy in a Computer Society," *Communications of the ACM*, 10, 1967.

Westin, Alan F., *Privacy and Freedom*, New York, Atheneum, 1967.

Westin, Alan F., and Michael A. Baker, *Databanks in a Free Society: Computers, Record-Keeping and Privacy*, New York, Quadrangle Books, Inc., 1972.

Whelan, Thomas, "Software Security," American Management Association Briefing Session on Catastrophe Prevention and Security Management of the Computer Complex, November 17-19, 1969.

Whisenand, Paul M., and John D. Hodges, Jr., "Automated Police Information Systems: A Survey," *Datamation*, May, 1969.

Witzer, Harold, *Computer Security Bibliography*, September, 1970. Available from AVCO Computer Services, 201 Lowell St., Wilmington, Mass. 01887.

World Health Organization, Symposium Report, "The Development of Hospital Computing Systems," June, 1971, Regional Office for Europe, WHO, Copenhagen, 1972.

Yoder, R. D., "Management of Computer Failures in Clinical Care," *Datamation*, October, 1972.

Yourdon, Edward, "Reliability of Real-Time Systems," *Modern Data*, six-part series, January-June, 1972.

Zaiden, D. J., "Some Legal Aspects of EDP," *Management Accounting*, July, 1972.

The author has compiled a more extensive computer security bibliography. Interested readers may obtain a copy of it by writing to him at Peat, Marwick, Mitchell & Co., 345 Park Avenue, New York, N.Y. 10022.



# what people are writing about

## BOOKS

**Work in America: Report of a Special Task Force to the Secretary of Health, Education, and Welfare**, The MIT Press, Cambridge, Mass., 262 pages, \$10 (hard cover), \$2.95 (paperbound).

*This is the book everybody is talking about. No businessman—and particularly no consultant—can afford to admit he hasn't read it.*

This report, commissioned by Elliott L. Richardson when he was still Secretary of Health, Educa-

tion and Welfare, has drawn a volley of comments—both pro and con—since its publication last year. Despite its mixed reviews it was an instant success at the box office. HEW's initial supply was exhausted within a few days after publication.

(This version comes from a university press.)

Partly, at least, the book was a best seller because the Government, for once, was right on top of an intellectual fad. The thesis of this study, that American workers at all levels—from dishwashers to executives—are increasingly bored with and alienated from their work, while not completely new, is not

yet a cliché. In fact, many people are still skeptical.

A good half of this report is devoted to presentation and analysis of the problem. The material will be familiar to those who have already read *Where Have All the Robots Gone* (by Harold L. Shepard and Neil Herrick, The Free Press, New York, 1972). Not surprisingly, since the authors of that book were members of this task force and one of the other members works with one of the authors at the W. E. Upjohn Institute for Employment Research, under whose auspices this report was prepared, the two volumes are in close agreement: Strikes, sabotage, lower pro-

## REVIEW EDITORS

In order to assure comprehensive coverage of magazine articles dealing with management subjects, MANAGEMENT ADVISER has arranged with fifteen universities offering the Ph.D. degree in accounting to have leading magazines in the field reviewed on a continuing basis by Ph.D. candidates under the guidance of the educators listed, who serve as the review board for this department of MANAGEMENT ADVISER. Unsigned reviews have been written by members of the magazine's staff.

JIM G. ASHBURNE, *The University of Texas, Austin*  
THOMAS J. BURNS, *The Ohio State University, Columbus*  
LEONARD A. DOYLE, *University of California, Berkeley*  
WILLIAM FELIX, *University of Washington, Seattle*  
ALLEN FORD, *University of Missouri, Columbia*

ERNEST I. HANSON, *University of Wisconsin, Madison*  
DALE S. HARWOOD, JR., *University of Oregon, Eugene*  
DANIEL JENSEN, *University of Illinois, Urbana*  
WALTER B. MEIGS, *University of Southern California, Los Angeles*  
JOHN H. MYERS, *Indiana University, Bloomington*  
CARL L. NELSON, *Columbia University, New York*  
HUGO NURNBERG, *Michigan State University, East Lansing*  
JAMES W. PATTILLO, *Louisiana State University, Baton Rouge*  
MICHAEL SCHIFF, *New York University, New York*  
WILLIARD E. STONE, *University of Florida, Gainesville*  
MILTON F. USRY, *Oklahoma State University, Stillwater*  
RUFUS WIXON, *University of Pennsylvania, Philadelphia*

ductivity, dropping out of society, among other aspects of the modern scene, are symptoms of widespread worker discontent and boredom.

