

University of Mississippi

eGrove

AICPA Committees

American Institute of Certified Public
Accountants (AICPA) Historical Collection

1995

Report of the Chairman of the AICPA Special Committee on Assurance Services to AICPA Council, October, 1995

American Institute of Certified Public Accountants. Special Committee on Assurance Services

Follow this and additional works at: https://egrove.olemiss.edu/aicpa_comm



Part of the [Accounting Commons](#), and the [Taxation Commons](#)

Recommended Citation

American Institute of Certified Public Accountants. Special Committee on Assurance Services, "Report of the Chairman of the AICPA Special Committee on Assurance Services to AICPA Council, October, 1995" (1995). *AICPA Committees*. 203.

https://egrove.olemiss.edu/aicpa_comm/203

This Book is brought to you for free and open access by the American Institute of Certified Public Accountants (AICPA) Historical Collection at eGrove. It has been accepted for inclusion in AICPA Committees by an authorized administrator of eGrove. For more information, please contact egrove@olemiss.edu.

AICPA

Special Committee on Assurance Services

**Report of the Chairman to AICPA Council
October, 1995**

Cap 5

High New Assurance Services

Report of the Chairman of the AICPA Special Committee on Assurance Services to AICPA Council October 1995

The Committee

The Special Committee on Assurance Services was established in 1994 to develop new opportunities for the accounting profession to provide value-added assurance services. Its recommendations will be based on analysis of the current state and future of the audit/assurance function and the trends shaping the audit/assurance environment, focusing on the current and changing needs of people who make decisions based on information. The committee will look out five to ten years, or longer.

What CPAs Must Realize About Their Future

To seize future opportunities CPAs must recognize consumers' information needs and the changes in their demands. New services must be designed to meet decision-makers' vital needs.

The Future

In the future CPAs will likely find that:

- The power to decide information content will shift from producers of information (such as preparers and auditors) to consumers (managers, investors, creditors, and other decision-makers).
- Information technology advances will both enable and drive change in decision-makers' needs and the services CPAs provide.
- There will be many providers of information for decision-making. CPAs will have to compete to furnish many new services in a nonregulated, market-driven environment very different from the current market.

The Present

In contrast:

- The existing attestation function, while important, is threatened by:
 - Its standardized, one-size-fits-all nature.
 - The ability of information technology applications to replace some of the human components of accountants' and auditors' traditional work.

- There are large and growing needs for information assurance that are currently unmet.

The Road to the Future

To ensure a brighter economic future, CPAs must:

- Capitalize on their strengths to expand their service offerings.
- Design services that are based on what users need.

Introduction

The Need to Change

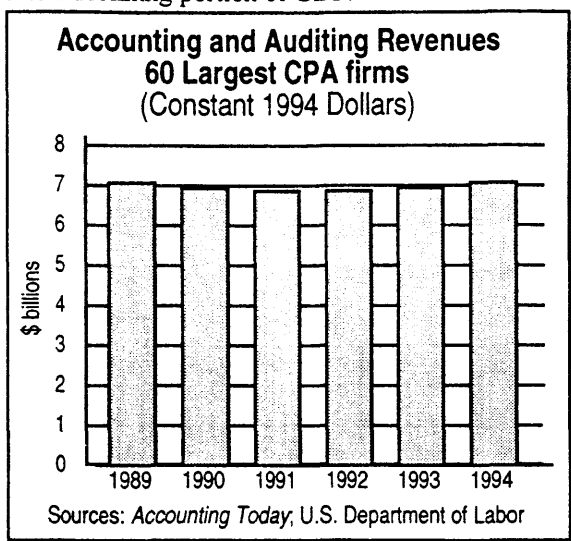
The audit of financial statements fills an important need. It reduces the uncertainty that results from capital suppliers' lack of first-hand information about the entities that raise capital and, therefore, reduces the cost of capital. Hence, it is a valuable service. The profession continuously reexamines auditing standards and responsibilities to improve the service. But, an objective look at the audit suggests it's a mature product in need of reinvigoration.

Over the past six years inflation-adjusted accounting and auditing revenues have been flat for the 60 largest firms. In fact,

revenue from those services now accounts for less than half of total revenue for the firms. (Only data for the largest firms are readily available, but anecdotal evidence suggests the situation is the same for the population of smaller practice units.) And since Gross Domestic Product has risen 28 percent in real terms over the

"The most important question remains: Do we have the vision to consider making major changes in our system to provide investors the most relevant and useful information?" — Steven M. H. Wallman, SEC Commissioner, New York Times, September 24, 1995

past six years, accounting and auditing revenue represents a declining portion of GDP.



This situation results from a variety of factors, many of which are not under the profession's control. But it's clear that unless the profession's products are judged more valuable the profession will be weaker in the future.

The profession constantly confronts the perception that the audit is a commodity, not a value-added service worth a premium price. Whether or not this perception reflects the challenges, benefits, or value of an audit is irrelevant if the users hold that view. For a prosperous future, the value of the CPA's service must be self-evident.

If the profession fails to implement necessary changes, it will inevitably:

- Lose market share in the information business,
- Cease to be attractive to the brightest students choosing careers, and
- Become less relevant in business and society.

Opportunities for the Future

Existing services can be expanded, additional services can be provided for current users, and new services can be provided to new groups of users.

As new concerns and performance measures emerge among decision-makers, the CPA profession should position itself to meet budding needs for assurance. Otherwise, the opportunity might be lost as other service providers seek to fill this market need. CPAs need to focus on the emerg-

ing needs of information users. It will not be enough to rely on tried and true, historically entrenched services. New approaches are needed.

The Move to Assurance Services

The audit/attestation function will need to evolve into the assurance function. The committee has tentatively described assurance services as follows:

Assurance services are CPA services that improve the quality of information or its context for decision-makers through the application of independent professional judgment.

Assurance services, then, provide an explicit benefit to information users — improvement of information quality.

Rational decisions are made based on *information*. Information can be financial or nonfinancial. It might be about discrete phenomena or about systems (such as internal control or decision models). It might be direct (such as information about a product) or indirect (such as information about someone else's assertion about a product).

The term *quality* encompasses decision usefulness, incorporating both relevance and reliability.

Context includes the decision-process and the completeness of the decision-maker's information.

Independence has been, and will continue to be, the foundation on which the assurance function is based.

Professional judgment is the CPA's stock-in-trade. It is the major value that users get from

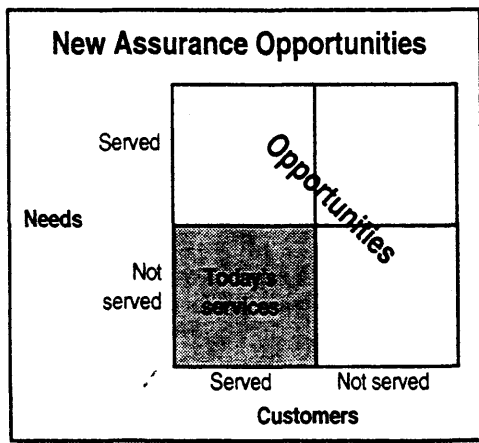
the CPA's participation and is not likely to be replaced by technology in the foreseeable future.

The need to design services to provide value to information users applies to firms and clients of all sizes. The key to providing assurance services is a strong knowledge of the needs of and demands on client organizations. Many firms — large and small — already have this knowledge but don't exploit it. In addition, the new services will probably provide many opportunities for specialized, niche services for many types of information users.

Status of the Committee's Effort

The committee segmented its work into three parts: research, service identification, and implementation. This report summarizes some of the findings as the

"Our mission is to make sure you receive the highest quality business information in whatever form, place, or time you want it...with integrity, independence, timeliness, and responsiveness...."
— from an ad from a nonCPA supplier of information



committee completes its research. Of course, the information will be analyzed further as the committee identifies specific new services and makes recommendations as to how best to incorporate them into firms' practices.

Needs of Users and Potential Users of Information

New services will be purchased if they add value to information users. The CPA profession must, like other enterprises, focus on the needs of specific types of customers and produce services that each considers relevant for its use.

The Customer Is in Charge

In the 1990s there has been a dramatic shift in power from producers to consumers. Where once a newspaper editor decided what stories would be available to readers, individuals can now log onto electronic news services and decide for themselves what news is important. Consumers' choices in automobile options were once limited by what the dealer offered; now buyers can decide the features they want and the manufacturer will produce the car their way.

Customers

Current audit services typically focus on a narrow set of users making a limited set of decisions. But the potential market for assurance services relates to a much larger customer group. A potential user — that is, a customer — of assurance services is anyone who makes decisions based on information. The following matrix identifies key types of decision-makers and key types of decisions they make.

Some of the opportunities are more familiar than others. For example, CPAs are generally confident in their knowledge of the needs of the decision-makers/decision-types in the upper left-hand portion of the matrix. However, there are valid — and often unmet — needs in other areas. For example, almost every employee in an organization needs reliable information as decision-

making power devolves in modern, flatter organizations. Another example: The community might need information about an entity's compliance with environmental regulations.

The matrix below provides a map of future assurance opportunities. The shaded boxes suggest likely opportunities. But any decision-maker/decision-type combination represents a potential opportunity if the CPA can improve the quality of the information decision-makers rely on — for example, by making it more reliable, relevant, or easier to use.

"In the words of consumer trends analyst Daniel Yankelovich, consumers [have changed] from uninformed and passive to informed and adversarial.... When there aren't choices consumers will help create them by finding substitute products and services." — *The Futurist* May/June 1995

"My greatest concern is about factors protecting or improving the reputation of our business." — *Board member*

large and small companies. They were located across the continent, providing a spectrum of outlooks, experiences, and concerns. Each person was asked far-ranging questions intended to find out:

Users' Unmet Needs

The committee undertook market research by reviewing work done by others and performing original research. With the assistance of an outside consulting firm, the committee conducted in-depth, one-on-one interviews with a broad sample of potential information users. Persons interviewed represented the views of

- What information was needed to make the decisions he or she considered important,
- How he or she obtained the information, and
- How confident he or she was in the relevance and reliability of

information used.

Each interviewee was asked about business needs and about the types of decisions each makes as individuals.

The following needs were identified in the interviews. Most of them were common to all the relevant types of users discussed above.

Commercial sector

- Information about the competence and integrity of management
- Information about the quality of internal systems as a measure of the implicit reliability of information used
- Information about the quality of products and services sold and purchased
- Information about risks and risk-management

Types of Information Users and Their Needs		Decision Types							
Decision-Makers		Investment	Finance	Strategic	Consumption	Production	Welfare	Social	Political
	Institutional investors								
	Analysts								
	Individual investors								
	Creditors								
	Suppliers/customers								
	Senior management								
	Other employees								
	Boards/audit committees								
	Community/society								
	Government/regulators								

- Future-oriented information
- Comparison of the entity to its competitors
- Comparison of results to strategic plans
- Navigation aids to interpret and determine the importance of information
- Tools for reducing the time and cost of data-gathering and decision-making

Public sector

- Information about program performance and outcomes
- More reliable information from improved controls and systems
- Better decision tools
- Oversight of subcontractors

Individuals

- Information about services and products, for example, health-care providers, schools, and consumer products
- Information for investment and retirement planning.

Analysis must still be done to translate these needs into services that CPAs can provide. However, individual CPAs can identify new service opportunities now. The list might provide suggestions about clients' needs that lead to value-added services.

Information Technology Advances Will Have a Profound Effect on CPA Services

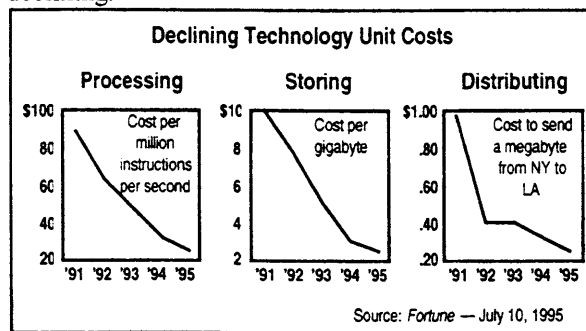
Information technology is probably the single most important factor affecting future information flows and CPA services. It affects all aspects of the CPA's work: how and when information is created, processed, stored, communicated, acquired, refined, and interpreted — as well as how CPAs will both produce and communicate assurance.

In developing its vision of the future of information technology, the committee consulted with representatives of AICPA Computer Audit Subcommittee, Information Technology Executive Committee, information technology and trends consultants, and high technology companies.

"I need benchmarking to others on key ratios" — CFO

Costs Will Not be the Limiting Factor

Information technology is an enabling force that empowers people to do things they hadn't thought of before in ways they had not conceived. Technology unit costs are declining.



The basic research and development is already complete to allow this trend to continue into the next millennium. There will be an exponential increase in power and capabilities of computer technology at the same time that the cost of that power continues to plummet. This power, coupled with unlimited wireless communications means that people will have constant access to a wealth of information on

virtually any topic — in real time no matter where they are.

Technology's Effect on Information Assurance Needs

Information producers in all organizations will bend to accommodate the needs of information users. Suppliers and customers linked by Electronic Data Interchange today enjoy efficiencies — customers reduce inventory

holding costs and obsolescence, suppliers more efficiently plan production — and cooperate to achieve it. In the future investors, creditors, and others with valid interests may be allowed access through EDI to a company's database to achieve similar benefits. (Of course, access will not be unrestricted; database technology will limit different classes of users to specific types of relevant information.)

As users become more and more dependent on information systems the issues surrounding system integrity and security will become more important.

To cope with the greater quantities of information, users will have to rely on support from two types of resources: (1) software

"The current system is like timing your cookies to a smoke alarm." — Creditor

"We need quantitative evaluations of program effectiveness" — State government official

"There is one single supertrend in our business — which is cheaper, more powerful and smaller. I think we're going to a world of disposable computing. Of give-aways. Merchants will actually give away computers to sell their products." — George Colony, President, Forrester Research, Inc., Wall Street Journal June 19, 1995

agents that will search all available databases for relevant information (such as those that currently search for stock prices or articles that refer to specific subjects) and, as they become more sophisticated, make analyses and recommendations and (2) human intermediaries who will assist users in selecting or developing appropriate software agents, framing the queries that software agents will research, assessing the quality of data accumulated, interpreting results, and determining implications.

As the information and the number of information sources available become greater, decision models will become more complex. Users potentially will need assistance ensuring that each step in the process occurs as intended. They might need help in determining that their problems are defined appropriately, the most useful and reliable data are obtained, and the interpretation of the results is reasonable, and in determining the areas of their organizations or decisions to which the information applies.

They might also need assistance in collecting and assessing feedback from the outcome of the decisions to further refine the decision models.

Assurance is an element in every step of this assistance, and the CPA profession may find significant opportunities related to the users' decision models.

Trends Will Result in Changes in Assurance Needs

The needs 10 years from now will be a function of existing needs and the economic, political, and social trends that will affect the need for information and assurance in the future. The committee explored the trends, already apparent, that will affect the need for information over the next 10 years. It considered data provided by an outside consulting firm with expertise in trend-spotting to identify megatrends. Then it focused on the trends that will affect CPAs and the implications, opportunities, and threats suggested by each.

Trends That Will Change the Need for Information

Corporate Structure. New technologies, competition, changes in worker relations, and attempts to control risk have led to new organizational structures. There will be more alliances and joint ventures, temporary

organizations, and similar forms. More reporting relationships will be created among new partners. New issues will be raised regarding the appropriate financial measures (for example, the lack of arms-length transactions, definition of the entity in a virtual company, going-concern assumption in a limited-life venture, and valuation of intellectual property rights).

Accountability. Issues of accountability exist in varied settings such as business (for example, the use of capital supplied by others), government (for example, whether public schools are achieving results), and society (for example, the environmental or social costs of entity activities). As technology decreases the cost of providing accountability and trust among people declines in general there will be greater demand for accountability.

The auditing profession is predicated on the concept of providing and reporting on accountabilities owed among parties.

Investment Capital. Institutional investors hold about half of the total market value of securities,

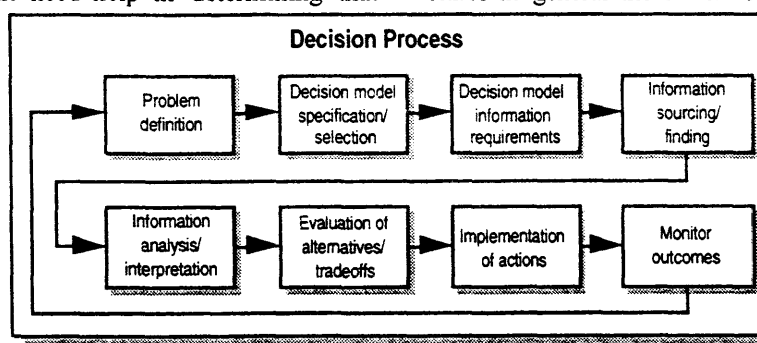
and the largest ones simply cannot leave the market. Many individuals have also entered the market in recent years to increase returns and plan for retirement. Globalized lending has become more prevalent. As information costs decline, capital providers will bypass some of the intermediaries that used to provide them with information and analysis, suggesting a change in how reliable, relevant information is imparted to investors.

Aging of the U.S. Population. The U.S. population is aging. The average age is increasing, and there will be a concentration of people in the higher age groups. The trend suggests increasing interest in pension-fund investments, changes

in attitudes about investment (for example, safety might be more important than yield), and possible intergenerational conflict as a higher percentage of the population fills the older age categories.

Globalization. International trading has been made easier by advances in technology, trade

agreements such as NAFTA and GATT, and the increasing number of market-driven economies. Opportunities might increase to fill the needs for international accountabilities, translation of financial reporting, and other business needs.



"I crave information — specific, compact, usable — and what I get is mounds and mounds of data, and not always reliable data at that." — William Raspberry, syndicated columnist

Positioning CPAs to Meet Future Information Needs

CPAs are trusted providers of information and assurance services. The CPA's reputation for independence and integrity and the trust that already exists in the market are powerful advantages. The opportunities for future services are open to CPAs if they act to capture the market.

But CPAs are not the only professionals who are positioned to provide the information needed in the future. New assurance and information services will not be limited to CPAs by regulation. To be the preferred provider of these services CPAs must offer benefits that other potential providers don't.

Barriers to Expanding Opportunities

There are potential barriers to CPAs in trying to capture new assurance service markets.

Marketplace Acceptance. Potential customers might not think of CPAs as the preferred providers of certain types of information and assurance. Many potential customers think of CPAs primarily in terms of financial statements or income taxes and would not naturally turn to them to provide other types of useful information.

Professional Standards. The profession has a distinguished history of creating and enforcing standards to assure the consistency and usefulness of its output. However, general-purpose standards might need to evolve into adaptable ones. The lack of standards might limit some ability to provide services, and existing standards might be too inflexible to allow others.

Competencies. CPAs might have to obtain new competencies to be able to deliver some new services, and they will have to upgrade their information technology skills both to perform traditional services and to prepare for new ones.

Capital Requirements. The profession might lack the capital to fully address technology-related develop-

ments. Other commercial enterprises, such as technology, financial service, and information service corporations may have greater resources. The largest of these enterprises has access to more capital than do the combined U.S. accounting firms.

Difficulty in Implementing Change. The relatively slow rate of change in the profession historically has left it without quick-response mechanisms necessary to deal with rapid shifts in the environment.

Litigation. The risk of unwarranted litigation is a powerful, intimidating force. In the current environment many CPAs might be reluctant to offer innovative services.

Next Steps

After completing its research the committee will determine how its findings translate into new value-added services. It will then identify new service opportunities and communicate its findings and recommendations. Identification of new service opportunities involves:

- Understanding needs and trends
- Defining services to fill the needs
- Estimating the potential market size for the new services
- Considering whether CPAs have the necessary competencies to deliver the services
- Considering potential competition from nonCPAs for the market.

During this second phase of its project, the committee will involve the profession in considering new thrusts. It will open discussions with groups of information users and providers to test its hypotheses. This phase of the project will continue into the first half of 1996. Finally, after services have been identified, the committee will turn its attention to (1) studying the barriers that stand in the way of providing these services and developing recommendations to clear the road and (2) acting as a catalyst for action within the profession. The committee's charge calls for it to issue its final recommendations to the AICPA Council in October 1996.■

"Most accountants take a narrow view; they are not the first group I'd turn to to provide broader services beyond their traditional offering." — Executive Vice President

AICPA

Special Committee on Assurance Services

Analysis of Customer Needs Interviews

SCAS Customer Needs Subcommittee Analysis of Customer Interviews Nos. 1-42

The mission of the Customer Needs Subcommittee is to consider the needs of information users (that is, the customers) so that any new assurance services add real value by meeting user needs. This paper reports on efforts to meet that charge.

Executive Summary

The Customer Needs Subcommittee conducted 42 interviews across a spectrum of decision-makers. The interviews were intended to generate ideas rather than provide a statistical sample of opinion. Nevertheless they produced indications of unmet needs for assurance. They also suggested that as potential assurance services depart from traditional audit services, CPAs might have difficulty obtaining marketplace permissions.

The subcommittee's preliminary analysis suggests that the most promising assurance needs involve the following types of information for the following potential customers.

Promising Customer Needs	
<u>Customer Need</u>	<u>Potential Customers</u>
Better information about business risk	Board of directors Management
Information about product quality	Individuals
Performance measures	Senior management
Information quality reported to board	Board of directors Institutional investors
Quality of processes and controls	Board of directors Senior management Investors
Information about strategic plan execution	Board of directors Institutional investors
Information on government performance	Public

Introduction

The subcommittee's efforts included (1) conducting one-on-one interviews with a number of cus-

tomers, potential customers and others knowledgeable of our profession and (2) beginning a synthesis of the messages these interviews conveyed. Members conducted interviews with individuals representing a cross section of constituencies and potential constituencies. They included investor and creditor representatives, CEOs, CFOs and other management representatives, members of boards of directors and audit committees, regulators, community activists and others. A listing of 42 interview subjects is set forth in Appendix A to this paper.

The interviews were open-ended, intended to search out the specific kinds of information that our customers need to make decisions. We covered the professional responsibilities of the interviewees and also asked about information needs regarding more personal decisions that they make.

The objective of the initial analysis and synthesis of this information was to begin to identify trends regarding information needs that are more pervasive and translate those needs into potential service concepts. The analysis will continue during the second phase of the project.

A number of common messages have been identified. It is clear that the customer interviews indicate an expanding information need.

These information needs go beyond financial statements and our current assurance products. As one audit committee chairman and former CEO put it, "The audit committee's purview should be redefined as the corporate reputation committee." This suggests a need

for information that identifies potential issues and problems, which extends beyond financial statement risk to address other business risks and business processes. Customers also confirmed their desire that the information should not only

be reliable but needs to be timely and relevant as well.

While the customer identification of expanded information needs may be considered good news, there was some bad news as well. Many of the interviewees viewed the auditing role to be very narrow. For example, we received comments such as, "Accountants are numbers people" and "Auditors just issue audited statements, fundamentally saying the accounts balance."

In addition, the comments suggest that the marketplace has not yet given CPAs permission to expand the assurance role. One commentator noted, "On a scale of one to ten, when ten is the highest, the value auditors bring would be one." Another indicated, "Most accountants tend to take a narrow view; they are not the first group I'd turn to to provide broader services beyond their traditional offering."

A number of the interviews provide a message that the marketplace perceives auditor skills to be limited and inadequate. One commentator noted, "Auditors don't know how to ask the right questions." Another indicated, "Accountants don't provide guidance to clients; they just don't understand the business."

In beginning to analyze trends and common needs, we have, on a highly judgmental basis, evaluated the strength of the information needs on a one-to-five scale, where one indicates a little support and five indicates a high level of support. Also, again on a highly subjective basis, the subcommittee attempted to assess the extent that the messages we received regarding customer needs were corroborated by other efforts — specifically, (1) the conclusions of the External Factors Subcommittee, (2) the insights presented by the Information Technology Subcommittee and (3) an ad hoc accumulation of articles that touch upon information needs and assurance services that are currently or might be provided in the future. The objective of this exercise was to begin to sort out and measure the intensity of the messages that we received. The results of our highly subjective effort are presented on the next page.

A more detailed discussion of each of the information needs/service concepts presented in the above table is set forth in the remaining portion

of this paper. This discussion is only an initial assessment. As the work continues, more specific analysis of the messages that customers provided and the related service opportunities that may result will be undertaken.

The subcommittee's initial hypothesis was that it could analyze the types of decisions that stakeholders make and infer information needs about the most promising decision/stakeholder combinations. The subcommittee created the following matrix to facilitate that approach. The shaded areas indicated the most promising areas for new services.

Types of Information Users and Their Needs

		Decision Types							
		Investment	Finance	Strategic	Consumption	Production	Welfare	Social	Political
Decision-Makers	Institutional investors								
	Analysts								
	Individual investors								
	Creditors								
	Suppliers/customers								
	Senior management								
	Other employees								
	Boards/audit committees								
	Community/society								
	Government/regulators								

The actual interviews focused on specific information needs rather than categorization of the needs within decision types. Accordingly, the data neither support nor disprove the initial hypothesis. Nonetheless, the chart provides a useful way to think about markets, even if the shaded areas were to be rearranged.

General Trends—Commercial Sector

The customer interviews included 36 concerned with the commercial sector. Those interviewees' needs for information and assurance can be grouped in three general areas: assessing/planning future success, understanding historical results, and improving the decision process.

Summary of Common Needs

	<u>Users</u>							<u>Intensity of Corroboration</u>			
	<u>Invest</u>	<u>Credit</u>	<u>Senior Mgmt</u>	<u>Other Mgmt</u>	<u>Board</u>	<u>Comm unity</u>	<u>Regu- lators</u>	<u>Indiv</u>	<u>Arti- cles</u>	<u>Ext. Factor</u>	<u>Info Tech</u>
Assessing/planning the future											
Mgmt. quality	1		2	1	2				4	4	3
Systems quality	3	1	4		1	3	5		2	4	5
Product quality	1		2	2	2	3	5	5	5	5	1
Risk info.	4	4	4	2	5			2	4	4	3
Future info.	1	2	3	2	2	2			1	1	2
Interpreting historical results											
Industry comp.	5	5	5	4	1	2			1	3	2
Compar. to strategic plan	1		2	1	1				2	3	1
Navigation info	4	3	3	1	5				1	2	5
Other data	2		3	1	2	2	3		2	1	4
Improved decision-making											
Reduce data-gathering cost		3	2						4	4	1
Imp. timeliness	1	1	2	1				1	1	3	4
New scorecards		2	1	2			3	2	2	5	4
Reliable data							3		1	2	3
Reduce cost of operations		1	3			4	1		3	3	1
Subcontractor oversight						1	2		1	2	1

ASSESSING/PLANNING FUTURE SUCCESS**Quality of Management**

Customers raised concerns about their ability to rely on management's competence and integrity. The need was more strongly expressed by internal users than external users.

Comments

Investors:

3F:* Assessment of quality of management; a report card.

Board members:

1B: Annual CEO and Board member review (of own effectiveness, conflicts, etc.)

* The numbers preceding the comment correspond to the list of interview subjects in the appendix and indicate the interviewee who made the comment. The accompanying letters are simply a crossreference device for the author's convenience.

1E: My key worry is buyers on the take. If I were auditing [my company]'s reputation I'd want to talk to a lot of suppliers about the integrity of our buyers.

38F: Report to the entire board on governance issues. Having auditors in an intermediary role is an idea whose time has come.

Senior management:

7H: Has used outside assistance in the area of management compensation comparisons

8J: Would like a rating of his managers

16F: Compensation/staffing/employee services/401K educational programs.

36: Accounting firms should provide judgments/benchmarks on the competency of our staff: competencies, missing components, numbers, areas for improvement.

Other management:

19E: Accounting firms should play a wider intermediary role between management and the Board—act as the staff beyond just the audit committee.

40C: Organizational/HR needs assessment.

Service concepts

Management report cards: quality/competency; multi-level; internal or external use

Providing and reporting against performance measures

Providing services directly to the Board of Directors (such as outsourcing internal audit services or providing assurance on the internal audit function)

Aligning incentive systems to goals.

Quality of the Company's Internal Systems

External customers expressed interest in how well an entity's internal controls operate as a measure of management's ability and the reliability of data. Internal customers wanted systems to integrate with business operations.

Comments**Investors:**

3H: Evaluations/assurance on a company's ongoing effectiveness in gathering strategic data.

2D: Management letters.

3H: Evaluations/assurance on a company's ongoing effectiveness of internal controls and systems.

23C: Need to understand tolerance factor on software that generates phased data. Accounting firms could own software companies like JD Edwards and provide more and better integrated data from the systems.

Creditors:

5C: Likes management letters a lot.

5F: Accurate information on lending process is important to regulators and directors. Third party attestation would be useful.

Board members:

24D: Major internal control reviews (beyond audits) every 3 or 4 years.

38A: Internal controls, not just fraud, are a major area of concern: adequacy of numbers, score-card/grading system, quality (not just adequacy) of controls, professional judgments from auditors.

38E: Biggest control area is MIS.

Senior management:

16E: Accounting support needs to parallel business functions. Don't just check later. We need employees to be informed, close, part of the process.

7A: Internal reporting and processing systems that make it easier for sales force to use in costing projects and ordering supplies from inventory. Currently use system defensively designed to prevent theft/fraud.

28A: Customized reporting on banking industry and issues pulling from myriad sources; Executive Information System; Pull and integrate information from regulators, Central Bank, Reporting; Agencies and banks; one set of numbers; Data-search, analysis and presentation

28B: Regulatory software

28D: Integration of accounting systems and operations when banking and insurance sectors merge; Valuations; marking to market; Liability side of balance sheet most critical

28E: For commercial banks, databased marketing systems: Segmentation, Mini - P/Ls around segments

29A: Assistance in developing P/Ls on every "right" attached to every project (entertainment programs): Each project has own unique contractual arrangements, Highly complex structuring. Need to track from funding phase through production, through distribution over life of product.

29C: Accounting systems to gather, sort data around each project/subsidiary and track through products' life.

29E: System for navigating the library of context/product

29F: Assistance on planning for future accounting system needs, as company continues rapid growth.

41C: The control environment and how it relates to employees.

42F: Technologies are coming so fast that management doesn't have time to track and learn them. We need to know what really adds value.

42I: Good quality management letters on internal controls.

Other Management:

39C: Assurance that movement of goods and services around the globe is performed effectively and properly and that the internal controls are in place to avoid fraud.

40C: Reengineering systems and processes for growth.

Service concepts

Providing assurance on processes
 Systems integration
 Systems design for specialized purposes
 Develop controls and rational applications for management or assets

Quality of Products

An indication of future success is the quality of the entity's product. External users indicated concern about whether the company's product can compete in the marketplace. Internal users were concerned with whether their suppliers' products were adequate and with providing assurance to their own customers about their own product.

Comments

Investors:

3D: Need data/analysis on: product/service competitiveness and share-taking potential (including new product introduction success rates, warranty reserve trends, customer service function effectiveness)

Board Member:

1G: Worry about the quality of suppliers.

Senior management:

8E: Assurance regarding suppliers' adherence to standards is important.

9A: Information on private sector suppliers on projects would be useful.

30H: Comparisons of product deals/pricing from manufacturers.

42C: Do not have really good information on quality of vendors' products nor a good system for tracking vendors.

42D: Would subscribe to a D&B-type service covering vendor product quality: selection and tracking, monthly update.

Other management:

18: Beneficial if could assure customers that our sources of information compared favorably to competitors'. Assurance to customers on technical reliability of our services. Assurance on reliability and accuracy of our models. Assurance on accuracy of our software, hardware, communications links.

5F: Accurate information on lending process is important to regulators and directors. Third party attestation would be useful.

39A: Assurance regarding suppliers' adherence to standards is important. We are currently reducing our supplier base and must be sure to pick the right ones.

39D: Certification of the software that is purchased: that it is of top quality and that it actually delivers what it promises to accomplish.

39E: Certified installers of SAP that have proper training and have passed rigorous examination.

Service concepts

Assurance on the credibility of information-related products

Assurance on production systems

ISO 9000-type audits

Better Information About Risk

Customers of all types indicated a need for better information about risks the entity faces and how the entity manages them.

Comments

Investors:

3C: Environmental and legal risks are areas poorly reported by auditors today; more quantifications of risks facing company.

3D: Need early read when performance changes on important monitored factors

3E: Early warning of significant changes: tailored reporting on 8K filings.

22A: Sensitivity analyses of future performance using different assumptions; studies of environmental protection trends, their impacts on different sectors, how changes implemented by companies.

2E: Reliability of financial statements may be a particular issue when future confirmation of estimates made in current year are unusually significant.

3I: Different countries' accounting practices create too many uncertainties for investing abroad. Translation and assurance could help.

Creditors:

6A: Needs are very modest for a community bank: internal sources can adequately monitor/manage risk. It relies on industry standards and obtains input from entities such as the OCC examiners.

21A: Key success factors, trends in sector, direct competitors to clients, sensitivity analysis of variables.

21B: Early warning system, looking at key risk factors: inventory values/writedowns, cost of goods sold analysis, cash management, accounts receivable, monthly/quarterly changes, covenants, legal liabilities/contingent liabilities, credibility of expenses, software and other dependencies, distribution agreements, derivatives activities.

5A: In monitoring a credit facility, more assured information on external market forces.

21A: Key success factors, direct competitors to clients.

Board members:

1B: Greatest concern is about factors protecting or improving the reputation of the business: potential impact of lawsuits on reputation, customer complaints, illegal acts, accountability for managing impact of decisions on reputation, treatment of suppliers, contractual arrangements, derivatives/hedges, patent infringement. The audit committee should become the corporate reputation committee; auditors should look at factors that affect the business' reputation.

1G: Worry about suppliers' ability to take returns; their financial and other capabilities determining their reliability and quality.

1H: Controls on derivatives.

24A: Accountants' opinions to the board on how regulatory/rule changes will impact the client's industry.

24E: Risk management assistance from CPAs, not in creating system but in reviewing systems in place.

24I: Assisting in monitoring/controlling corporate reputations is interesting in concept, but CPA role only in areas clearly defined as financial.

25F: Risk management and control measures: includes reputational risk, greater assurances to boards on the "unknown, unseen" elements of large IT systems; an objective look from outside.

37A: An asset and liability management function. Helping boards to manage risk by: defining risks, establishing policies, determining what tests to run, developing and running tests.

Senior management:

8D: Uses outside consultants to review environmental matters around sites and provide a certified report.

16E: New areas: legal, litigation, environment, derivatives.

16F: Other areas: Estimation of losses/exposures, fraud control, legal issues, risk evaluation in entering new markets, credit risk on customers.

26F: Supplier contracting/risk assessment.

29B: Advice about accounting impacts of contract at outset.

30D: Risk management controls a major area of need: workers compensation, health insurance, casualty, property valuations, environmental risks.

30G: Contingency planning assistance: scenario building; volatility factors.

41C: Risk assessment, including insurable issues (e.g., disaster recovery).

Other management:

17A: Managing exposure risks; balancing business requirements and treasuring/hedging activities

19A: Need assistance in receiving better assurance over contingent liabilities.

19C: Any new services around fraud would be helpful to our internal audit group.

40D: External assessment of risks: systems software and inputs, setting control priorities with directors, quantification of measurement and control.

Service concepts

Reputational risks assurance

Assurance on the process the entity uses to identify and manage risks

Environmental audits

Portfolio risk rating and risk concentration management

Real-time auditing in support of decision-making

Assurance on internal audit function

Assurance on contingent liabilities

Third-party assessment as part of early-warning system

Leverage firms' own risk-assessment techniques (sell system capability, not ratings)

Forecasts and Forecasting Systems

Some customers identified a need for additional future-oriented information for planning or assessing an entity's future prospects. External users wanted future-oriented data; internal users

generally focused on systems designed to provide data for operations.

Comments

Investors:

22A: Timely third-party analysis of future cash flows; particularly analysis of a company's ability to generate future cash internally and the extent of future borrowing/equity financing needs. Sensitivity analyses of future performance using different assumptions.

33: Want/demand to understand management's strategies.

35: Find out what strategy is for accomplishing a turnaround.

Creditors:

21B: Assessment of achievability of client's goals looking at drivers and success factors; 18-month forward look.

21B: Critique of management's plans in problem situations.

21G: Become outsource to mid-market companies in providing reporting and projections.

Board members:

24G: Assurance of information inputs to strategic planning and product development

25B: Study of projections related to security of offering prospectuses

Senior Management:

16C: We need a high degree of predictability and accuracy on needs and outcomes.

16D: In the future we will need full integration of our business systems with our financial system. The challenge is individualized parameters for businesses while maintaining commonality of data.

7F: Accurate inventory forecasting system.

26H: Help in building and projecting various scenarios for future cash flows and funding needs

26I: Help in developing balance sheet strategies.

36: Forecasting with a focus on cash and balance-sheet impacts.

36: Analysis of planning model and underlying assumptions; relationships of elements in model and criteria used.

Other management:

17B: Align the accounting treatment of information/metrics to aid decision-making, and management judgments, about the future business.

Assure incremental decisions and decision-making process right for investors and long-term direction.

17A: Assistance on inputs to prospective decision-making (value is in process, not assured inputs): quarterly, annually, and long-term (5 year) decisions, goal-setting, tracking investment performance in product portfolio, strategic analysis of options for functions, products, markets, delivery systems (reducing risks, cutting costs, financial projections).

19D: Investment community always looking for forecast data; if auditors could change their culture to provide it, it would be very helpful.

40A: Help in modelling the future—market segmentation, change in demand and segment performance, business exit strategy for owner.

40C: Capital requirements and sources.

Service concepts

Goal setting

Outsourcing strategic planning

Assurance on process to facilitate forward-looking issues

Assurance on assumptions built into software/models.