The thesis is plausible enough, although this report is not based on original research and its general research underpinning, like that of the Sheppard-Herrick book, is somewhat thin. (As Secretary Richardson notes in his foreword, "One could wish that the data on which some of its conclusions are based were more adequate.") It is far from clear, however, that discontent with the nature of work is a new phenomenon (although Federal concern with it may be).

### ***Rising expectations?***

Indeed, it is hard to visualize any era in history in which the work of the masses was more fulfilling than it is today. What is more probably true is that never before were the masses so well educated and so capable of realizing that they were bored. Thus, the whole furor over the "blue-collar blues," "tight white collar," and the like may well be another facet of the revolution of rising expectations.

Justifying the breadth of its title, this report ranges over a tremendous variety of subjects: manpower policies, medical care strategies, educational and welfare systems, the status of working women, day care centers, job discrimination, inflation. As Secretary Richardson comments in his foreword, "In the breadth of its perspective and its freshness of outlook, this report literally takes on everyone, not excluding some of the thinkers in the present Administration. . . . I cannot recall any other governmental report which is more doughty, controversial, and yet responsible than this one."

In most of the areas it touches on, the report has recommendations for government and/or industry action, many of them controversial, most of them somewhat vague. Among the major suggestions for the government are a worker "self-renewal" program for anyone who

wants job mobility or a second career and a Federal commitment to a "total" (rather than full) employment economy. Neither is very clearly explained; neither seems to have been thought through in great detail.

### ***Industry must do job***

The authors' basic plea, however, is for job redesign—and that, despite some minor proposals for government research and encouragement, is basically up to industry. There already have been moves in that direction in some of the larger and more progressive corporations. Now, with the imprimatur of a governmental report on it, job redesign may well be on its way to becoming the big fad in management circles. (Management consultants, take note.)

**Organization and Management of Information Processing Systems** by LEON K. ALBRECHT, The Macmillan Company, New York, 1973, 383 pages, \$11.95.

*This book, by a man who has done it, is probably the most detailed guide yet published for the management of data processing systems.*

The jacket blurb describes this book as "the only nontechnical guide to information systems management available for management personnel." That is nonsense, of course; there are dozens.

What is different about this one is that it skips the nonessentials (from the manager's point of view) such as what a computer is and how it is programmed; cuts to the bone the essential background material (system theory, systems tools, and systems concepts); and really concentrates on the management of data processing systems.

In a hard-sell introduction to the book, Richard W. Brightman declares, "[This book] treats the organization and operation of an information systems organization

within a business enterprise. To my knowledge, no other book in the field has the thoroughness and insight into this important subject as does Albrecht's. . . . this is the only book I have run across that devotes almost all of its attention to the techniques and basic processes involved in managing and operating an information systems organization . . . It . . . is unique in terms of treating subject matter in depth that is often passed over lightly by more technically and more academically oriented authors."

### ***Deals with essentials***

Although this may be somewhat exaggerated, it is essentially an accurate description. The author, who has had ten years of managerial experience in information processing, most recently as manager of the processing and information department of the Royal Insurance Company Ltd. in Toronto, devotes more than 200 pages to planning, designing, and implementing information systems and managing information systems organizations.

He offers detailed, practical discussions of such nitty gritty of the field as logical file structures, project manuals, use of checkpoints and controls, expense performance, and documentation of standards. He ends with a comprehensive case study of how an information processing organization was developed and operated in the "ABC Finance Company." There are plenty of illustrations, a glossary, and an appendix of completed forms keyed to ABC.