UNDERSTANDING HISTORICAL RESULTS

Comparison of the company to its industry

There is a thrust across customer groups for information about an entity's industry to provide perspective for entity information. The industry information might be financial or nonfinancial.

Comments

Investors:

2A: Exception reports that indicate exceptions to common industry standards and practices would be helpful in some industries.

2B: Industry trends providing an ability to identify course changes.

2C: Consistent industry data, such as from an objective database, to identify trends, recent historical results and variances.

3D: Wants comfort that companies are solving real problems of customers relative to competitors

3J: Benchmark would be useful if about year-to-year results not general practices, and if they dealt with normalized earnings.

22A: Equalize, for comparison purposes, the financial statements of different companies with investors in mind: industry-wide benchmarking made easier, accountants should have the knowledge to interpret practices and make statements more comparable through a standard translation. (The section on navigating information indicated that some external users also wanted an indication of how the accounting policies selected compared to other companies, presumably competitors.)

35: Benchmarking against top performers in industry.

Creditors:

4F: Provide creditors with access to a central database on companies (with financial and non-financial data and analyses)

5B: Benchmarking, but currently use Robert Morris Associates to check clients against other companies in the industry. A large database.

5J: Accurate information, easily accessed, on corporate customers' market shares and position.

6C: Industry statistics and information and/or comparable company data are very relevant to the credit process, and are currently obtained from subscription-based research companies like Robert Morris Associates.

21C: Provide industry/sector benchmarking service: compete with Robert Morris Associates, large or pooled accountancies ought to have competitive sample sizes by sector, would consider of high value coming from accounting professionals.

32D: Good and comparable data by industry sector at one source to streamline decision making: economic/industry trends and implications, benchmarking, e.g., avg. turnover, debt/equity ratios, cashflow, coverage and other stats, avg. ratios, best practices in sector, key success factors and risk areas

Board members:

24F: Benchmarking to best practices; executive level assistance.

38C: Peer comparison would be helpful.

Senior management:

7C: Would like benchmarking for the industry and would be willing to contribute information to feed normative measures, if confidentiality maintained.

7D: Desires information on: what competitors are doing by segment, flow/tracking of new

products to market, growth and preferences of end-user groups.

8F: Assurance on published financial data (vs. financial statements)

8B: Would like on-line system that compares data to norms and flags unusual numbers and events.

8C: Competitive information, but recognizes unlikely to obtain proprietary information.

16B: Measuring competitor evaluation.

27B: Audit function - benchmarking - thinks value could be added if auditors could show how other contractors accomplish tasks or perform functions more efficiently.

30A: Comparisons to others, e.g., on operating leases; benchmarking on key ratios.

30F: Helping CEO determine if company is staying abreast of best practices.

36: Benchmarking of financial comparisons and operating performance measures.

41A: Providing the MD&A letter of 5-6 similarly structured companies around the country as part of the audit.

41B: Trends and techniques work (e.g., market sizings/opportunities), including any information of companies and markets internationally.

42G: Direction on industry development; not benchmarking, that basic data is already available.

Other management:

9B: Benchmarking of private sector clients and suppliers of some use.

17A: Benchmarking: measurements used by world-class companies.

31D: Benchmarking: EDI, logistics, competitive evaluation.

39B: Exhaustive market data

Service concepts

On-line or published databases for industry data or comparative financial information published in the financial statements. (The data could be provided and reported on by the CPA or merely made available for inquiry or use by users.)

Benchmarking

Providing assurance on industry data

Designing criteria for industry reporting

Exception reporting from industry norms (real-time basis)

How the Entity's Results Comport With its Strategic Plan

Customers are interested not only in historical results, but also in the entity's strategic position. They want more information on the strategy and whether the entity is achieving it. (The need for prospective data was discussed under forecasts and forecasting systems.)

Comments

Investors:

23A: Inconsistency between projected and historical data. Spend enormous amount of time trying to reconcile the two methodically; need a service that makes the reconciliation a perfunctory activity.

Board members:

25E: Audit committees require various tests to monitor goals and performance, e.g., measures of customer satisfaction

Senior management:

8I: Information in reports should be put in context showing how historical financial information fits into the strategic business plan.

16D: In the future we will need full integration of our business systems with our financial system.

Other management:

17A: Assistance on inputs to prospective decision-making and tracking investment performance in product portfolio.

Service concepts

Alignment of accounting to decision-making

Comparison/reporting on achievement of goals (for external or internal use)

Navigating the Information

Some customers indicated that they help to determine the relative importance of available information and to interpret its meaning.

Comments

Investors:

2F: More qualitative assessments by CPAs beyond yes/no reports (e.g., on materiality of environmental uncertainties).

3B: Indication of whether accounting practices are aggressive or conservative would be helpful.

3C: Financial statement footnotes should show more detail and highlights.

22A: Opinions on management's interpretations of accounting standards/practices (aggressive/conservative); analysts need to know how data have been manipulated. Opinions on materiality and quantification of companies' contingent liabilities.

Creditors:

5H: Greater indication from auditors as to which footnotes are important.

5I: Indication from auditors as to whether the company's accounting practices are strict or loose interpretations of the accounting rules; opinions as to whether companies are using higher or lower risk accounting.

21B: Critique of management's plans in problem situations.

21F: More detailed comprehensive financial statements pertaining particularly to bankers concerns: why things happened, measurement of materiality.

21E: Greater access and interplay with client's auditor.

Board members:

1A: The auditor should surface to the Board broader concerns and judgments.

24B: More focused disclosure statements; too many superfluous requirements (FASB and SEC)

25D: More qualitative insights needed to raise quality of reports.

38G: Need plainer language in audits and need audit summaries.

Senior Management:

8A: Areas of important information for decision-making: synthesis, not calculation to aid decision-making in midst of complexity of available information/alternatives. In addition to financial data looks at character, resources, and technology.

8G: More descriptive reports (e.g., statistical confidence levels).

8H: Scales vs. yes/no opinions.

26A: Identifying material cost and revenue factors and presenting them in an easily understood manner for the CEO and his audiences.

26C: Helping management really understand the specific reasons each cost element exists; many companies in trouble don't know why.

26J: Modeling of the business with monthly reporting of material factors; can't do it without

accountants (likes a graphic presentation of results and future scenarios).

28C: Common data definitions governing various areas in banks: finance; risk management - netting risks to determine actual exposure; derivatives; off balance sheet.

Other management:

19B: Need to interpret what is estimable, probable, etc.

39B: Capability of sifting through reams of data quickly/automatically to get salient/vital data needed.

40B: Benchmarking: key ratios among competitors/peers, success in segments and sectors.

Service Concepts

Financial interpreter

Qualitative analysis and commentary

Critique in problem situations

Direct communication with users

Other Data

Customers identified certain other data they would like to receive.

Comments

Investors:

3D: Need data/analysis on: R&D cost trends, backlogs year-to-year, product/service competitiveness and share-taking potential (including R&D expenses vs. competitors, new product introduction success rates, warranty reserve trends, customer service function effectiveness)

3G: Supplier relations very important to know; is company being put on cash basis for example.

23B: Demographic, economic, unemployment data for the industry.

33: FASB disclosures are not enough; beginning to reach for non-financial performance measures.

35: Annual report is too aggregated; badly need segment data: division breakouts, market share, cost disclosures.

Regulator:

34: Assets are not marked to market, soft assets are not included, hedging activities are not clearly reflected.

34: Public needs to know that prospective data are not as accurate as historical data.

34: Adding greater reliability to more relevant information is big opportunity to add value.

Board Members:

24H: Real Estate portfolio evaluation/valuations

25C: Opinions to Audit Committee on the "Reasonableness" of cost allocations

(Ref: allocations among 200 Fidelity funds)

Senior Management:

16B: Measuring contribution of products/customers: product costing, functional benchmarking, best practices, competitor evaluation, shareholder value.

7D: Desires information on what competitors are doing by segment, flow/tracking of new products to market, growth and preferences of end-user groups.

26D: "Religious" matching of expenses and revenues; very high value; Monthly, weekly, daily Line of business structuring; Timing of cash flows critical

26G: Assurance on tax treatment of long-term sub-contractors (i.e., keep non-employee status)

29D: International tax is a huge area of concern; highly complex given five different ways to account for each right.

30E: Assurances on real factors of the business, not just numbers.

41D: Salary and benefits analysis, particularly for [critical] programmers.

41E: Controls, data, and information regarding the software side of telecommunications products and services.

42H: Assistance on compensation program.

42J: I would like to put the CPA on retainer just to bounce ideas off of them.

42K: Real-time opinions on management, financial state, business case, and assumptions underlying projections in meetings with investment community.

Other management:

31A: Consumer Information: trends, demographics, attitude shifts

Service concepts

Identify appropriate measures

Set up measurement systems

Reliability assurance

Relevance assurance

Measure and monitor nonfinancial factors

Generate reliable data as systems operate (real time)

IMPROVING THE DECISION PROCESS

Reducing the cost of data-gathering and analysis

Some customers wanted assistance in making accumulating and analyzing data more efficient.

Comments

Creditors:

4C: Could use standard spread sheet product to simplify and standardize the loan analysis process.

4D: Tools/models for better portfolio risk rating and risk concentration management. (Current system like timing your cookies to a smoke alarm.)

4E: Accurate portfolio grading would allow investors to discern the quality of assets and could increase high-quality banks' P/E ratios.

32B: Examination/establishment of risk rating system.

32C: Certification of proper categorization of loans

Senior management:

16A: Paying employees accurately and on time is where value can be added by driving out costs. The finance function should be focused on markets and production.

7E: Needs computer-to-computer links to suppliers in Asia.

7F: Needs easier order-entry system and automated security design, customer terminal links.

26E: Prototype, then develop, profitability reporting monthly.

36: Many mid-sized companies could use help in modeling the business going back three years and forward three years. Could be value in an accounting firm looking at the validity of model being used no matter what size of company.

42A: Finds current system using ASK software inadequate but can't now afford to change it and replicate historical data.

42E: Assistance in complying with SEC electronic reporting requirements and getting on the Internet.

Service concepts

Outsourcing services

Developing decision-support systems or models
Portfolio rating and risk concentration

Analyze/monitor companies providing outsourcing services

Improving timeliness of data

Some customers indicated that the data they use needs to be more timely.

Comments

Investor:

22B: More timely release of companies' financials (30 days, not 90 days).

Creditors:

5G: Very few things needed on a real time basis.

21B: Early warning system, looking at key risk factors: inventory values/writedowns, cost of goods sold analysis, cash management, accounts receivable, monthly/quarterly changes, covenants, legal liabilities/contingent liabilities, credibility of expenses, software and other dependencies, distribution agreements, derivatives activities.

21D: More timely delivery of audited financial statements after year end (vs. 90-120 day lag).

Board member:

38B: Need weekly results, not quarterly or even monthly.

38C: Outside oversight and controls, and peer comparison would be useful in a "real-time" world.

Regulator:

34: Providing real-time information seen as same as what buy-side analysts do.

34: Quarterly reckonings, weekly or daily of course would help, but not seen as replacing annual audit cycle.

Senior management:

16A: Knowing the exact value of receivables is part of the business, but getting the information quicker and cheaper adds value.

30B: Real time assistance in decision making (special projects beyond audit): structuring deals; property exchanges; work together with bankers.

42B: Need information on measuring sales and productivity of new direct sales force but can't afford the cost of a real-time system

Other management:

20A: In how we service customers we need good systems for instant feedback. Need more real time information.

20C: Need to be able to reduce time we close our books from 15 days to 2 days. Need benchmarks to use to accomplish this.

Service concepts

Generate reliable data as programs operate (real time)

Real-time exception reports

Continuous auditing

Systems design

Creating New Scorecards

Several customers indicated that they needed new things measured and there was a need for measurement tools or criteria.

Comments

Creditors:

4E: Accurate portfolio grading would allow investors to discern the quality of assets.

4H: Need assistance in establishing controls for nontraditional businesses.

6D: A significant need exists for assurance in portfolio valuation, particularly with regard to understanding revenue streams and quantifying risk of loan portfolios being considered for purchase or sale.

4A: Banks are thinking about pooling together to self-insure; they will need accurate data and internal reporting standards.

4B: Next wave of securitization will focus on small and mid-market company loans. May be packaged and sold off altogether or may sell participations. Need standardized accounting for these instruments.

Regulator:

34: May need to develop standards of measurement for soft assets.

Senior management:

36: The AICPA should look at how to get accounting closer to cash; it has diverged so much.

Other management:

17A: Measuring the value-added of to company of various components. Aligning the accounting to decisions and judgments to aid in decisions.

20B: Need to audit less by geographic location; more by major business processes.

Service concepts:

Whenever there is a lack of criteria, potential services exist in creating the criteria and reporting against them or designing or reporting on related systems.

Help in Making Decisions and Increasing Profitability

Some users want the CPA to become more involved in running their businesses. They want the CPA to provide advice, help make decisions, and use his or her networking skills.

Creditors:

32F: Accountants might be able to work with bankers to identify where creditors could drive risk down; could lead to lower loan pricing.

32G: Accountants ought to help their clients get the best banking deal. They are in a great position to help negotiate pricing.

Senior management:

24C: Added value from CPAs' knowledge of the company; primarily in identifying ways to save money.

26B: Ask the CEO what he thinks are the most important factors implicating the business, don't just accept the financial statements.

27A: Accounting firms should be more proactive; networking clients to solve problems.

30A: CPAs should be a business partner, part of the management team to help us grow and prosper: how can I do it? how can I improve? Help us make decisions, e.g., best way to buy/sell property or the best way to finance a deal.

30B: Work together with bankers.

36: Welcome help on reengineering internal audit and tax functions.

Other management:

40E: Measurement of reporting of job costing, controlling resource utilization.

General Trends—Public Sector

Six persons interviewed worked in the public sector. In addition, one individual in the private sector is active in community activities and serves on several boards in that capacity. The

specific needs categories in the chart on page 3 apply to the public sector as well as the commercial sector. However, unique trends were apparent in the public sector interviews. Accordingly, responses have been categorized along these lines. (The commercial and public sectors represent distinct markets that might indicate different CPA service opportunities.)

There were three general trends: improving the effectiveness of operations, improved decision-making, and increasing efficiency/decreasing costs.

IMPROVING THE EFFECTIVENESS OF OPERATIONS

Performance/Outcome Auditing

Customers were interested in assurance about the effectiveness of programs and their actual outcomes.

Comments

10A: Needs expanding for assurance and controls in healthcare area, especially managed care.

10E: New requirements are being placed on federal agencies to monitor program outcomes: definition of financial and nonfinancial criteria; monitoring and measurements

11B: Design implementation and ongoing support of processes that enable measurement of outcomes/impacts of all key government programs.

11C: Helping agencies establish specs for financial and nonfinancial measures to be used in evaluating program outcomes: government will require assurances on program outcomes and will use third parties, intellectual challenge is setting the right measures, aggregation of costs across agencies related to individual programs, reporting accuracy and appropriate periodicity.

11F: Healthcare, especially Medicare programs is an area in which audit/measurement requirements will abound

12D: Performance measurement

13D: Benchmarking of agencies within a city against each other and against those in other cities.

15B: Quantitative evaluations of program effectiveness.

15C: The National Association of Colleges and Universities sets the standards for measuring per-

formance (with assistance from the Big 6). The State University system complements this information by benchmarking off of comparable universities as well as drawing on historical data. Third party attestation hasn't been needed in this area, but might be valuable.

Service concepts

Identify appropriate measures

Benchmarking

Set up measurement system

Assurance as to reliability

Measure and monitor financial and nonfinancial factors

Generate reliable data as programs operate (real time)

Improved Controls/Systems

Government users were interested in improving their systems to provide better information and control.

Comments

10C: An area where greater assurance would be useful in inventory controls.

11A: Systems for mandated government-wide financial statements and controls and related accounting standards to be applied across all government agencies.

11D: Fraud detection/prevention is an area of weakness in system today: inventory, subcontract abuse.

12A: Recommendations on how to fix controls; more of a consultant's approach.

12B: Maintaining confidentiality of information, especially in "open" systems.

13A: Help in applying A-133 audit requirements of the federal government to nonprofit organizations contracted by the city: assurance that city agencies are controlling their money correctly, greater consistency and control in applying A-133, greater scrutiny of smaller agencies and programs on compliance with contracts.

13A: Greater controls of subcontractors on major block grants.

14A: Auditors can help improve budgeting systems.

Service concepts

Providing assurance on processes

Systems integration and design

Develop controls and rational applications for management or assets

IMPROVED DECISION-MAKING

Models/Analysis

Some users wanted better decision tools.

Comments

10C: Inputs to economic models and analysis, e.g., GATT models, cost estimates for resolving environmental problems, cost-benefit analyses of proposed regulations.

14A: Insights generated through an audit can be used effectively to optimize the budget process.

14C: We need a macro-perspective that integrates the individual audits of various departments.

15B: A prospective approach, rather than historical analysis, would be very valuable. Real need to understand the future better to plan effectively and maintain leadership on the issues. Needs include: five-year projections of tuition revenues set against expenses, sensitivity analyses and modeling to gain early signals on the future of university operations.

15D: Increases in the scope of third party services might include: nonfinancial information and analysis for policy formulation, identification of education needs for future employment requirements and impact of demographic changes.

15E: Qualitative cost-benefit analysis of programs to aid in funding allocations and planning.

15A: Greater understanding and appreciation of the uniqueness of the client's context and dynamics involved.

14D: Better training of resources in various departments to make people more accountable financially.

12E: Assistance in defining and articulating mission statements.

[One interviewee active in community boards, indicated a need for more information on his own exposure and risks and on planning issues such as business attraction, taxation issues, and the population's future requirements.]

Service concepts

Goal-setting

Strategic planning

Assurance on process to facilitate forward-looking issues

Cost-benefit analysis

Development of criteria or reporting on nonfinancial data

Decision support systems or analysis

Qualitative analysis and commentary

More Reliable Data

Some customers, particularly at the federal level, indicated concern that the data they use for decision-making is of uncertain reliability.

Comments

10B: Management controls needed in commercial entities, especially financial institutions: financial and nonfinancial factors, current year-end and periodic reporting inadequate, need risk management within financial institutions, companies with sophisticated financial instruments need assistance or more adequate controls (govmt does not have needed talent)

10C: Asset valuations is an area crucial to decisions, but the information is very soft today

11A: The government has a need for collection of comparable cost/data across government agencies (reliability)

Service concept

Assurance on other types of data or the systems that produce it.

INCREASING EFFICIENCY/DECREASING COSTS

Cost reduction

Customers, particularly at the state and local level, were concerned with reducing costs and how systems or information could help them accomplish this.

Comments

12C: Automating systems to reduce paper.

14A: Insights generated through an audit can be used effectively to optimize the budget process and identify ways funds can be better spent.

14B: Budget reductions are the most important issue facing us; the audit function needs to be developed around such cost reductions.

15A: Real challenge is to maintain our mission, but at less cost.

15B: Cost-benefit analysis of possible program cuts.

15D: Immediate requirements are for lowest-cost audits.

Service concepts

Systems design
Cost-benefit analysis
Outsourcing

Oversight

Much government-related work is contracted out. Customers indicated concerns about contractor relations.

Comments

11D: Subcontract/contract abuse is an area of weakness.

11G: Outside CPAs could play positive role in agencies highly dependent on contractors: contract management, controls and collection data.

13A: Greater controls and attestation of subcontractors on major block grants.

Service concepts

Analyze/monitor companies providing outsourcing services
Systems and report design for contractors

General Trends—Personal

Not everyone interviewed provided information about personal needs. This section summarizes the responses of those who did provide it. There were two major thrusts: information about product/service quality and personal financial planning assistance.

PRODUCT/SERVICE QUALITY

Comments

Several interviewees indicated a desire for assurance on the quality of the following goods and services:

- Healthcare providers (3 interviewees)
- Schools (2 interviewees)
- Products (2 interviewees)
- Institutions, presumably financial institutions
- Construction contractors

Service concepts

Report on quality or assertions of various products or services
Rate products or services

PERSONAL FINANCIAL PLANNING

Comments

The following personal financial planning needs were identified by interviewees:

- Investment planning (2 interviewees)
- Retirement planning (2 interviewees)
- Insurance
- Financial decisions
- Taxes

Service concept

Additional personal financial planning services

OTHER

Other assurance needs for personal decisions raised were:

- Options for parental care
- Career information (e.g., what qualifications are required)
- Analysis of collectibles' value and markets.

Appendix A List of Interview Subjects

<u>No.</u>	<u>Position</u>	<u>Institution</u>	<u>Type</u>
1	Chairman	K-Mart	Board/Audit Comm
2	Institutional investor	Citibank	Investor
3	Institutional investor	Cenith	Investor
4	Sr. credit officer	Norwest	Creditor
5	Sr. credit officer	Harris Bank	Creditor
6	Sr. credit officer	Beneficial Bank	Creditor
7	CEO	Ultrak	Senior management
8	President	Olympus America	Senior management
9	Executive VP	ICF Consulting	Other management
10	Controller General	U.S. GAO	Regulator
11	Deputy director	U.S. OMB	Regulator
12	Deputy director	NYC Contract Office	Regulator
13	Auditing director	NYC Health Dept.	Community
14	Vice chancellor	University of California	Community
15	Assoc. controller	SUNY	Community
16	CFO	Alcoa	Senior management
17	Director of Budgets	Eastman Kodak	Other management
18	Acct. Manager	National Information Bureau	Other management
19	Corporate secretary	3M	Other management
20	VP corp. auditing	3M	Other management
21	Credit officer(s)	Royal Bank of Canada	Creditor
22	Dir. of research	United Services	Investor
23	Corp. finance	Dillon Read	Investor
24	Board member	Bethlehem Steel; Sallie Mae	Board/audit committee
25	Board member	Fidelity, General Re, others	Board/audit committee
26	CEO	Visual Systems	Senior management
27	President, Co-CEO	US Home	Senior management
28	Head	Canadian Bankers Association	Senior management
29	CFO	Alliance Communications	Senior management
30	CFO	Miller Enterprises	Senior management
31	VP marketing/sales	Masco Corp.	Other management
32	VP commercial credit	Scotia Bank	Creditor
33	Research director	Conference Board	Investor*
34	Comm, Chief Acct.	SEC	Regulator
35	Dep. Exec. Officer, Head of Research	CalPERS	Investor
36	CFO	CBI Industries	Senior management
37	Head of D&O Insurance	CNA	Board/Audit Committee**
38	Boardmember	USHome	Board/Audit Committee
39	CIO	Anheuser Busch	Other management
40	President	OPTEC	Senior management
41	CFO	small technology company	Senior management
42	CFO	Sunrise Technologies	Senior management

* Interviewee is an observer of investors' needs, thus, has been categorized as an investor.

** Interviewee is an observer of board of directors' needs, thus, has been categorized as a boardmember.

Summary by matrix category:

Board/audit committee	5
Investors	6
Creditors	5
Suppliers/customers	1
Employees:	
Senior mgmt	11
Other mgmt	7
Government:	
Regulators	4
Community	3
Total	<u>42</u>

AICPA

Special Committee on Assurance Services

**External Factors
The Context for 2006**

Special Committee on Assurance Services

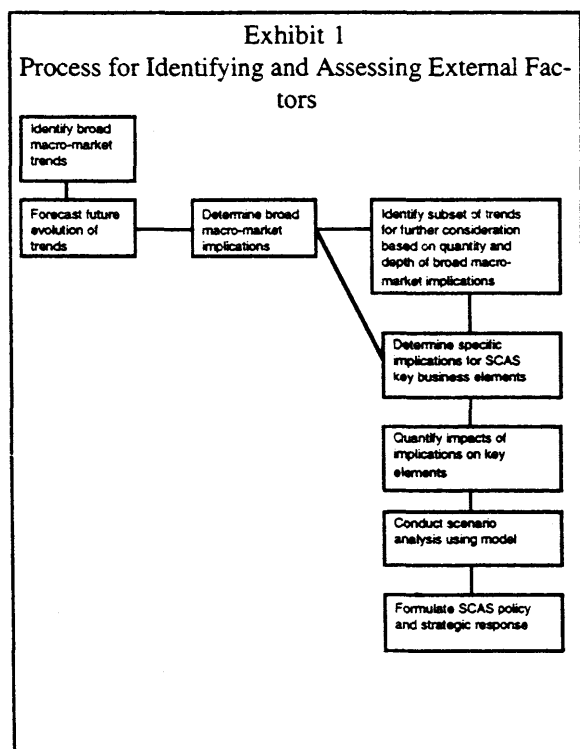
External Factors Subcommittee

The Context for 2006

Societal change results from the confluence of many factors. Economic, social, and regulatory trends might well change the context in which CPAs provide services in the years to come. The External Factors Subcommittee considered how the trends that are now apparent might affect the need for information and assurance services in the future. The subcommittee's objective is to identify the trends that are likely to have the most potential impact and the resulting opportunities and threats.

SUBCOMMITTEE PROCESS

Exhibit 1 summarizes the subcommittee's process. The subcommittee has determined the broad macro-market implications and has begun to identify the specific implications. It has not yet quantified impacts of the specific implications.



PRELIMINARY CONCLUSIONS

The subcommittee identified nine trends that are expected to have the most effect on CPAs' services and their practices. They are, in descending order (that is, largest to smallest effect):

- Information technology
- Competition
- Corporate structure
- Accountability
- Investment capital
- Aging of the U.S. population
- Globalization
- Education
- Workplace demographics

A tenth trend—changes in the legal environment—is also expected to have a profound effect on CPAs' services. However, the subcommittee believes that discussion of these effects—primarily threats—should be dealt with later in the process.

Limitations

The subcommittee's initial determinations are preliminary; they will be refined further. The implications represent the consensus of the likely results of trends identified. They are the result of discussions within the subcommittee, assisted by the consulting firm of Diefenbach Elkins. However, they have not been subjected to testing, nor have they been supported empirically.

Opportunities are simply listed. They have not been scrutinized or studied to determine whether they are realistic, desirable, will be demanded in the marketplace, or would be cost-effective to provide. That analysis will be done later, when the committee has additional information from other research efforts, such as the customer needs research.

Summary of Opportunities and Threats

The opportunities suggested by the subcommittee's work generally fall into three categories: Providing needed information to companies, providing assurance on new accountabilities (including creating the criteria for measuring the accountabilities), and providing intermediary services on behalf of principals.

The threats generally relate to potential damage to the profession's image or reputation, increased competition, liability issues, and discontinuities caused by difficulty in adapting to new conditions.

TRENDS AND IMPLICATIONS

The remainder of this paper discusses each of the trends identified, their implications, and the opportunities and threats implied.

Information Technology

Trend. Information technology capabilities will continue to advance and costs will continue to decline.

Discussion. Technological advances will continue to make products smaller and information more accessible and user-friendly. Compression technology will allow high quality images to be manipulated by ordinary computers; optical disk storage will increase their capacity. Networks will allow more efficient information flows. The future holds even cheaper processing power, new processor architecture, dramatic drops in the cost of memory, digital communications networks, new interfaces (such as handwriting and voice recognition) and new computing paradigms (such as fuzzy logic and neural nets).

The new technologies are changing the workplace. The following changes are already evident:

- Shift toward a service economy
- Increase in home offices
- Increase in mobile offices
- Conferencing and networking
- Flexible scheduling
- Growth of contingent workers
- Growth of self-employed workers

Implications. More information will be available. Users will be able to customize information to meet their needs. Advances will permit radical changes in corporate structures such as outsourcing corporate functions to suppliers and distributors. These changes will raise security issues and change supplier-customer relationships.

Information will be accessed more quickly. Decision speeds will increase, which will put more pressure on companies. Conversely, information will become more perishable; old information will be less useful. The increase in the volume of information will cause a need for filters to synthesize or select relevant information.

Control can be automated. Controls will be more complex, requiring new knowledge and new deci-

sion models and an increased reliance on technologists. Paper will be eliminated, changing the risk of fraud and requiring new audit approaches.

Work units will become more decentralized. Efficiency might increase, but at the cost of corporate culture and with a need for additional accountability.

Technology will perform tasks currently done by both white-collar and blue-collar workers. The effects will fall disproportionately on less-skilled workers.

Opportunities and threats. The subcommittee did not explicitly consider opportunities and threats relating to information technology. Because of the importance of this issue, a separate subcommittee has been charged with studying it.

Competition

Trend. Competition among information-suppliers (including assurance-providers) will increase.

Discussion. Competition will continue to intensify among providers of traditional CPA services. New competitors will include large, well capitalized organizations not bound by standards or limitations imposed on CPAs. CPAs will also face competition as they try to move assurance services into areas not currently dominated by the profession.

Implications. Competition to provide information will come from a large number of sources, e.g., public and proprietary databases. Users will need help to navigate the information stream to find relevant information and apply it to their needs.

CPAs might not benefit in complex environments because they lack the image or competence that users would demand of others, such as MIS professionals. In addition, users might believe that complex systems are inherently reliable and thus not value assurance on them. On the other hand, increased complexity might engender discomfort in users, increasing demand for services by those who can reduce uncertainty.

In nonregulated services CPAs will face competition from a host of providers. Users might be confused by copycat trade organizations that provide certifications that sound like CPA but aren't. Some organizations or regulators might erect regulatory

barriers to exclude CPAs from providing new services.

For regulated services, the profession might face increasing challenges to its monopoly on certain services. Large non-CPA firms or new technology might cause additional competition. Conversely, regulators might require that auditors take on additional responsibilities (such as providing assurance about fraud or safety and soundness) that don't result in larger fees because they are not valued by auditees.

Opportunities and threats. The threats in this area are more significant than the opportunities.

Opportunities

- Leverage reputation for expertise in internal control into new services
- Leverage reputation for expertise in measurement into new services
- Use reputation for trust as a competitive advantage
- Use depth and breadth of client access for competitive advantage

Threats

- Many new competitors have more resources than CPA firms
- CPAs' traits—e.g., fastidiousness, little appetite for risk—do not make CPAs well suited to face new competition
- The profession is generally not nimble in creating new standards to take advantage of opportunities
- Partnership form of practice constrains firms' abilities to increase capital to compete with larger entities

Corporate Structure

Trend. New business paradigms will propagate different types of relationships; there will be more alliances and joint ventures, temporary organizations, and similar types of operating methods.

Discussion. New technologies, competition, changes in worker relations, and attempts to control risk have led to the creation of new organizational structures. Communications and computer technology enable employees to work away from the office. Work has become a 24-hour proposition and is conducted in any location. Offices and businesses

have become more disaggregated. Small businesses are proliferating. The *Fortune 500* companies account for less than 20% of total employment. Outsourcing has become common. So have alliances and joint ventures such as those in the technology industries. The result is more entities, more relationships, and more accountabilities. It also challenges the paradigms of how entities' financial condition and value are measured (e.g., arms'-length transactions, entity concept, going-concern assumption, valuation of intellectual property rights).

Implications. New types of entities will result in new information flows. Decision-making and information systems will become more decentralized. Systems will need to be compatible to ensure that information flows are not disrupted.

Alliances and joint ventures will create new accountability issues—accountability of one partner to the other (which raises the need for access to confidential information) and of the joint venture to others (which might require new accountability standards and issues of contingent liability). There will also be more frequent issues regarding measurement of transactions not done at arms'-length.

Outsourcing will increase. The number of small companies will increase as will companies' dependence on one another. This will create more accountabilities and the need for additional security and control, but will also create vulnerabilities when partners cannot fulfill their responsibilities.

There will be more temporary organizations—those established for a specific purpose that are disbanded when the goal is achieved. The focus of financial reporting will change from time-dependent to purpose-driven (for example, the going-concern assumption or long-term/short-term distinctions might not be relevant). There will be less loyalty among employees and from other parties. Issues regarding the winding up of operations might become important, such as revenue run-outs and responsibility for corporate detritus.

Many entities' missions will be less distinct. Public/private and profit/nonprofit distinctions will become blurred. There will need to be more accountability and consistency in accountability standards. Entities that historically did not compete might find themselves in competition for resources.

Opportunities and threats. The opportunities relate to providing (1) services as an intermediary between the partners and (2) administrative services for new types of entities. An increase in total companies should result in an increase in total opportunities.

Opportunities

- Provide outsourcing services; for example, financial management, tax, accounting, internal audit, EDP, human resources, and pension plan administration
- Establish new accountability standards
- Develop processes for safeguarding and monitoring activities
- Develop IT systems for managing disaggregated organizations
- Provide assurance on the entity's information to suppliers and customers
- Audit royalties and income run-outs
- Evaluate companies that provide outsourcing either when they are selected or on an ongoing basis
- Establish processes, controls, accountability, or performance criteria for joint ventures
- Provide arbitration and valuation services
- Provide liquidation and reorganization services
- Provide services (for example tax audits) on contract to the government
- Provide archival services
- Analyze outsourcing (make or buy) decisions
- Design organizational structures
- Facilitate relations between partners

Threats

- Increase in entities might invite fee competition
- Increased conflict and litigation
- Competition from non-CPAs

Accountability

Trend. There will be a steady increase in demands for accountability throughout society.

Discussion. Accountability is the reckoning owed and provided by one party to another regarding some past or future action. As society creates new relationships and companies form new ventures, there is an increasing need for accountability among parties. Advances in information technology lower the cost of providing accountability; the risks of not getting it can be great. Thus, demands for ac-

countability will increase. However, the increasing volume and flow of information makes it harder to determine whether information is objective and reliable.

Issues of accountability exist in varied settings such as business (e.g., the use of capital supplied by others), government (e.g., whether schools are achieving results), and social (e.g., the environmental or social costs of activities). As the cost of providing accountability decreases and trust declines among people in general, there will be greater demands for accountability. There might also be greater demand for external verification of the claims of the party providing the accounting. To a large extent, the recent increase in litigation might be seen as the result of a failure to provide adequate accountability.

Companies typically owe accountabilities to capital suppliers, goods and services suppliers, customers, employees, and the community. CPAs are generally involved in providing services on the accountability to capital suppliers; the other accountabilities present substantial opportunities.

Implications. As business activities are deregulated by the government, there will be more oversight by others. Investors, joint venturers, borrowers, and management will demand more accountability from those with whom they deal. There will be more oversight and more review of activities and results. Systems will need to be designed to provide this information. In addition, there will be less privacy in operating results even for nonpublic companies.

Government and other public activities will be called on to provide more accountability. There will be fewer programs and their growth will slow. Most grants will be audited and there will be fewer small non-profits. There will be an emphasis on operating results and a concurrent demand for effective control structures and measurement criteria for programs.

Pension funds will grow (because of the aging of the population) and will wield more clout. They will become overseers of operations. Some might obtain seats on the boards of directors of companies they hold shares in, although others will shun this approach to avoid becoming insiders. Pension funds might even hire their own auditors to protect the

interests of the enrollees. They might require new measurement criteria for comparing holdings.

The CPA profession will undergo change. There will be further concentration in the market for attestation services. The number of small CPA firms will decrease as they merge to provide economies of scale. However, successful smaller firms will exploit market niches. Standard-setting will need to become more responsive to address services on the new accountabilities. CPA firms will, of course, not be immune to the demands for accountability; there will be additional oversight or regulation of the profession.

Opportunities and threats. The opportunities are to provide services to, or develop criteria for, the parties CPAs don't serve now: suppliers, customers, employees, and the community.

Opportunities

- Identify/detect chicanery
- Assess management and its operations
- Report on the beneficial use of funds in not-for-profit/publicly funded programs
- Develop measurement criteria for effectiveness of not-for-profit and government programs
- Evaluate employee benefits
- Provide environmental audits
- Audit suppliers or customers; e.g., ISO 9000, assurances on their management, financial health, products, services, delivery, timeliness, competitiveness, and compliance regarding intellectual property rights
- Assist in establishing accountability among parties as an alternative to litigation or arbitration
- Convert the CPA's service to a user-pays model, where accountability is set by contract

Threats

- Management resistance to expanded disclosures
- Regulation of the profession by a new, unfriendly oversight agency
- Potential competition in new economic space; CPAs might lack "permission" or competitive edge
- Increased liability exposure
- CPA firm cultures might constrain their ability to reach out to opportunities

Investment Capital

Trend. Capital flows are changing; principals will have new relationships, concerns, and accountabilities.

Discussion: Institutional investors hold about half of the total market value of securities. Institutional investors include pension funds, mutual funds, insurance companies, bank trust departments, and foundations. The largest institutional investors (e.g., CalPERS, TIAA-CREF, Fidelity) simply cannot leave the market. Many individuals have also entered the stock market directly or indirectly either because of the low returns offered by insured institutions or because of shifts in the types of retirement plans in use. In addition, capital flows have been changed by globalized lending.

The private investor typically has only indirect contact with the investee. Their relationship often involves a series of intermediaries, such as brokers and advisors. As information costs decline, private investors may be able to effect trades and obtain information bypassing one or more intermediaries. They will deal much more closely with the investee. However, this will require that private investors (1) make use of information technology and (2) have the time necessary to undertake these responsibilities on their own. While technology may well be available, current trends suggest that less discretionary time will be available to most individuals. Thus, at least some intermediaries might still be necessary—for example, one who adds value by reducing risk.

Implications. Capital will be concentrated in institutional investors, primarily mutual funds and pension funds. Large funds will become immobile and thus will hold positions for the long term. This will create closer relationships between funds and investees. Very large concentrations might also create a risk of catastrophic failure resulting in the need for more controls over them, risk-reduction products, and greater accountability.

When intermediaries are used there will be new pressures on the intermediary. The need for greater efficiency will result in price pressure and the need for accountability to investors.

To reduce their inflation and investment risks, companies will continue to shift from defined benefit to defined contribution pension plans (including

401k plans). Individuals will become more responsible for their investment decisions and will assume more risk. Individuals will need customized investing strategies and detailed understanding of tax laws. If this shift results in retirees' income falling short of their needs, the government might force a policy shift back to defined benefit plans. In addition, companies might face litigation if they failed to provide adequate retirement-planning advice to their employees.