### ***Useful to professional managers***

This is a book that should be useful to managers (and future managers) of systems and data processing organizations; to executives who are responsible for an information systems department without being themselves data processing or systems men; and to those who hold themselves up as advisers to either group.

**The Institutional Imperative: How to Understand the United States Government and Other Bulky Objects** by ROBERT N. KHARASCH, Charterhouse Books Incorporated, New York, 1973, 258 pages, \$7.95.

*By a Washington lawyer who has taken full advantage of his opportunities to observe bureaucracy in action, this book describes the pathology of human institutions in a humorous tone but with deadly serious intent.*

"While those who prosper within a government agency or other institution sense the existence of institutional laws, their inner knowledge is never precisely stated nor reduced to writing. As a result," says Mr. Kharasch, "the inevitable results of the laws are often not foreseen—with often dreadful results."

"Even a President who should know much better will cry, as John Kennedy did after the Bay of Pigs: 'All my life I have known better than to depend on the experts. How could I have been so stupid . . .' To keep those folks who brought you the Bay of Pigs from bringing you similar spectacles, a few written laws capable of predicting institutional behavior would be useful."

"Such laws will explain not only how things work when they work, but also why the Government and other institutions so often work very badly indeed."

The theme of this book is that there are "a few simple and incapable laws of institutional behavior" that apply to all human institutions whatsoever. The author sets them forth in classic form—definitions, axioms, propositions, and then logically proved laws, with illustrations from real (mostly Washington) life.

He defines an institution as a "continuing recognizable group of individuals working together where the group's existence is not measured by a human life," and the internal machinery of the institution as "the patterns of work established for the individuals who are a part

of the institution . . . Note . . . the distinction between 'the pattern of work' and the purpose of work. The pattern of the work set the Head Torturer is to torture by the accepted means of rack and thumbscrew. The purpose of the torture may be declared to be Protection of the Faith during the Inquisition, Protection of the Reich in Hitler's Germany, or Protection of Perversion in a motorcycle gang. Whatever the ostensible purpose, the pattern of work set for all Head Torturers is the same."

Mr. Kharasch's axioms, must, as he points out, be accepted on faith—but they are self-evident:

1. "Any institutional action is merely the working of the institution's internal machinery."

2. "Institutional existence depends upon the continual working of the internal machinery."

3. "Whatever the internal machinery does is perceived within the institution as the real purpose of the institution (i.e., function is seen as purpose). . . . What is usually said to be the purpose of our institutions is always something noble . . . but the significant operative purpose is what the worker within the institution thinks is the purpose. The Third Axiom states that the worker thinks the purpose of the institution is whatever the internal machinery does."

These axioms, Mr. Kharasch points out, are clearly circular in effect: "If whatever the institution's machinery does is perceived by the workers as the real purpose (Third Axiom) and the working of the machinery is the action of the institution (First Axiom), and existence depends on continued operation of the machinery (Second Axiom)—well, then the whole business is circular, self-perpetuating and without higher purpose." This leads to the prime directive controlling all institutional action, the Institutional Imperative . . . "Every action or decision of an institution must be intended to keep the institutional machinery working" and its corollary "To speak of any goal or purpose of an institution other

than keeping the institutional machinery running is no more meaningful than to speak of the goal of an automobile exhaust or the purpose of the hum of a sewing machine."

The individual, says Mr. Kharasch in his definition of discipline, "is a part of an institution if, and only if, the individual accepts the institutional action as more important than his personal beliefs." His reason for accepting the decision is unimportant. It may be because he doesn't want to be fired; it may be because he will be imprisoned or shot if he doesn't—"When the commanding officer says 'Chargel' it is best to charge first and write your exposé of Army brutality later." Whatever the reason for accepting discipline, all that is required is that the individual accept it.

His basic reward for accepting discipline is his feeling that what he is doing is important. The Personnel Postulate ("Each action of the individual who is part of the institution affirms the importance of his work") is "a personal imperative declaring that whatever else my actions as a part of the institution may do, my actions will at least affirm the importance of my work."