There will be an increase in globalized lending. U.S. companies' borrowing costs might increase as might foreign control. Risk-reduction products might become more prevalent. The financial services industry in the U.S. might restructure to resemble the large financial companies in other countries. There will be a need for internationalization of accounting standards.

Opportunities and threats: The primary opportunities are three-fold: to develop new standards relating to intermediaries, to function as a shareholder advocate, and to provide investment advice and management.

Opportunities

- Evaluate intermediaries (such as those that hold assets or provide advice) or measure their performance, objectivity, controls, or risk
- Develop for intermediary investors information such as industry benchmarks, fundamental business data or operating information, or information customized for users' needs
- Report to the board of directors on performance and risk
- Report to the board of directors on the enterprise and its management
- Provide to investors customized measurements and evaluations
- Act as advocate for shareholders (e.g., perform analyses on behalf of investors, help shareholders develop goals to help management improve performance)
- Develop software for risk management
- Manage pension plans or 401k plans
- Provide telephone advice (e.g., 900 numbers) for 401k participants.

Threats

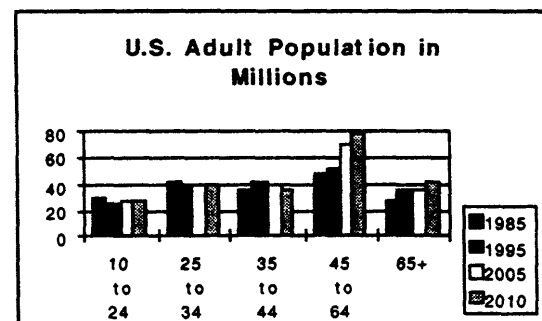
- Loss of objectivity or independence
- Loss of image
- Competition by others such as brokers

- Competition by our customers (e.g., CalPERS could insource this work)
- Potential loss of audit franchise if CPAs stray too far from basic services
- Lack of competence
- Cost and possible lack of access in an adversary role
- Increase litigation
- New regulatory barriers

Aging of the U.S. Population

Trend. The U.S. population is aging. The average age is increasing and there will be a concentration of people in the higher age groups.

Discussion: This trend is relatively certain. All the people who will make up the cadre of older Americans have already been born and can be counted. Changes in mortality and immigration create only moderate uncertainty. According to the U.S. Census Bureau, the median age of the U.S. population will rise from 30 to 37 between 1980 and 2000. In 1985, persons over 65 represented about 17% of the adult population (that is, those 10 and over) and those 45-64 represented 26%. By 2005, these are expected to increase to about 18% and 33%, respectively. They are expected to increase to about 18% and 36% in 2010, comprising about 120 million people.



The working population will age also. The demographic forces in place will be exacerbated by three other factors: (1) the prohibitions against forced retirements and banning of age discrimination, (2) the need for older Americans to keep working because of the inability of Social Security to support them, and (3) the decline in the number of young people entering the workforce.

Implications. The pension obligations of older Americans will mature. The need for accountability will change as these older persons change their con-

cerns from asset growth to safety and soundness. There will also be intergenerational conflict. The enormous demands on pension and social security funds by this large population will require some changes in funding or payment plans. Taxes or contributions paid by the younger, working generation will increase, or else the amounts paid to the older, retired one will decrease. To be considered equitable, policy decisions will need to be made based on sound data.

There will be changing economic priorities spurred by the increase in the older population. Emphasis will be placed on frugality, thriftiness, and economic safety resulting in more comparison shopping. There will likely also be more difficulty in funding some government programs (such as education).

There will be an increasing need for third-party care. Elders' needs will range from supervision of health care and personal care to financial affairs. Those who provide these services will see an increase in demand, but, due to the enormous costs of these programs across society, there may be a need for more accountability or evidence of cost-effectiveness.

There will be a concentration of elderly in some areas of the country, for example, the sun belt (elder immigration) or old rust belt or farming areas (youth emigration). These areas will experience an increase in demand for some government services and may have a shortage of workers.

Opportunities and threats. The opportunities appear to be in the following areas: services on government programs, services to the elderly, and services to companies on behalf of the elderly.

Opportunities

- Analyze corporate benefits (for example, elder care) and funding
- Increase intensity of pension plan audits, treating them as unique entities with unique constituents rather than as extensions of the sponsoring entity.
- Increased personal financial planning services
- Evaluate performance of third-party health care providers
- Certify product quality and attributes
- Trustee/estate-management services
- Fraud-protection services

- Measure performance of government services using financial or nonfinancial measures
- Assist merging services/entities for efficiency
- Establish new scoring rules to resolve or inform the intergenerational conflict

Threats

- Generational conflicts within companies
- The government might force companies to retain workers long after they become unproductive
- If the profession doesn't grow, the aging of CPAs will exacerbate decline

Globalization

Trend. There will be increasing international trade and cross-border activities.

Discussion. International trade has been made easier by advances in information technology. Trade agreements such as NAFTA and GATT have further opened up cross-border trading. Equity markets have become internationalized. There has been an increase in market-driven economies. There will be a need for international accountabilities.

Implications. The increase in international trade will require the understanding of activities in other countries with diverse customs and business climates. Standards will be needed to ensure information is comparable.

Opportunities and threats. The opportunities relate to expanding the services to a global market and providing intermediary services for companies dealing in diverse cultures.

Opportunities

- Export standards and assurance globally
- Establish global standards for information flow
- Interpret local regulations
- Design or provide assurance on global control structures
- Provide translation and reconciliation services

Threats

- Increased competition from foreign assurance providers
- Poor international accounting standards

Education

Trend. Educational achievement in the United States (particularly in public school grades K-12) is declining and will not improve appreciably in the foreseeable future.

Discussion. It is widely acknowledged that the public education system in the United States has deteriorated in recent decades. In a 1973 Gallup poll 58% of respondents said they had a great deal of confidence in the American educational system. In 1991 the percentage had fallen to 44%. American students' math and science scores have been consistently lower than those in many European and Asian countries. In 1992, for example, U. S. students' scores in math and science were both significantly lower than those of students from Korea, Taiwan, Switzerland, Hungary, and France according to the U.S. Department of Education.

Implications. U.S. workforce quality will decrease. Because the public education system provides most of the raw materials to the workforce, defects in quality will affect the output of American business. Businesses will have to restructure and simplify tasks for employees to be able to handle them. Communications will have to be made more basic. Because workers will be less dependable than computers, and the cost of computers will continue to fall, there will be a decrease in the number of available jobs for many kinds of workers, although there will be a continued demand for programmers. Because this problem affects the U.S. more significantly than other countries, there will be a decline in U.S. wages and an increase in trade problems compared to other industrialized countries.

Public school problems will be exacerbated. School employees, heavily unionized, will resist changes to the system and become more militant. At the same time funding for schools may become more difficult as the population ages and taxpayers' priorities change. To be funded, new programs in public education will have to be shown to increase effectiveness. Another factor in the decline will be that women, who accounted for most of the teacher workforce, will become more ubiquitous in other, higher paying professions, causing a brain-drain in the teacher ranks.

There will be a movement towards alternative forms of education: home schools, private schools,

privatization of public schools, and, perhaps, businesses taking more responsibility for education.

Opportunities and threats: Opportunities fall into the following categories: providing services to educational institutions and those who make decisions about them and providing services to compensate for others' lack of education.

Opportunities:

- Establish standards for educational outcome measurement
- Establish standards for teacher evaluation
- Certify educational institutions
- Establish university training for accounting rather than leaving it to educators
- Establish education criteria for enterprises/industries to hold educational institutions accountable
- Certify/test job applicants
- Assist in job simplification and automation
- Provide intermediary services to read and interpret information of others for an uneducated public

[The April 5, 1995 Wall Street Journal ran a page-one article indicating that the student-information provided (SAT scores, graduation rates, e.g.) by colleges to college rating services was unreliable and in many cases purposely misstated. This information is used by students and their parents to make college choices.]

Threats:

- Accounting students will be poorly educated and not prepared for the profession
- Education community will resist change
- Potential customers (who are less well-educated) will not understand the CPA's products or messages
- The under-educated will become have-nots who will rebel against the well-educated elite, including CPAs.

Workplace Demographics

Trend: The workforce of the future will contain a higher proportion of women and minorities.

Discussion. By the year 2000, two out of three net new workers will be women; they will comprise 48% of the workforce. By that year more than one-third of the American workforce will be mem-

bers of minority groups. Hispanics will account for the largest increase in the workforce, although Asians will see the largest percentage increase. Companies will need to adapt to the needs of the new entrants to the workforce. This might require new policies or ways of doing business.

Implications. This trend has been included because it is expected to hold profound implications for businesses (for example, it will affect recruiting, retention, work policies, and so on). However, it's not clear how it will affect the future need for information or assurance. For example, the subcommittee questions whether women or minorities use information or make decisions differently from

any other groups. The subcommittee will continue to seek additional insight on this issue.

Opportunities and threats. There are relatively few opportunities or threats that are apparent from this trend.

Opportunity

- Provide assurance on benefits, quality of life, quality of products, and internal processes of the organization

Threat

- The CPA profession is not considered attractive by some minority groups

AICPA

Special Committee on Assurance Services

**The Effect of Information Technology
on the Assurance Services Marketplace**

The Effect of Information Technology on the Assurance Services Marketplace

Report of the Information Technology Subcommittee of the AICPA Special Committee on Assurance Services

1. Introduction

The scope of information technology and its rate of change are redefining key aspects of civilization. No business will be untouched by its influences, and every business that wants to retain its viability must, at a minimum, learn, reconsider, and adapt.

Information technology empowers us to do things we hadn't thought of before and to do things we have done before in new ways — for example, to instantly move money around the globe, to control robots, and to perform calculations and recordkeeping at rates, in volumes, and with precision that would overwhelm armies of clerks. Modern organizational structures are possible only because of information technology, and it has begun to seriously affect how we work (e.g., in teams around the globe) and how we learn (e.g., via "virtual reality" simulators). Taken up by the business community, driven by the profit motive and competition, the power of information technology has helped generate a great transformation in products and services. Nevertheless, our experience to date is just the beginning of a more profound and far-reaching series of changes.

The accounting profession must understand the effects these changes will have on today's services and on the marketplace for new services. In the tired dualism, there are opportunities and challenges. The profession must devise how best to respond to them. The alternative is not appealing, because information technology will make new competitors possible and diminish demand for services delivered in traditional ways.

In thinking through how information technology can influence the assurance function, it is useful to focus on the sequence of change. Basic enabling technologies, such as the logic processor in a computer, form a foundation that makes possible new software applications ranging from

accounting packages to business simulators. In turn, these new applications allow businesses and other organizations to operate differently. They may use the enabling technology and applications to develop new products, such as financial derivatives, or new ways of providing products and services, such as through on-line order-entry systems. Finally, the changes in businesses and other organizations affect relationships between parties to assurance services. For example, the changes influence relationships between information producers (e.g., corporate preparers of general purpose financial statements or preparers of managerial accounting reports) and information consumers (e.g., managers using internal reports, investors using corporate financial statements, or donors using the reports of not-for-profit organizations). The changes also influence relationships between and among assurers and information producers and consumers. ("Consumer," "user," and "customer" are used interchangeably throughout this report.) In this way, the changes shape the potential for assurance engagements.

The organization of the remainder of this report is based on the sequence of change just described. It moves from enabling technologies and applications and their effects on business, on information producers, and on users to the opportunities these changes present for assurance services. The report concludes by presenting briefly the constraints and barriers that could impede the profession's progress in taking advantage of the opportunities and several policies to begin to overcome those constraints and barriers and take advantage of new opportunities.

2. Enabling Technologies

There are four basic categories of hardware components in today's information technology. Although interrelated, each has its own evolu-

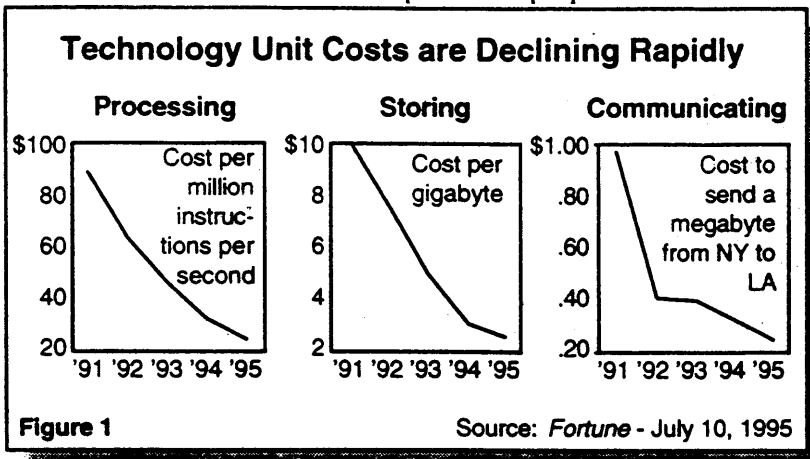
tionary path, and each is on a fast-rising curve plotting the ratio of increasing capability to decreasing unit cost against time

Processors oversee the functions of the computer and process the data (e.g., adding numbers, comparing sensor readings, issuing instructions to factory equipment, preparing reports). Processors such as Intel's Pentium and Motorola's PowerPC are significantly more capable than the previous generation (only a couple of years old), at roughly the same or lower prices. The number of components that can be integrated onto a chip doubled every year from 1960 to 1970. It has continued to double every year and a half since then. As a result, the average desktop computer today has more power than the largest mainframe in 1965.

Communications capability (sometimes called "bandwidth") is a measure of the capacity of the transmission line or other device connected to a computer to transfer data. A standard telephone line has a relatively low capacity compared to the coaxial cable transmitting to televisions. Both are effective in their original roles because much more electronic information is required to broadcast a television show of moving video than to reproduce voices in a telephone call. However, telephone lines may eventually deliver full-motion video thanks to sophisticated signal processing and compression. Continuing advances in "wireless" communications and satellites allow communications bandwidth to be increasingly mobile. Eventually, wireless networks and personal communications devices could allow individuals located anywhere to send and receive data. The much-discussed "Information Superhighway" refers to a system integrating different networks, both wired and wireless, into a single integrated communications system. Already the Internet is a global network of networks with many capabilities envisioned by the Information Superhighway concept.

Memory refers to the electronics for storing information for future reference. Types of memory vary according to how the information is stored, how much can be stored, and how quickly a computer can retrieve it. Fixed disks, floppy disks, and tapes are types of storage devices.

Sensors capture information about the physical world. For example, a sensor may monitor the temperature of a piece of metal being machined, the flow rate of a fluid through a pipe, or the stock number and price code of a roll of paper towels at a supermarket. Sensors can feed computer systems data about things and events. For example, the scanner at the grocery check-out counter captures information about the roll of paper towels, feeds it to the cash register to display the customer's purchases, and conveys it to the store's inventory systems to make timely replenishment possible. Sensors can be integrated into highly specialized computers dedicated to a particular purpose.



Each of the four enabling technologies described above has already undergone extraordinary expansion with rapid reductions in costs. Figure 1 shows the last five years of cost improvements in processing, storing, and communications capabilities.

Basic research and development already completed will allow this trend to continue into the next millennium, increasing computer power exponentially, while unit costs continue to fall.

Related Technologies

New forms of computing are on the scene and being developed that are close to being new enabling technologies. Parallel processing hooks together hundreds or thousands of individual processors into a network of processors that act jointly. Even a fast single processor like Intel's Pentium can do only one thing at a time. Parallel processing can perform many computations simultaneously, for example, searching a large database for a particular piece of information. Instead of searching sequentially through the database, one data item at a time, many parallel processors can *each* search a small portion, *all*

at the same time.

Another emerging form of computing with tremendous potential is the neural network, an artificial intelligence application that can create new knowledge. Neural networks learn by inducing patterns from examples. The patterns distinguish the examples from one another. With this backlog, the neural network will categorize a new example based on the patterns it has induced from its database of prior examples. Neural networks can be used to identify loan applicants who are high credit risks or health problems based on patients' symptoms, for example.

Both parallel processing and neural networks are commercially viable today, though with limited markets, partly because of the complexity of the software needed to drive them. In time, both technologies are likely to be common in many business applications.

Software Development Technology

Since software is in essence an embodiment of human knowledge — for example, how to balance a checkbook (using a software package like Intuit's Quicken) — software developers must break down the components of that human activity and rebuild it in a form that the computer understands and that humans can interact with. There are now sophisticated tools to assist in these tasks, such as code generators and object-oriented programming.

Code generators rely on a set of relatively simple specifications to generate the programs ("code") necessary to store, access, and manipulate information. With object-oriented programming, each "object" is a building block of modular programming instructions that can be used to assemble a larger program. Combining such "objects" with data allows even greater programming efficiencies.

Simple versions of software that can "learn" are already arriving in the marketplace. For example, some of today's relatively simple "software agents" (see next paragraph) are able to keep track of how a computer is used and create shortcuts for frequently performed operations.

Software agents. Software agents can retrieve, analyze, and produce information. Sometimes operating together with sensors, software agents can provide built-in functions for tracking activities, data, or data about data (e.g., a measure of the former's reliability). With cheaper, more powerful hardware capabilities,

these software agents will soon be able to perform more sophisticated information-related tasks — such as finding the best prices on a new computer or compiling analyses of the investment prospects for selected companies.

Security Technologies

Encryption algorithms mathematically encode information, and database protection schemes limit access to authorized people. These and other capabilities will provide higher degrees of security and data integrity, but additional techniques are needed to ensure the authenticity of information.

Computer viruses are a unique threat. Because they operate at the most basic level of what a computer understands — nothing but one's and zero's — viruses bypass the checks and balances built into higher levels of software, such as operating-system, database, and word-processing programs. This can allow a virus to do damage, such as erase an entire disk of information or blank the screen every time the mouse is clicked. However, there are vaccines that protect against classes of viruses.

Researchers at the Santa Fe Institute have created miniature software programs — much like viruses — that have the ability to rewrite themselves and evolve into more efficient versions. Used beneficially, this technology could substantially enhance the productivity of information technology. But, used malevolently, it could be among the most alarming threats to security.

User Friendliness Will Increase

Graphical interfaces have already made computing user-friendly, but additional technologies will add to ease of use. Because any information can be represented in digital form for a computer — whether it's a stock price, a new fashion design, or the sound of a voice — there will be more choices in communicating with the computer. Stock prices can be quoted audibly today, and as handwriting recognition gets better and voice recognition becomes possible, users might dictate electronic mail or perhaps vocally paint a picture.

Highly specialized, portable computerized devices are already part of our every day lives, from the card-sized calculators to laptops used for word-processing. These devices, sometimes called "information appliances," will multiply, facilitating many routine tasks. For example, ordering a pizza or other restaurant menu item

could become as simple as pressing a button on a device distributed free by the vendor. The personal digital assistant (PDA) will become more powerful and versatile, perhaps wrist-watch size with wireless communications and all the power of today's desktop computers. Many convenience devices will help train people to accept the more sophisticated advances of the information age, just as computerized games have filled that function in the past.

These capabilities, in addition to the others discussed above, and declining unit costs make it clear that most people will have access to sources of information, in real-time, no matter where they are. The business environment and personal life will be both information-rich and information-dependent.

3. Applications and Influences on Organizations

Backed by advances in enabling technologies, the range of possible applications is extraordinarily wide. So are their influences on the way organizations function, the demands they create for employees, and their power to perform tasks and help achieve objectives. New applications will solve problems, sometimes create new ones — for example, the behavioral problem of adaptation — and make possible new efficiencies. In an age where knowledge work is increasingly becoming the predominant mode of employment and the most assured path to business effectiveness, information technology is a key to competitive advantage.

The Way We Work

The bond between the employee and the fixed workstation, whether a desk or a position on an assembly line, has been eroding, leading to greater freedom for mobility. Travel has always enabled transactions to take place apart from one or both parties' home base, but today the options are much wider. Stock exchanges and commodity markets around the world pass the baton from one to another during the full 24 hours of a day. Employees overcome distances by telecommuting and the "office in a briefcase." They need never be fully away from the office, because a pager, a cellular phone, a personal digital assistant (PDA), and a notebook computer with a modem can bridge the distance.

The dispersion of work need not mean isolated work. There will be an increasing need for

access to information, whether it is in the employee's firm's database, in the customer's, or in commercial databases. Over time, more and more of the information will be presented with a mix of voice, graphics, text, and video (multimedia). These will be joined to search technologies that enable areas of interest to be explored in greater depth.

Apart from access to information, there will be increasing access to coworkers, a phenomenon that has already begun to mature. Information technology can facilitate teamwork, and technology-supported teamwork has been proving itself a source of added productivity.

Information technology facilitates the flatter organizational structures that have appealed to efficiency-minded executives over the last decade. This is partly because information technology eliminates many manual clerical functions, makes others easier, and multiplies communications routes. It can be used to empower employees (e.g., through easy-to-use feedback channels) and to create unity (e.g., through messaging by electronic mail ("e-mail") and corporate bulletin boards). These capabilities reduce the need for hierarchical configurations.

Software Agents Will Perform Information-Related Tasks

Software agents, which can search and retrieve information, will influence many aspects of organizations and work, propelling the trends already mentioned. They can be used to monitor data and identify items that exceed predetermined ranges of acceptable values or tolerances. More sophisticated software agents will launch and dynamically develop applications to interrogate databases and process information. In addition, they may be used to validate information by monitoring agreement between the related data sets two entities produce for a transaction they have entered into. Software agents may also be used to identify unusual patterns or relationships in comparable data.

Specific software agents may be developed for individual industries. For example, trucking-industry software agents may be developed to locate the least cost or most reliable shipping alternatives for a specific shipment or geographical location. Other software agents may be developed to analyze the constantly changing array of venture capital investment alternatives, based on specific levels of acceptable risk and expected return.

Electronic Data Interchange

Information technology has made new products and services possible and reduced development cycle times. The window of opportunity to bring a new offering to market and to profit from it has narrowed, because the rate of innovation makes obsolescence set in more rapidly. On the other hand, it is easier to cater to customers' individual tastes.

Real-time inventory and sales information make it possible to adjust orders to suppliers' and production schedules. A clothing manufacturer connected to retailers by Electronic Data Interchange (EDI)¹ might monitor the turnover of its products, and note that bright yellows and greens are the most popular colors in Florida, but that New Englanders are buying clothes in purples and blues. The manufacturer can shorten the raw materials acquisition, manufacturing, and distribution cycle (through technology-supported just-in-time techniques) and deliver products specifically designed to sell in each market. Being able to respond to the market in real-time maximizes sales potential and minimizes the costs of carrying inventory that is not the right color, size, shape, or design for the market.

Information technology can be used to define market segments more and more narrowly, ultimately reaching a market segment of a single individual — permitting delivery of one-off products and services just as cost-effectively as mass-produced products and services. This end state is called "mass customization."

EDI already has a history and is growing fast. The first set of standards for data interchanges was published for the transportation industry in 1975. Generic EDI standards — i.e., standards that are not industry specific — were published by the American National Standards Institute in 1988 and are widely followed in North America. Transnational EDI standards are also in place in Europe, and proposed global EDI standards published by a UN group have been

¹ A formal definition of EDI is "an exchange of electronic business documents between economic trading partners, computer to computer, in a standard format." The EDI infrastructure includes a standard message format, translation software, and a communication network. See S. Chan, M. Govindan, J. Y. Picard, G. S. Takach, and B. Wright, *EDI Control, Management, and Audit Issues* (New York: Information Technology Division, American Institute of Certified Public Accountants, 1995), pages 2-3. The first edition was published in 1991 by the Electronic Data Interchange Council of Canada.

making headway.²

Supplier-Customer Relations

The growing trend toward business partnering in "just-in-time" or "quick response" arrangements changes supplier-customer relations. Under these arrangements, as we have just seen, a supplier monitors the use or sales of its product and automatically restocks its customers as needed. In addition, a customer may notify not only its suppliers but their suppliers as well of planned or anticipated demands in order to minimize delays. A commonly cited example is that of J C Penney, placing an order for Gerber's disposable diapers using EDI and at the same time notifying Gerber's supplier Kimberly Clark (also electronically) to schedule the necessary quantities of wood pulp raw materials.

Information regarding specific business transactions and accountabilities may be broken into pieces residing in two or more of the organizations. An individual — or even an organization — may find it difficult or perhaps impossible to locate and pull together all of the related pieces. Information technology will provide the means to accomplish this, as systems become more closely linked and as standards evolve for identifying and associating disparate bits of information across entities.

Capital Suppliers Are Information Customers

The relationships just noted between producers and consumers and between customers and suppliers have analogs in the relationships between corporate management and the investor-creditor user of financial statements and other business reports. The investor-creditor supplies capital to the corporation, and the shareholder is the chief customer for management's report on stewardship. Not surprisingly, therefore, information technology has begun to influence corporate reporting in analogous ways. Business reporting will increasingly move toward the characteristics of mass customization in coming years.

A few organizations have distributed annual reports on video and CD-ROM, beginning a revision in the distribution of reports that is likely to lead to interactive annual reports. Although initially distributed on CD-ROM, ultimately they

² Ibid., chapters 1-2, pages 1-29. The global standards are called United Nations/EDI for Administration, Commerce, and Transport (the acronym is UN/EDIFACT).

are likely to be "distributed" passively, by allowing stakeholders access to rich and extensive databases capable of providing not only numbers and text, but the full range of stimuli and experiences that we see today only in computer games and knowledge-based systems. Tomorrow's young financial analysts will be accustomed to information acquisition in multimedia environments, which should make interactive multimedia annual reports more likely.

If interactive multimedia becomes the norm for communications to investors and creditors, corporate information suppliers will need to be much more creative than most are today. "Creative technologists" — the kinds of people who made the movie *Jurassic Park* so lively — could be employed to invent new ways to use technology to make quarterly — or even real-time — reports and management's discussion and analysis more exciting and more convincing than the information from the competitor down the street.

The replacement of distribution (producer driven) by access (consumer driven) will be a major change. Information producers will find that allowing access to selected portions of their databases can work to their own benefit. Access will probably be limited to partial copies of live data to create a firewall, reduce the risk of unauthorized penetration, and shield competitively sensitive information. As investors, analysts, and others request more current data, relevant to their specific needs, granting access to the database may be much less costly and disruptive than responding to these requests one by one. Users can then extract the information they need and format it in the way most useful to them.

As examples of open access multiply, the expectation will develop that other corporations will make information available to all valid (and even unknown but potentially valid) users, 24 hours each day, 7 days a week. In addition, open access any time, from any place, to relevant and reliable data can be a competitive advantage in seeking capital, allowing analysts and investors evaluating the prospects of companies competing for capital to satisfy their information needs faster and easier. Already information suppliers in the capital markets see competitive value in around-the-clock availability of information — for example, mutual funds' 24-hour information services, and the many home pages that commercial entities have established on the World Wide Web. Eventually access will become the common mode of communicating corporate

data to the capital markets.

Technology will enable continuous, real-time feedback from users concerning their assessment of the relevance and reliability of the information they access, and users will expect producers to address deficiencies in the quality of information provided. This feedback will be both direct (users critiquing the information they obtain) and indirect (producers monitoring which data are accessed frequently and which are not).

Relevance includes timeliness, and producers who can improve the timeliness of information will gain greater credibility within the user community. One way to improve timeliness will be to implant sensors and software agents throughout the business processes to capture information as it is created. These devices could be accessed as needed, as defined by information users and information intermediaries, such as the independent auditor.

The Virtual Organization

A virtual organization is created when two or more entities jointly act to pursue a mutual business objective. A single entity may be involved in intricate alliances with a variety of business partners, some short-term and others of longer durations. A virtual organization may be the result of entity reengineering, where spun off functions create new supply relationships. Or it may come about from a desire to pool capabilities, such as research, licenses, or technical or market knowledge. A customer-supplier relationship can approximate a virtual organization when business objectives are shared.

Information technology facilitates the development and operation of virtual organizations, and they are likely to become more frequent in the future. Peter Drucker predicted a steady movement toward every person owning his/her own business, selling services, and moving in and out of strategic alliances to respond to new opportunities.³ The prediction applies most easily to knowledge workers and others who provide knowledge-intensive services. The new mode of business would create transient virtual organizations, linking producers and service providers from around the world to bid on new opportunities, deliver the products and services, and swiftly disband to link up with new partners in new ventures.

The virtual organization challenges some basic tenets of accounting and auditing. GAAP as-

³ *Wall Street Journal*, March 21, 1995.

sumes, for example, that transactions are at arm's length, that there is a discrete entity that establishes the demand for and basis of accountability, and that enterprises have perpetual life. However, in virtual organizations, arms-length transactions could be the exception, rather than the rule. The entity concept would either apply less well or not at all. The boundaries of the legal entities might have little relevance to the economic entities. The going-concern assumption has less meaning for organizations that intend to disband when they fulfill a current contract. A virtual organization may be a shell, holding no assets and no liabilities, but bringing together the resources to respond to a one-time business opportunity. Thus, performance measurement and accountability are more difficult to achieve for virtual entities.

The virtual organization radically changes the nature of information that is useful to the information user. The historic business organization reported through a single headquarters or holding company. The virtual organization, lacking this common consolidation point, will instead have multiple sources of related (or even the same) information. Each partner in the virtual organization will be under pressure from internal and external information users to ensure that the information provided on the common venture is consistent with the other partners' information. A discrepancy in financial or operating data among the partners will cast doubt on the venture as a whole.

Even more fundamental, however, is the need for all parties to the *ad hoc* enterprise to be able to communicate freely. Open systems and a common data definition language or automated transformation will be core enabling technologies, prerequisites to participating in this mode of business.

Electronic Commerce

More business transactions will be conducted electronically, and more businesses will share data electronically to achieve mutual objectives. Many trading partners already use EDI to facilitate inventory control, production planning, and as-needed deliveries. With EDI, purchase orders, receiving documents, and invoices may be transmitted electronically between the customer and supplier.

On-line electronic commerce will become more prevalent as the consumer market moves toward electronic banking, including electronic payment for products and services. The infor-

mation superhighway will allow consumers to initiate all business and personal transactions electronically.

Electronic commerce creates a variety of business and social concerns that will need to be addressed, some very urgently. As Kevin Kelly wrote, "An on-line civilization requires on-line anonymity, on-line identification, on-line authentication, on-line reputations, on-line trust holders, on-line signatures, on-line privacy, and on-line access."⁴

On-Line Identification, Authentication, and Signatures. A common requirement of many forms of commerce is simply knowing the party on the other side of the transaction. This requirement is met in traditional commerce through the use of paper documents with letterheads, logos, and authorizing signatures that identify a party and provide some degree of authentication. When needed, traditional commerce has permitted independent inquiry and vetting in acceptable time frames. An electronic message lacks these traditional identifiers, and the pace of business conducted electronically is unlikely to facilitate the paper-era's independent inquiry and vetting. However, where a relationship has been established, a business system providing external access can determine through an assigned user ID or password that a requester has a valid need for access and can be held responsible to some extent for his or her actions while in the provider's systems. A third party may perform the function, as is done, for example, on networks such as CompuServe where an organization can offer access to information at a price, and the network monitors access, pays the organization, and bills the user.

In situations where the authenticity of information is highly critical, such as for high value transactions, legal documents, or major business approvals, the ID and password scheme may be inadequate and inappropriate. Some vendors and special interest groups have devised schemes for digital signatures that rely on encryption techniques.

On-Line Anonymity. For legal and ethical reasons, in certain situations an individual or entity may want anonymity — for example, when investigating potential acquisition targets. If much of the investigatory information is gathered electronically, anonymity may be threatened by the IDs and passwords imposed to

⁴ *Out of Control* (Reading, Mass.: Addison-Wesley Publishing Company, 1995), paper, page 208.

maintain security by screening access. Solutions based on encryption are beginning to be introduced into the marketplace.

Trustholders. Encrypted identifications enable parties deserving trust to be identified. However, this technology must be managed by third parties in order to allow the encrypted identification from being known and therefore useless for anonymity purposes in the future. For example, industry standards now in development in financial services call for Certification Agencies to issue and manage digital signatures — in effect, to warrant the authenticity of the digital signature that an entity uses to “sign” a transaction. Other parties to the transaction will expect the Certification Agency to have effective procedures to protect their digital signatures — an expectation that is likely to equate to a need for assurance.

Preventive Controls. Electronic commerce will make detective (that is, after-the-fact) controls relatively obsolete. A well established tenet of EDI applications is that traditional manual reviews of transactions, balancing, and reconciliation are inadequate if not impossible. Detective controls are useless when millions of dollars are moved to a distant country in seconds. Preventive controls imbedded in transaction processing systems are essential to management control and to reliable information. Organizations will have no choice but to rely heavily on the integrity of information processing and information systems controls.

It is likely that this challenge will give increasing importance to the “business technologist,” the individual or organization who knows the business, understands how it works, knows the technology, understands the many kinds of risks that internal controls must address, and has the skills and tools to control these risks.

System requirements for electronic commerce. Users with access to information from an entity’s databases will want to relate what is made available to information from other external databases. There will therefore be a growing need for standards supporting a common data definition language, or at least the means to equate data from one source to data from a multitude of other sources. Producers may need to revise their systems and to better document the meaning and use of individual data elements in order to survive in an “open systems” world.

Systems Integrity and Reliability

Organizations will have within their power mechanisms to improve the reliability of their systems. The capabilities of sensors and software agents have already been mentioned. The more frequent use of these devices will help merge the concepts of detective and preventive controls into the umbrella concept of real-time error prevention/detection.

In addition, rapidly declining costs to collect, store, and process information will allow systems to be designed with massive redundancies to insure fail-safe performance. Such designs will enable much higher levels of reliability for systems and the data they produce than are available today.

These advantages will be aided by more reliable software. Object-oriented programming employs program units (“objects”) that have been extensively tested, and code generators should typically produce more reliable programs than equivalent code created for a single organization’s purposes. Similarly, the greater use of purchased software systems in place of systems developed in-house will improve reliability because purchased systems are likely to be subjected to more extensive testing by end users (beta testing).

Even with these advantages, reliability may depend on the objective of the software development effort. If the objective is rapid development and low cost, reliability may have so low a priority as to negate the advantages just described. This can be the case with “throw away systems” intended at the outset to have short lives, perhaps to be completely replaced in a few months or years after they are implemented.

Organizations will face these options as their dependency on the effectiveness of the information systems grows. The requirements of electronic commerce make this clear. In addition, information technology is becoming more intimately a part of every business process, and more and more businesses will assume responsibility for their partners’ significant processes and thus for significant portions of the latter’s information processing. Thus system quality will become increasingly important even as software reliability improves. There will be a perceived need for information systems to function as claimed, protect confidential information, and avoid vulnerability to accidents, natural disasters, or support-system failures. (Support systems include electrical power, telecommunications links, employee transportation, and similar

systems.) The enterprise dependent on such information systems and often its primary stakeholders will want assurances that all of these concerns are adequately addressed.

4. New Opportunities for Assurance Services

Assurance services improve the quality of decision-making information, or its context, through the application of independent professional judgment. That is the Special Committee's working definition, with the word "context" understood to include the decision-maker's decision model and the completeness of the information.

It follows from this definition that new service opportunities must arise from the changing needs of decision-makers. They are the customers. Service demand develops from their needs for decision-making information and how it can be used to make decisions. Other opportunities for assurance services are implicit in needs that decision-makers may not yet have consciously perceived, but are nevertheless real. This division between opportunities driven by spoken and unspoken needs is somewhat overdrawn, however, because consumers with unarticulated needs have traditionally benefited from the articulation of the same needs by others. In either case, the focus of opportunities for new assurance services is decision-makers' information needs.

Information technology is making it possible for interested parties to supply information to decision-makers inexpensively in a competitive marketplace. That fundamental fact ensures a buyers' market in decision-making information. Producers will respond to users' information needs. The change parallels what is happening in other parts of our economy. There are exceptions to the producer-to-consumer power shift (e.g., diamonds and platinum), but it applies to a large and growing part of the economy. It is no accident that a priority on customer satisfaction has dominated so much of managerial instruction and leadership in recent years.

The decision-makers whose needs give rise to potential assurance services include the investor-creditor users who benefit from today's audit function as well as other decision-makers, including managers making decisions to achieve organizational goals. Many of the changes made to serve the needs of these decision-makers have

already been mentioned in discussing the way in which information technology has affected organizations.

User-Driven Information and Access

Some information users have always had considerable power, for example, company managers, who could design whatever information systems and reports they wanted (though even here, technology is multiplying their power and expectations). However, outsiders who seek corporate information (e.g., investors, creditors, regulators, environmental activists) are often able to obtain far more information than what is published in financial reports. Organizations find it beneficial to be responsive to information users' needs when trying to attract reasonably priced financing and strategic partners and to create or protect a positive public image.

Some business purposes can be achieved only by supplying additional information. The idea is at least as old as advertising, but it has taken on new dimensions. When a purchaser allows partners in "just-in-time" or "quick-response" supply arrangements access to agreed-upon portions of the purchaser's databases in order to cut unproductive steps from the supply chain, the purchaser acts out of competitive self-interest. A second example is the use of a home page on the Internet to provide 24-hour access to information relevant to potential customers, job candidates, strategic partners, and others. We have already discussed the likelihood that organizations will see it in their interests to give their capital suppliers access to organizational databases. If such access is provided, there would be little reason not to make it available 24 hours a day, 7 days a week.

The systems that provide these types of access can easily allow two-way communication. Thus, information users can provide immediate feedback regarding the relevance and timeliness of the information provided, thereby enabling the information producer to tailor presentations to meet additional user needs. The Internet and other on-line public networks (America On-Line, CompuServe, etc.) link users in forums or "chat groups" that allow them to identify other users with similar information needs and bring their collective weight to demands for quality information and greater producer accountability for the information provided.