These axioms, definitions, and postulate constitute the logical underpinning of Mr. Kharasch's work. From them he deduces all sorts of wild and wonderful laws:

"Law of Attributed Importance: Each institutional job will be given the maximum quantity of attributes of importance (activity, authority, security, urgency, panoply) which it can sustain." Recommendation: "Never attack the importance of an official's job. To tell a man his job is unimportant all but requires him to demonstrate its importance by denying you what you seek."

"General Law of Institutional Self-Occupation: If an institution can generate the subject matter of its operations, it will." Among the easiest things to generate are secrets. So long as there is a security office, threats to security will be



found. "Establish an office within the Church to find and deal with heretics, and heretics will be found (else the office machinery would come to a halt . . .). Let there be an institution to judge witches, and as long as that same institution can designate those suspected of witchcraft, witches will be found." Recommendation: "Do not allow those who act in an emergency to declare the emergency."

Then there are the laws of institutional self-justification and of the institutional irrelevance of truth, morality, and purpose. Mr. Kharasch goes on to apply his laws to specific institutions, including the Federal regulatory agencies (with which he seems to have had personal experience), Congress, the Pentagon, the foreign policy machinery of the United States, Ralph Nader, and business. He concludes with a set of "directions for assembly and control of institutions."

There is only one chapter on business, and it is limited to truth in advertising ("When the making of a statement is seen as necessary to the continued working of the institutional machinery, the statement will be made, and its truth is irrelevant . . . false or true, the advertising claim will be made if it is institutionally necessary"); new products ("The regular appearance of thousands of new products, of good, bad and indifferent merit, is likewise predicted by the Laws of Institutional Behavior. There are research departments, and sales departments and distribution departments, and they all function. . . the machinery exists and it operates, whether the new product is good or not and whether its production is a sensible profit risk or not"); and the now familiar thesis that profit is not the mainspring of business behavior ("If the business makes a good profit or a good product, both are secondarily desirable. First and foremost, however, comes the functioning of the machinery," i.e., institutional survival.).

But that does not really matter. Nearly everything that Mr. Khar-

asch says about Government is equally applicable to business, and his recommendations for institutional improvement—particularly his stress on defining the purpose before setting up institutional machinery—echo the prescriptions stated in much less lively terms by the best writers on management.

For Mr. Kharasch is not writing merely from his own experience, enriching though that seems to have been. He has read widely on bureaucracy, and his footnotes are as likely to quote Max Weber as Ralph Nader. His laws stand up well under the test of predictability. As he shows, the firing of Ernest Fitzgerald was inevitable under the Kharasch laws. So, chillingly, was the whole Watergate mess (although the book was evidently written too long ago to capitalize on that).

This is a brilliant and important book. As with Parkinson, its wit and readability do not obscure its fundamental seriousness and soundness (although Mr. Kharasch is more indignant than Parkinson since his chief target is immorality rather than mere waste). It may—certainly should—become another Parkinson.

**Managing the Multinational Enterprise: Organization of the Firm and Ownership of the Subsidiaries** by JOHN M. STOPFORD and LOUIS T. WELLS, JR., Basic Books, Inc., New York, 1972, 223 pages, \$8.50.

*This research study, part of a group that constitute the Harvard Multinational Enterprise Series, explores the problem of organizational structure in American companies that manufacture as well as sell abroad.*

Managing a company that operates in many countries is a complex job, and the ideal organization structure for doing it has not yet been found. That is clear from the analysis in this book, which traces

the evolution of management structure in 187 American companies with major operations abroad.

This book, its publishers claim, is the first large-scale empirical investigation of the organizational structure of multinational enterprises. The research was done through searches of published sources, interviews with the managers, and analysis of responses to questionnaires.