Needs for Additional Types of Information

Sophisticated resource providers (for example,

investors, creditors, suppliers, employees, and the community) recognize that financial data are only a part of the information they need to make effective decisions. Information on various other aspects of an organization's operations is becoming increasingly important to many of the decisions they must make, as noted by the Jenkins Committee. In fact, for certain purposes (e.g., environmental monitoring), financial data may have very little value to the user.

The relevance and reliability of nonfinancial operating data have not historically been given as much attention as the relevance and reliability of financial information. This is changing as users in increasing numbers become more conscious of the role of nonfinancial data in their decision making. Just as some look to the balance sheet and financial projections for indications that an organization will be able to meet payment obligations and maintain required reserves, others will want current information on plant capacity, work-force stability, customer satisfaction, and other kinds of nonfinancial data. Assurances on historical financial summaries are likely to be much less important to stakeholders than assurances on real-time or even projected operating information.

As virtual organizations come to play more important roles in the worldwide economy, stakeholders will develop needs to understand those roles as well as organizational performance, responsibilities, relationships, and accountabilities. Their interests will include the consistency and completeness of information about all participants in a virtual organization, especially as participants move in and out of the virtual organization to supply unique services and resources only when and as needed. These participants may range from outsourcers providing a variety of non-core functions to full partners in a one-time, limited-life business partnership.

Besides new types of information, users will encounter new presentation designs. Multi-media presentations that users can view and query interactively have already been mentioned. However, it is well known that the medium can affect the message, that captivating presentations can distort as well as clarify, and that an intended level of enthusiasm or sobriety is harder to calibrate when powerful communications vehicles are employed. These factors can affect users' needs for assurance services.

Coping With Increased Information

Access to greater quantities of information can be a mixed blessing. To make effective use of the information, users will have to specify their needs clearly and concisely and determine what information, from all that is available, is truly relevant. Many will rely on support from software agents and other information intermediaries.⁵

Software agents will be developed to assist the user in specifying needs and will then search for the relevant information across all available sources, from corporate databases and commercial information services to on-line libraries and newswires, making appropriate analyses and recommendations. In time software agents will "learn" to interpret casual and ambiguous statements of need, will learn which sources are most fruitful (making subsequent searches more efficient), and will learn from user feedback how to make the analysis more useful. How quickly and how effectively this will happen is difficult to predict.

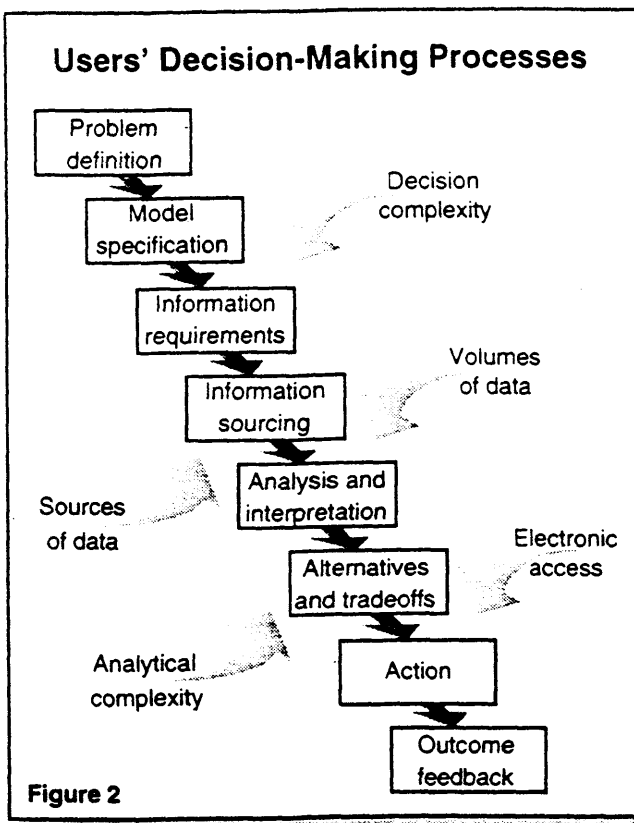
Highly skilled human information intermediaries will provide assistance and assurance complementary to and beyond the capabilities of software agents. These intermediaries will assist users in selecting or developing the appropriate software agents and framing the right statements of needs ("queries"). However, the role of information intermediaries will go beyond assisting decision-makers in designing queries and selecting or developing software agents. It will cover the whole series of processes that constitute decision making. The leverage a decision-maker gains from information depends on the degree to which all decision processes are effective, not just those involved in obtaining information.

Decision Processes

The full scope of users' decision-making processes is diagrammed in Figure 2.

The decision-maker will need to deal with the subtleties of problem definition and decision models and to identify the appropriate sources of data, manage the volumes of data accessed, eliminate the irrelevant, assess the quality of the relevant, analyze the data, cope with decision

⁵ The term "information intermediary" refers to any person, software agent, or entity standing between the information producer and user that adds value to the information (for example, by making it more reliable, relevant, or understandable to the user).



options, and determine the needs for action on the decision and what the outcome means for subsequent decisions. Many decision-makers are likely to require assistance in ensuring that each step of this process occurs as intended — that their definition of the problem and choice of decision model are appropriate, for example, that useful data are obtained, and that their interpretation of the data is reasonable. Other decision-makers will rely on information intermediaries not just to ensure the orderly accomplishment of the decision-making processes, but to maximize their effectiveness. To meet this demand, information intermediaries will have to continually refine their skills and even the definition of the service.

Data Assurance Services

Decisions based on unreliable or irrelevant data are unlikely to be in the decision-maker's interests, if, indeed, the decision isn't merely postponed in awareness of the poor quality of the information available. The traditional attest function provides reliability assurance, but it will be changed by evolving needs for assurance on different types of information in different circumstances, particularly with respect to timing. Direct assurance on relevance is a new field, and will be discussed separately later in this section.

Users will need data assurance at points in time other than just at the end of a year or quarter. Some users may require "continuous audits" of a broad data set, others "just-in-time audits" of key transactions or data, and still others mixes of the two. When users' real-time access to databases becomes routine, they will need continuous data assurance.

In the future, data assurance will be provided with respect to a much broader range of information. Stakeholders' needs for nonfinancial operating data were noted above. Needs for additional information types will be identified from contacts between users and preparers and eventually through electronic network feedback loops between users and preparers. Networked user groups (chat groups), which were mentioned above, will be able to identify unmet information needs common to group members. The size of the group will help determine the forcefulness of its communications to information producers. Preparers will have to respond to these new demands for information or suffer the consequences of failing to satisfy their "customers." The result will be a continual broadening of the types of data (e.g., nonfinancial, prospective, and soft information) made available to users for decision-making purposes.

Assurance regarding data reliability will gradually become tailored to individual users, and data about reliability will become an integral part of decision-making data (e.g., reports drawn from databases will include data about the reliability of the data that is the subject of the report). Information technology will enable users to communicate directly with preparers and assurers about their needs for particular levels of reliability relative to particular items of data, and the articulated levels will then guide the preparation and auditing of particular data items. Audited data included in databases or published by preparers will include "reliability tags" that will identify the level of assurance associated with each data element.

Reliability tags will differ, depending on the nature of the data:

- Countable/measurable items (historical, hard data) will be tagged in terms of precision at specified confidence levels (e.g., for the data element "Accounts Receivable — Gross (as of [date]) = \$X" the tag might be: 90 percent confidence at a precision of \pm \$Y);
- Estimable/judgmental items (prospective, soft data) will be tagged in terms of specified

ranges of reasonableness together with explicitly identified assumptions that have been tested for reasonableness (e.g., for the data element "Allowance for Doubtful Accounts (as of [date]) = \$X," the tag might be: Reasonableness Range of $\pm \$Y$ based on [enumerated assumptions]).

Figure 3 illustrates a datum with a variety of possible tags that may be interpreted by users as to explicit (darkly shaded) or implicit (lightly shaded) assurance on the datum.

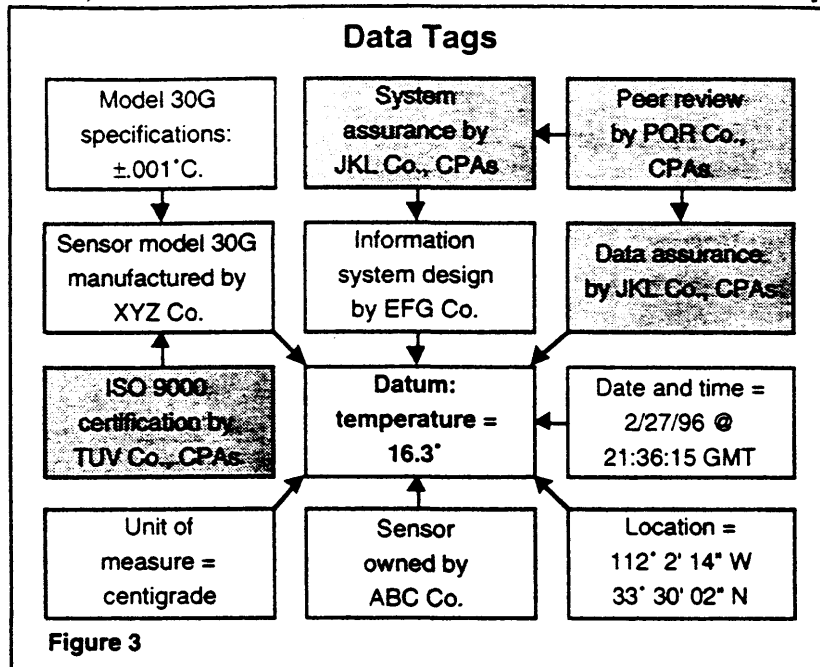


Figure 3

Information System Assurance Services

System assurance and data assurance can be contrasted as follows:

- System assurance provides the user with assurance that a system has been designed and operated in such a way as to produce useful (that is, reliable, relevant) data;
- Data assurance provides the user with assurance that specified data are useful and may be needed to address data items that do not fall within the boundaries of a "controlled system," and hence would not be covered by system assurance.

The two may also be contrasted by the way they are produced:

- Data assurance is often produced by an after-the-fact inspection and correction strategy.
- System assurance must be produced by a thorough analysis of the possible causes of defects in the data and a system that is designed to avoid all such sources of defects — thus a before-the-fact prevention strategy.

Modern manufacturing quality assurance has moved away from an inspection-and-rework strategy and now relies heavily on a strategy of product and/or process redesign to eliminate all possible sources of defects. This proves to be both more effective (creating higher and continuously improving levels of quality) and more cost effective. Similarly, modern data quality assurance will move away from data assurance and toward system assurance.

Attestation standards on the quality of financial reporting systems currently emphasize point-in-time assurance, with the time point prior to the decision.⁶ However, users would benefit most from just-in-time, real-time, or continuous assurance. For example, the user might be able to assume that an information system is operating effectively unless some sort of warning is posted. Just-in-time assurance regarding the quality of a system would be consistent with a user's real-time access to data contained in the system. Advantages in information technology that can improve the reliability of systems will enable the assurer to provide just-in-time assurance regarding the reliability of systems. These advantages (massive redundancy, software reliability, sensors, and software agents) were discussed in the last section of the previous section.

The scope of systems assurance may be looked at from two perspectives: 1) the information contained in the system and 2) the controls that influence the reliability and relevance of the information contained in the system.

The scope of information that will be addressed by system assurance is expected to expand rapidly for the same reason that the boundaries of data assurance will expand, namely, the user's need for a broader range of information for decision-making purposes. However, as mentioned earlier, the information boundaries for systems assurance generally will be "tighter" than for data assurance because of the possibility of certain information falling

The scope of information that will be addressed by system assurance is expected to expand rapidly for the same reason that the boundaries of data assurance will expand, namely, the user's need for a broader range of information for decision-making purposes. However, as mentioned earlier, the information boundaries for systems assurance generally will be "tighter" than for data assurance because of the possibility of certain information falling

⁶ See Statement on Standards for Attestation Engagements No. 2, "Reporting on an Entity's Internal Control Structure Over Financial Reporting."

outside of a "controlled system" environment.

The scope of controls that influence the reliability and relevance of the information contained in the system is also expected to broaden in response to users' needs. To date, the profession has a fairly narrow view of controls, focused on financial controls. These are just one component of COSO's framework involving financial, compliance, and operating controls. Users' future needs for decision-making information can be expected to include compliance and operating information. Systems assurance boundaries will therefore take in a wider area over time.

Systems reliability can be viewed from two perspectives:

■ *Contribution to data reliability* — Does the system produce (contain) reliable data (i.e., does the system meet users' individual "reliability targets" for particular data elements)? (Assurance on reliability is discussed later in this section.)

■ *Contribution to electronic commerce* — Does the system meet the broader requirements of electronic commerce (e.g., on-line identification, authentication, digital signatures, anonymity, integrity, common definitions, transaction functionality)?

The profession does not have well-defined criteria or standards against which to assess the quality of systems from either of these two perspectives. COSO's "Integrated Framework" begins to address the contribution to data reliability from a limited perspective. It assumes that all users have consistent needs and does not address the contribution to electronic commerce. In addition, there are no generally accepted measures (quantitative or other) of systems reliability that could be used to express a degree of assurance about systems reliability. A high priority for the profession during the next several years will be to take a leadership role in developing standards to assess systems reliability.

Audit/Assurance Methods

The same developments in information technology that will transform organizations and decision-makers' needs will lead to improvements in audit/assurance services. The profession has no choice but to adapt its methods to the changing audit/assurance environment. Traditional services will not be able to continue in

traditional ways. However, the experimentation and development of new methods to provide traditional services will benefit the development of methods for performing new services.

Electronic sensors and software agents (some of which may be owned or controlled by the assurer) will be introduced at key checkpoints throughout the preparer's set of business activities. The auditor may provide general parameters to the software agent, such as industrial, macro-economic, and technological factors, but give the software agent discretion to add other factors or information it deems appropriate to the constantly changing model. These sensors will lead to early and automatic identification of transactions, events, and/or relationships that are unusual and therefore demand immediate consideration. Assurers will use audit software agents to search for unusual patterns and/or corroborative patterns in transactions, not only in the preparer's database, but also in the databases of those entities that are reciprocal to the preparer in transactions of audit interest.

Computerized audit programming tools will continue to evolve.⁸ Advances will include:

■ Models that "learn" from procedures actually executed (e.g., the results of tests of controls reveal unexpected errors, which leads to revisions of control risk, which, in turn, leads to audit program changes).

■ Models that include artificial intelligence/expert system components, which deal with specific audit judgment areas, such as loan loss reserves and inventory obsolescence.

■ Models that are networked across a portfolio of audits, which allow for more complete assessments of inherent risks by industry.

■ Models that represent, at a high degree of detail, the business activities of the producer and permit the assurer to create an information expectation against which to assess the reliability of information contained in the producer's database.

One approach is a producer's "information dual," which is an informational representation or model of the producer's physical and knowledge-work processes. If the "information dual" faithfully captures those processes, it can be used to assess, among other things, the reliability of the information being reported by the producer

⁷ Committee of Sponsoring Organizations of the Treadway Commission, *Internal Control — Integrated Framework* (1994).

⁸ See Robert K. Elliott, "Confronting the Future: Choices for the Attest Function," *Accounting Horizons*, September 1994, pages 112-114.

with respect to those processes. The "information dual" would provide the auditor with a highly sophisticated tool for performing an analytical review of a producer's data.⁹

Fees paid to assurers for assurance on periodic publications produced by preparers will probably continue to be paid by the preparer. However, users may be charged different prices by preparers for information with and without assurance with the increment being remitted to the assurer.

Information technology will also enable assurers to "bill" users (directly or through an information intermediary like CompuServe) for reliability assurance that has been tailored to their particular needs. For example, in an inquiry of a database, a user could specify a "reliability target" for a particular data element by referring to a published schedule of "charges" associated with various degrees of reliability. The "reliability tag" associated with the data element could then be inspected by the database inquiry software to determine whether the user's target was met. If so, the user would be given the reliability information and charged accordingly. If not, the user would be so informed and the system would make note of an unmet reliability need, which would be passed on to the preparer and assurer. Even though the user may find out that his/her "reliability target" has not been achieved for the data element of interest, the user may still be willing to pay a smaller amount for whatever reliability assurance can be obtained rather than go without assurance altogether.

Relevance and the Role of Standards

The profession's current approach to addressing relevance questions is to develop measurement and reporting standards (e.g., GAAP and financial forecast standards) within a context of an articulated conceptual framework that purports to take user needs into account. The importance of standard-setting processes will not be diminished by developments in information technology. Indeed, as user decision-making needs for information continue to expand into new areas, standard-setting processes are expected to follow. However, from a user perspective, the current processes for standards development are deficient in two major respects:

■ Standards essentially ignore individual user needs. By design, standards are meant to apply to a range of users (signaled by the product de-

scription: "general purpose" reports).

■ Considerable time can elapse between an emerging user need for relevant information and a responsive standard.

The last section of this report examines more closely how the profession's standard-setting processes might be changed to adapt more quickly to users' needs.

Relevance and the Assurance Process

The information value chain begins with [undescribed] reality. Observations (human or mechanical) of this reality result in data — the initial recorded form of information. Data are filtered, analyzed, and combined with other data, resulting in information. As this process continues, information is transformed into knowledge, and finally into informed decision-making. From the perspective of a decision-maker, at each step in this distillation process, the product is more useful for decision-making. A human information intermediary makes information more useful to decision-maker's needs through the application of analysis and experience and the incorporation of additional relevant data. The CPA currently plays a limited intermediary role in the traditional financial reporting process. Developments in technology will provide new opportunities for the CPA to expand the intermediary role. In order to capitalize on these opportunities, the CPA will need to understand users' needs for data and users' decision-making activities — ultimately at the level of the individual decision-maker.

As already pointed out, developments in information technology will enable users (individuals and groups) to make known their information needs by their inquiries of databases and by their direct feedback addressed to preparers and assurers. One test for relevance therefore would be: If the user asks for data, the data are relevant.

The definition of assurance services includes improving the quality or the context of information. Relevance is a characteristic of high quality information, and context can improve relevance. Clarifying the definition of a problem, for example, adds context and affects the relevance of the data subsequently obtained to solve the problem. A large portion of what is meant by adding context is described by the concept of data about data. Reliability tags (see figure 3) are data about data, but so are items that add relevance. For example, data about data can include what the data means in terms sufficiently

⁹ Ibid., page 110.

precise to differentiate it from other related data items ("sales" may mean gross sales to a salesman, net sales to a CEO, and current revenue from sales to a treasurer). In addition, data about data can include restrictions on the use of the data. However, data about data also includes articulated relationships between the data and the users' decision processes. Thus, analysis and interpretation add relevance, and the proper use of feedback helps ensure the relevance of data for similar decisions in the future. The full set of relationships between data and users' decision processes and how those relationships can be made to contribute relevance deserves attention.