### *Trace development*

The authors trace the typical evolutionary development of a multinational company's organization structure from the beginning, when the entire company, domestic and foreign, is administered under the basic functional structure through the divisionalized structure with an international division manager to the so-called global structure, in which the entire company is organized by product line, by geographic location, or by a combination of the two. They find a logical relation between organization structure and business strategies (or a lower profitability where it is lacking). At the end of the book they seek to forecast the direction in which the more sophisticated companies seem to be moving—toward more complex forms of organization structure, often involving multiple and overlapping lines of authority.

In a section of the book that is less interesting to those whose concern is management rather than business, they discuss the pros and cons of joint ventures versus complete ownership of foreign subsidiaries from the points of view of both the company and the host country.

This book, sophisticated in style but relatively readable, seems to be a faithful report on the practices and problems of the major American multinationals. Although it barely scratches the surface of the very complicated problems with which it deals, it should be of great value to smaller companies and newer companies in the international scene.

**MIS: Management Dimensions** by RAYMOND J. COLEMAN and M. J. RILEY, Holden-Day, Inc., 500 Sansome Street, San Francisco 94111, 1973, 103 pages, \$9.95 (paperbound).

*This compilation of articles from trade and professional journals emphasizes the managerial side of management information systems—particularly management's informational needs and how to design MIS to meet them.*

The idea of this anthology was to combine the basic systems theory of management information systems with their design, implementation, and application. Stress is on management needs, on how organization structure and management can affect MIS and vice versa.

The idea was a good one, and the 44 articles (one from MANAGEMENT ADVISER) are well chosen. Following an overview article written by the editors and a group of basic papers, they cover the interaction between MIS and the organization; MIS as a subsystem of the total business system; pitfalls and problems of MIS, including problems in control and training; and MIS applications within diversified organization structures. There is also a bibliography.

**The Failure of Success** by ALFRED J. MARROW (Editor), amacom, a division of the American Management Association, New York, 1973, 339 pages, \$10.50 (\$8.25 to AMA members).

*Job satisfaction has become a hot topic, thanks to the publication of the Department of Health, Education, and Welfare report on Work in America. Thus this review of what some companies are doing to increase it is timely as well as useful.*

Both quality and productivity are declining in American industry, according to the editor of this book.

"The present level of production in American organizations, particularly among the forty million workers in the service industries, is estimated by authorities as only 50 percent of the potential available from existing human skills, initiative and energy."

Both Taylor's scientific management and the semipaternalism of the old human relations school of management have significantly failed "to enlist the energies of employees so that each man works for the success of the organization and does not merely aim to do as little as necessary to hold his job" and to "establish a climate in which performance of all employees is high; where costs, absences, and turnover are low; where quality is everyone's concern; and where all people in the organization respect and trust each other."

Discoveries in the behavioral sciences over the past 25 years offer the best hope, in Dr. Marrow's view. They have been applied by only a few companies, but the results have been impressive.

"There are now enough case studies, gathered together here for the first time, to provide empirical evidence of how the use of these new methods can improve performance, increase satisfaction, and narrow the gap between an organization's potential and its performance," according to the author.

The subjects covered in the case studies range from how to pick the right man for the right job to ways of motivating employees and from organization development to the effects of organizational stress on coronary heart disease. The techniques covered include job enrichment, team building, positive reinforcement, sensitivity training, assessment centers, group incentives, and participative management. Among the companies represented are American Telephone and Telegraph Company, Detroit Edison Company, Fieldcrest Mills, General Electric Company, J. C. Penney and Company, Exxon Corporation, PPG Industries, Sage Administrative Corporation, TRW,

and even General Motors, once known as the bastion of authoritarian management.

The most interesting and best written of the case studies is that of Dr. Marrow's own company, Harwood Manufacturing Company, where participative management has produced startling improvements in productivity.

No claim is made that these techniques are easy to apply. One of the most fascinating little vignettes in the book is the case of the Harwood plant where an attempt to have employees sit in on problem-solving sessions greatly increased the turnover. The workers had concluded that a management so inept that it had to turn to the workers for advice was a threat to company stability and they had better find jobs elsewhere before the company failed.

Not all the contributors are as skillful writers as Dr. Marrow, who has eight successful books to his credit, and they do not all do an equally good job of explaining the techniques they used and the results they achieved.

This is, nevertheless, a valuable and inspiring book. It offers hope that the blue-collar blues can be cured and the tight white collar loosened.

## MAGAZINES

**What a Chief Executive Should Know About Major Project Management** by W. GRAFTON BERGER, Price Waterhouse & Co. Review, Summer/Autumn, 1972.

*Sound planning, good management organization, and effective communication is needed for major project success.*

It seems ironic that academic research efforts and the resulting literature concentrate on major problems such as long-term financing, capital budgeting, and major projects while the majority of financial executives expend almost

all of their time and effort managing the less exotic daily operations of business. Yet it is this lack of familiarity in solving major non-recurring problems coupled with the possible consequences that assures reader interest and justifies the research.

### ***Major projects are unique***

Major project management is of interest because of the characteristics which distinguish such projects from other operations. Each major project has a life cycle which begins as a conceptual solution to a long-range problem and ends when the resulting facility or system becomes operational. Further, the major project cuts across functional boundaries and requires new working relationships between departments. Although total cost is fully controllable at the beginning of the project, decisions made during the initial conceptual stage are so significant that ultimate total cost is largely committed before actual construction or development begins. Once the construction phase is entered, cost control becomes limited to efficient scheduling and control of resources.

### ***The project management team***

The management team should include managers from many areas. Persons with diverse skills are needed to: a) design and plan technical performance of the facility; b) monitor the quality, cost, and delivery of purchased components; c) supervise project assembly or implementation; d) schedule project activity; e) cost control; and f) project quality control and documentation. Personnel assuming these responsibilities occupy a position similar to a department head in a typical management system. Their activities are supervised by the project manager whose position is similar to that of a company president. His coordination and supervision should be guided by the overall policies,

priorities, and goals established by a committee of top executives. Thus, the project management group is a complex subsystem of the business which is subject only to the control and guidance of the top management team.

### ***Need for early planning***

People who have built homes are aware that alterations to plans during construction are usually more costly than the same changes would be if included in original planning. Furthermore, problems will occur during construction even with the best advance planning. Major projects have the same characteristics. Sound early planning can minimize alterations during project construction and can yield substantial cost savings if options are provided for anticipated problems. Sound early planning also aids in: a) defining the scope of responsibility for project personnel; b) integration of design, procurement, and construction activities; c) development of meaningful budgets; and d) development of an effective information system.

### ***Information planning***

The design of a project information system should be an early project activity to assure that the system is operational on time. Mr. Berger points out that many major projects bear unnecessary risks because sufficient system development time is not allowed and the amount of data to be processed before the construction stage is larger than expected. Early planning also leads to better communication of information. If users of reports participate in the planning stage, they will be better aware of the underlying assumptions, alternatives, and goals which influence report formats and have the opportunity to specify the information needed for their future use. The types of information required are different from the types of information usually provided by a

financial reporting system. Non-financial items such as percentage completion of various aspects of the project, deviations from the planned schedule, and shortages of materials are of vital importance. Such significant pieces of information should be screened and evaluated so that problems are highlighted to stimulate action. A summary of key items indicating a) developments since the last report, b) current problems with planned solutions or possible solutions, c) comparisons of completed activities to original plans, and d) near term critical project points should be provided to the top management team periodically. Appropriate key items with greater detail should be provided to key project personnel.

Efficient organization of personnel, sound planning, and effective communications as suggested in this article should increase the chances of major project success.

WILLIAM T. HARRIS, JR.  
*Louisiana State University  
at Baton Rouge*

**Risk-Sensitive Markov Decision Processes** by RONALD A. HOWARD and JAMES H. MATHESON, *Management Science—Theory*, March, 1972.

*A Markov Process Method where decisions are assumed to be dependent only upon the immediately preceding decision is presented to include an individual's opinion concerning risk in expected return. Already useful in determining optimum strategy in a commodity market, this technique is recommended for investment and replacement decision analysis.*

Professors Howard and Matheson present a method of including an individual's attitude toward risk into a Markov Process which assumes that the results of a given trial are dependent only upon the immediately preceding trial. An individual's utility function is consid-



ered as exponential with a risk aversion coefficient. A positive risk coefficient indicates that a person is risk averse. Conversely, a negative coefficient shows one who prefers risk. For any new proposal, a decision is assumed to be independent of the decision maker's current wealth. This allows the development of a recursion equation for the utility function.

The first situation considered is one in which the transition and reward matrices remain constant. The transition matrix includes the probabilities of moving from one state to another in one stage. The reward matrix is composed of the changes in wealth which result from changing states. A new matrix which considers both the amount and the utility of each reward is reviewed. By assuming that the certainty equivalence of each state is zero when there are no stages remaining, certain interesting conclusions are reached. As the number of transitions increases, the change in expected value approaches a constant called the "Certain Equivalent Gain." This represents the amount which an individual with that particular risk aversion coefficient would be willing to pay to increase the number of stages. At a given stage, the differences between states also approaches a constant. It is the amount a person in a particular stage would pay to change from one stage to another.

By considering certain properties of transition matrices, the Certain Equivalent Gain is found to be a linear function. It is also shown that the gain is bounded by the maximum and minimum rewards which are available. As a person approaches risk indifference, the solution becomes the expected reward for each transition.

Several modifications of the original situation are considered. First, the transition and reward matrices are allowed to change during the process. The optimum policy is found by solving for the best decision at each stage. Another alternative is one in which various alter-

natives are available only at the first stage. The solution is determined by a method similar to the policy integration procedure. In this method an arbitrary policy is selected and solved. Then a new policy is chosen that will improve the previous one. This is repeated until an optimum is found. Finally, the original problem is modified to include different risk aversion coefficients. This indicates that the solution is sensitive to changes in the coefficients.

This approach has been found useful in determining optimum strategies in a commodity market. It may also be applicable in the investment and replacement decision areas.

### ***Necessary assumptions***

The results are based upon certain assumptions about an individual's wealth and utility function. The use of the exponential utility function is justified on the basis of prior work. Due to the uncertainty associated with utility functions, this justification might have been presented. The conclusion is that the relationship between risk and wealth is questionable. However, this method is a useful approximation to a practical problem. It would be interesting to determine whether this assumption fits well into a Markov Process or gives decisions which approach other assumptions about risk and wealth. Despite these questions, the article appears to be an important contribution to the literature available to management.

JAMES H. SCHEINER, C.P.A.  
*The Ohio State University*

### ***The Accountant's Role in Investigating a Potential Acquisition*** by DUANE R. WHITMARSH, *The Practical Accountant's Handbook*, Vol. II, 1972.

*The author discusses the accountant's role in potential acquisitions and presents three areas which the accountant should investigate and evaluate.*

A firm may acquire another firm for one of several reasons; e.g., to expand product lines, acquire management talent, obtain a source of raw materials, etc.; however, the primary or underlying factor is the potential for increased earnings. For this reason, Duane Whitmarsh says that the accountant should occupy a vital position on the "investigating team," and can provide special skills in three areas other than tax planning.

The accountant should examine the historical financial data of the seller and determine whether financial position and results of operations are presented fairly and in accordance with generally accepted accounting principles applied on a consistent basis. The extent of this investigation depends upon several factors, such as:

- (1) Is the seller publicly held and subject to SEC regulations?
- (2) Is the firm audited annually and how many years has the annual audit been performed?
- (3) Is the buyer willing to assume risks in areas that eliminate verification procedures in other areas?
- (4) Is the purchase price based upon historical financial data?

Taking the above factors into consideration, the accountant will determine the nature and extent of the examination and prepare an "investigation program." Mr. Whitmarsh presents one of several standard checklists available; but cautions that additions, deletions, or alterations should be made to the checklist if it is to be pertinent to any particular situation.

### ***Analysis next step***

Analysis and evaluation of the investigation's results is the next step, with the most important objective being determination of any trends in sales, expenses, etc., that might affect future earnings. Also, if the firm has more than one product line, allocation of costs should be examined. Comparison of the

seller's data should be made with that of other companies in the same industry.

### **Differences in methods**

Alternative accounting practices cause substantial variations in reported earnings. The author presents an example showing how a firm's reported income could vary from a loss of 50¢ per share to a profit of \$1 per share. The variation in earnings is the result of choosing the most liberal or most conservative accounting methods. For example:

- (1) The use of LIFO inventory method instead of FIFO,
- (2) Using accelerated depreciation methods instead of straight-line,
- (3) Capitalizing research and development costs instead of charging the costs against revenue in the current period.

The accountant must determine the effect on earnings if the seller's historical accounting records are changed to conform to the accounting methods used by the purchaser.

### **Projections and pro formas**

The accountant must assist in preparing pro forma financial statements and cash flow projections to estimate future earnings. As with any projection, the starting place is the assumptions upon which the projection has been built. The assumptions must be as realistic and as clearly stated as possible.

The most difficult assumption, estimating future sales, should be provided by the marketing department or an outside market research firm. After the establishment of the sales forecast, the accountant provides projected costs and expenses using the historical financial data as a base, and modifies the projections using other factors, such as:

- (1) Will accounting changes affect future earnings?

- (2) Will the acquisition be a purchase or a pooling of interests?
- (3) Will key personnel of the acquired firm continue?
- (4) Will additional investment in plant and equipment be necessary?
- (5) Will salary and wage costs be affected favorably or adversely?

After all factors have been considered, the accountant prepares pro forma statements and cash flow projections for from three to five years. Historical trends may not continue for the combined companies; and changes in accounting principles can result in increased earnings immediately, while future earnings may not reflect the results of such changes.

The important role the accountant must play in any acquisition investigation (e.g., providing the management team with useful financial information to reach an intelligent decision), can be a stimulating and rewarding experience, Mr. Whitmarsh concludes.

ORLAND S. LEE

*Oklahoma State University*

**The (S-1, S) Inventory Model with Arbitrary Back-Ordered Demand and Constant Delivery Time** by MARSHALL ROSE, *Operations Research*, September-October, 1972.

*A description of an inventory model which considers the performance measures of: expected number of back-orders, expected resupply and stock-out times, and the probability distribution of resupply time.*

Marshall Rose has carried the study of inventory control models one step further than prior studies. The major addition to this presentation is the consideration of the problem of tradeoffs between spare items and delivery time. In order to develop the model, Rose made a series of assumptions:

1. Demands are not lost while stock level is zero.

2. Demands for individual items occur daily.

3. There is a lapse of time between ordering and receiving inventory items.

4. Orders are processed for replacement items as time demand occurs, even if there is a supply of spare items on hand.

5. Demands are filled from current inventory whenever possible, but only after a specified time delay following placement of orders.

6. Orders may be delivered prior to lapse of time period; however, they are not considered filled until the time has passed.

7. The number of back-orders is considered to be the number of unfilled orders, including those for which the items have been delivered but the time has not elapsed.

8. Stockouts occur when a demand remains unfilled after the time has elapsed.

9. The number of units on hand, the time delay, and ordering time are non-negative numbers.

With these assumptions, Rose then formulates a quantitative model which measures the effectiveness of the system in four areas:

1. Expected number of back-orders.
2. Expected resupply and stock-out times.
3. Probability of a stockout.
4. Expected condition at stock-out time.

In evaluating each of these measures an additional assumption is made that delivery time is fixed and Rose develops the second phase of the model to describe the tradeoffs between spare items and delivery time.

In conclusion, Rose states that while this system is an improvement over a strictly "spare stock" approach, there are other methods available for inventory analysis, including overtime utilization and "back robbing" of parts for items which will be resupplied later to the end products.

ROLLIN M. STANTON  
*University of Virginia*