Mapping Assurance Services

Table 1 presents a brief description of the types of assurances that might be provided to a particular user with respect to each of the decision-making processes identified in Figure 2. The table also identifies information technology developments that will influence the various types of assurances.

Several points about the content of the Table 1 should be emphasized. First, many of the "assurances" identified in the second column represent services that, in today's market, would involve adding an assurance component to present consulting services. However, the services fit the definition of assurance services and would be framed in an assurance context. Second, providers other than members of the profession are (or may become) involved in the delivery of the identified assurance services. The profession has no monopoly on any of these services and must compete with others on the basis of perceived objectivity, competence, quality, and price. Third, many of the "assurances" involve issues for which standards are unlikely to provide detailed guidance; consequently, delivery of these types of assurances will involve high degrees of professional judgment. Fourth, even though many of the decision processes identified in Table 1 are assumed to take place within the context of a formal, well-defined computerized decision model (a rapid increase in the availability of such models is expected), considerable "expert judgment" outside of formal model boundaries will continue to be required. Finally, a key driving force that is expected to create demands for these types of assurances is that on-line information sources have the capacity to "drown the user in data[and] CPAs have a natural advan-

tage in helping business decision makers navigate these seas of data."¹⁰

5. Constraints and Barriers

The discussion to this point has shown that dramatic changes in the environment in which the attest function is now carried out will create new opportunities and challenges. Decision-makers will need new assurance services, and traditional ways of performing services will have to be transformed. Is the profession ready to adapt to these conditions and turn them to its advantage? Several constraints and barriers will affect the pace of change and the likelihood of successful outcomes.

Customer/Assurer Relationship

The major obstacle is the profession's disconnect from the customer — i.e., the decision-maker. Few industries are as disconnected from the consumer. Ask a CPA who the audited financial statements are for, and you will as likely as not get the reply, "The client, of course!" Some practitioners may even suggest that the end users just read the opinion and toss the financial statements in the bottom drawer. These practitioners are partially correct. Many financial statements do end up in the bottom drawer, but the reason is that GAAP has not been sufficiently responsive to the needs of these consumers.

Many of the assurance services envisioned in this paper will require direct linkage and two-way communication channels between the assurer and the decision-maker. That infrastructure does not exist today.

Technology can be a facilitator in establishing a two-way communication channel between the profession and the user. Just as e-mail has made it possible for a low level clerk to voice his or her opinion directly to the chief executive, so will the end user be empowered to give assurers feedback on the products they provide. As discussed in the preceding sections, the user will take center stage. The profession must seek out users and get them into the loop before they go elsewhere for their solutions.

¹⁰ Robert K. Elliott, "The Future of Audits," *Journal of Accountancy*, September 1994, page 78.

Table 1
User Decision-Modeling Process

Decision Activity	Nature of Assurance Provided	Information Technology Considerations
Overview of assurers' involvement with specific users	Extensive involvement with specific users will become the norm.	Users will need much more assistance from assurers because of: <ul style="list-style-type: none"> • Vast amounts of available information • Increased electronic access • Rapid degradation in value • Widespread availability/use of computer decision models.
1. Problem definition	Problems will involve a broad range of economic and social issues faced by information users/decision-makers; assurance may be given regarding the appropriateness of problem definition.	A broader range of issues may be identified/monitored through efficient/effective electronic sensors.
2. Decision model selection/specification	Specific decision models tailored to specific user needs will be the norm; assurance may be given regarding the appropriateness of the model, given the problem definition.	Computer decision models used to model a broad range of economic and social decision problems will become widely available.
3. Decision model information requirements	Information requirements will be identified in the context of the specific decision model that has been selected by the user; assurance may be given regarding relevance of proposed information.	Complexity of computer decision models may require specialized skills in determining appropriate information required to run the models.
4. Information sourcing/finding	Users may need assistance in searching through vast quantities of information; assurance may be given regarding completeness of search.	Search processes will be influenced by: <ul style="list-style-type: none"> • Vast volume of available data • Increased electronic access • Development of efficient/effective software agents (perhaps controlled by assurers).
5. Information analysis/interpretation/relevance	Users will continue to seek assistance in analysis/interpretation from "information intermediaries," which may include assurers.	Even in contexts of formal computer decision models, users will need assistance in analysis/interpretation because: <ul style="list-style-type: none"> • Data may be in multimedia format, much of which will not fit neatly into formal decision models • Much data will not be "controlled" by standards enforced on preparers • Vast quantities of data will be available.
6. Evaluation of alternatives and trade-offs	Users will continue to seek assistance in weighing alternatives and tradeoffs from "information intermediaries," which may include assurers.	Computerized decision models may do much of this, but significant judgments may be still be left to the decision-maker.
7. Implementation of actions	Users may seek greater assistance in implementation, including assurance regarding appropriateness of implementation activities.	Expertise will be needed in the design of electronic sensors to monitor implementation activities, which may be provided by assurers.
8. Outcome feedback: <ul style="list-style-type: none"> • Feedback to information preparers • Feedback to assurers 	Users will provide increasing feedback directly to preparers because of extensive user-producer linkages and to assurers because of greater assurer involvement in user decision-making activities.	Emergence/proliferation of user "chat groups" will enhance communication links among users and between users, preparers, and assurers.

Permissions

To what extent can CPAs get marketplace "permission" from the consumers and other involved parties to provide new assurance services? The consumer may not perceive CPAs as

the best source for the given service. The Jenkins Committee found that financial analysts were reluctant to have CPAs attest to the content of Management's Discussion and Analysis. They feared that the auditor's involvement

might impede or sterilize the flow of information from management.

This paper suggests several services that CPAs may be able to provide including an expanded role as information intermediary. The profession's traditional service is to audit or attest to information. Becoming more of an information intermediary may create the risk of a perceived or real conflict of interest.

Who Will Pay the Bill?

If there is sufficient consumer demand for assurance services, the bills for those services will be paid. In two-party relationships, the payer always will be the consumer. In three-party services, it will be either the end user of the service or the remaining party (e.g., the corporate preparer), who has an interest in the end users' decision-making comfort level. (Regardless of who pays, from an economic perspective, beneficiaries generally bear the costs. In most transactions, the benefits are shared and the transaction costs effectively split between the two parties. For example, in the case of assurance on financial statements, the investor benefits from lower risk and the company benefits from lower cost of capital.)

The key is to develop services that effectively meet decision-makers' needs. Pricing and payment will emerge from the perception of value received by the customer and marketplace convenience. It will be no easy task to devise new services that effectively meet decision-makers' changing needs, but it must be done.

Competencies

The market-accepted scope of the profession's work today is very narrow. It includes audits and closely related attestation services, and it presumes a service environment that is far less transformed by information technology than will be the case in coming years. The profession's information-technology competencies will have to broaden and deepen even to provide traditional services let alone to provide new assurance services.

Real-time auditing, for example, will require a far better understanding of systems and systems reliability. And auditors will need to be able to provide assurance on non-financial, operating data — production volumes, raw materials contracts, reject and scrap rates, statistical quality levels, and market projections, for example. All of these will have information technology ingredients, and many will need the expertise of

non-accounting professionals, such as actuaries and engineers.

If the profession is going to deliver expanded information intermediary services, it will need to enhance its critical thinking skills to manage, correlate, and analyze data from a multitude of information technology sources. CPAs will need a new level of expertise in computerized systems, decision models and how to relate them to users' needs, data access methods, feedback loops, and implementation methods. These skill sets are weak in the profession today, and colleges and universities need to improve training to achieve these knowledge and skill levels.

Capital Needs

The technological infrastructure needed to provide assurance services in the information-intensive future will require significant development and continuing maintenance. Heavy capital investment will be required to provide traditional services and to develop the tools and prepare the personnel to perform new assurance services. Information technology costs will mount for hardware and networks, operation centers, software development, and, perhaps, joint ventures and alliances.

The profession has traditionally been a thinly capitalized industry. Potential competitors, on the other hand, include capital-rich industries — from financial institutions to systems houses. This makes CPA-non-CPA alliances more likely.

Rules and Regulations

The profession defines itself in large part by its standards. The standards guide behavior, define the types of services CPAs can provide, and set out how to provide them. However, the standard-setting process is slow and deliberate. Despite the need to be responsive to customers' needs, standard-setters are generally reactive. With the exception of the Jenkins Committee, there has been little proactive effort to identify users' needs. And there has been no effort to create a quick delivery system for standards.

Yet technology could make many auditing standards obsolete. Competitors could step in and establish a rival set of standards, undermining the current franchise in financial-statement auditing. Many potential assurance services — types of system assurance, for example — will require standards, and competitors' standards produced in advance of the profession's could give them an enormous advantage, perhaps al-

lowing them to absorb whole emerging markets.

Although the profession needs standards that allow services to diverse groups of customers, that will not be enough. Decision-makers differ, and their needs for new services are unlikely to be consistently satisfied by one-size-fits-all approaches. Standards will have to be developed that permit customized services to fill individual needs.

Competition

Software that replaces tasks performed by assurers is a threat to their livelihood. When a client's system produces more reliable data because of information technology, the work needed to assure reliability is reduced. And when audit software embeds experience and expertise, competitors can obtain it and use it to make inroads on CPAs' audit market share. Banks could one day audit their creditors, and computerized internal audit functions could reduce the work needed for an audit opinion.

New assurance services will be subject to potential competition of another sort. Competitors with information-technology skills and track records of achievement could compete for newly developed service niches. Unlike audit work, there will be no protected franchise. Moreover, needs for capital investment could favor competitors.

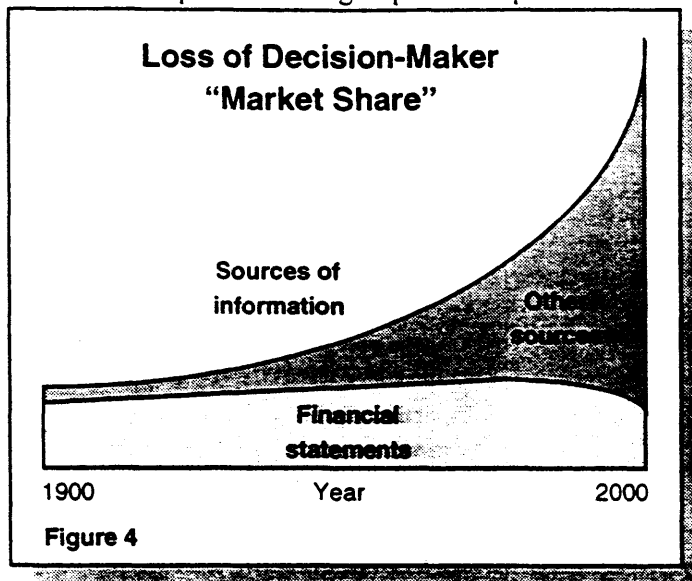
As noted in the previous section's table, computerized decision models applicable to a broad range of economic and social decisions will become widely available. Whoever owns the rights to these tools may have first rights to the related assurance service.

6. Taking Steps Toward the Future

This report has described the profound changes occurring in information technology and their probable effects on decision making. Other things left equal, the changes will continue to diminish the role of audited financial statements in business decision making. Figure 4 depicts the relative decline in the profession's product relative to other decision-making information sources.

In these conditions, practitioners and firms will have to evolve rapidly, even radically, to preserve their economic value. Those whose

careers or expectations for unfunded retirement payments extend beyond five to seven years should be most concerned. But all should realize that the changes required are within the profession's reach, largely because it has advantages over most potential competitors. CPAs continue to be rated as the most trusted outside advisors by business owners, investors, and other consumers of professional services. They are recognized for their independence, financial skills, and integrity and are granted a level of access to business decision-makers unmatched by other professional groups. The question is how



to respond to the challenge, not whether the profession is capable of responding.

A Balanced Initial Response

The six steps set out below, together with the proposed strategic pilot program, are necessary but not the whole response needed. Most would proceed at an evolutionary pace for two reasons. First, there is a margin of timing error in the projections in this report and in their effects on practitioners. Second, there are risks in going to the marketplace too soon even with well-conceived offerings. The objective should therefore be to allocate resources effectively according to strategies designed to ensure that practitioners arrive in the right technological place at the right time. The right time is not a specific point in time, but the duration of a phase of technological evolution. This is consistent with the timing of the trends and innovations identified in this report.

1. Education and Communication

The AICPA should increase members' awareness

of the implications of technology for present and future CPA services. It is important to instill a sense of urgency regarding the need to expand information-technology competencies.

As part of the program, the AICPA should position itself as a leader in delivering services using new, but widely accepted, technologies. These services include CPE, member services, and committee operations. Ultimately, CPA services must meet the needs of individual end-users. It is therefore important for the AICPA itself to create an infrastructure to receive direct input from the consuming public. One way to do this would be to establish an AICPA site on the World Wide Web to enable a two-way interchange between the AICPA and its publics.

AICPA staff should develop competence to provide technological assistance to Institute members and committee members.

This proposal will further the process of turning the profession toward the technical competencies required to maintain its primacy in assurance services in an information-intensive environment. The AICPA's leadership has indicated that it understands the importance of information technology to the profession's future, and it has taken steps, but, given the dimensions of the task, the heavy work of full adaptation lies ahead.

2. Near-Term Strategies for Members and Their Firms

AICPA members have already begun to integrate technology into their own practices — for example, spreadsheets, word-processing, tax return preparation, and local area networks. Some firms, or members, already subscribe to an Internet provider or another on-line service. Those who are not yet using these applications should begin to become familiar with them and integrate them into their practices.

The next phase of integration for most CPA firms is to become wired to their clients and their clients' other service providers, such as law firms and banks. Interaction with clients and influential parties should be expanded to cover more than just e-mail. Clients might be allowed to participate in bulletin boards on the CPA's LAN, access firm newsletters electronically, and enter dialogue with the CPA firm on issues such as tax law and other legislation that affects the clients' business.

More and more CPAs will find that their clients have adopted new technologies. Some are heavily involved in EDI. Others use the Internet

to carry out portions of their businesses. But still others may be barely computer literate. In any of these situations CPAs must have a working knowledge of the effect of information technology to be of continuing value to their clients.

3. Standards Development

The AICPA has demonstrated on many occasions that its standards can become the standards of professions with many non-CPA members. Yet the AICPA is only beginning to embrace the challenge of establishing standards for assurance activities related primarily to electronic evidence. A white paper developed by the Information Technology Research Subcommittee recommends the issuance of a Statement on Auditing Standards defining requirements for the use of electronic evidence. Control environments specific to EDI installation, the integrity of public and private electronic databases, or the relevance and reliability of electronic financial and nonfinancial information are rapidly becoming material to traditional CPA attest services. In the near future, they will become the subjects of assurance services themselves.

Since electronic technologies are increasingly a part of virtually all financial transactions, technical committees should have a full complement of information technology competencies.

The rapid growth of electronic transactions and data collection, storage, and transmission may already be affecting the relevance of existing AICPA standards and guidelines. In light of these technologies a substantial number of AICPA publications may require modification or replacement. The Institute must begin this process immediately in order to assure that its own guidelines and standards are relevant to the present commercial environment.

4. Improved Standard-Setting Procedures

The AICPA must speed up the process of defining standards and guidelines for dealing with electronic evidence in attest engagements and providing assurance on other financial and non-financial electronic information. Its standard-setting process is too sluggish to accommodate the rate of change in the financial markets.

Other organizations will compete with CPAs to perform these kinds of services. The AICPA has an opportunity, but it must act quickly if it is to become the standard bearer for new assurance services.

While this report is not intended to serve as

a redesign vehicle, the kinds of changes that should be considered include task forces charged to deliver by a target date and given the resources to achieve the target.

The exposure draft and comment process can be made more efficient by publishing exposure drafts on the Accountants Forum or World Wide Web and collecting input via bulletin boards, electronic town meetings, and on-line dialogues between the standard setters and those who wish to comment upon or ask questions about a proposed standard.

The AICPA should proactively seek input from practitioners' customers. The CompuServe Accountants Forum is an excellent vehicle for this. Through it the AICPA could involve users in identifying emerging issues related to new service opportunities and the need for new standards. Standards are far more likely to be effective if they are based on customers' needs.

5. Legislative and Regulatory Monitoring

The rapid growth of electronic commerce in all of its manifestations — on-line networks, electronic merchandising, the use of electronic money, and other information technologies — will inevitably result in abuses. These in turn will prompt attempts to regulate content, content providers, carriers, and other participants in the process. Many of the regulations and safeguards can or will involve a watchdog or assurance requirement. The AICPA should be prepared to monitor and influence these events in the interests of practitioners who provide assurance services.

The AICPA is well equipped to monitor and influence legislation affecting traditional audit and tax compliance services, but not to monitor opportunities and threats to nontraditional services. The Institute should rely on individuals with strong competencies in information technologies as they relate to assurance services.

6. Trends Monitoring

The growing influence of electronic information and technologies suggests a growing need for the AICPA to monitor trends. Perhaps this role can be assumed by the existing technology committee(s). However, the breadth and depth of trends might be more than one committee can master. The AICPA should therefore evaluate its trends-monitoring processes in light of the full range of information technologies and influences. Their potential effects on traditional and future assurance services are so pervasive that the evaluation deserves care and a high priority. Monitoring trends will assist the Institute in directing its programs of education, member communications, legislative monitoring, and standards development.

Strategic Pilot Programs

The AICPA will have to innovate aggressively but with balance and adequate forethought. A "Great Leap Forward" program would put the AICPA at risk for its potential failure to "leap" in the right direction. Instead the AICPA should select one or two pilot programs for the development of standards that will place the CPA stamp on new assurance services. The Committee expects to recommend potential pilot programs as part of its work in 1996.

Of course there is risk associated with any attempt to establish standards in markets that are still in their formative stages. But there are also major gains to be realized from positioning the AICPA and the profession at the leading edge of the new electronic marketplace. The Institute has little to lose and much to gain from initiating strategic pilot programs for the development of accelerated standard-setting programs, just as it has little to lose and more to gain in pursuing the recommendations above for AICPA action. ■

AICPA

Special Committee on Assurance Services

**Competencies Subcommittee Report
September, 1995**

**Special Committee on Assurance Services
Competencies Subcommittee Report
September 7, 1995**

The mission of the Competencies Subcommittee is to identify current competencies used in performing assurance services and those that will be needed in the future. The subcommittee's work to date has focused on the first part of its mission: identifying the current competencies of the profession.

Approach to the Subcommittee's Work

Early in its work the subcommittee recognized that CPA firms had already expended a great deal of cost and effort to identify the competencies of their staffs. So, the subcommittee decided to leverage that substantial work. It asked national firms to share their written materials on competencies and it invited their human resources experts to discuss competencies with the subcommittee.

Four firms provided written materials to the subcommittee, and six sent human resources experts to meet with the subcommittee. Though the firms differed in the degree of detail they provided about their staffs' competencies, they generally were consistent with each other.

The subcommittee was concerned, however, that the competencies of individual national firms, driven by the perceived needs of their clients and by the firms' individual strategies, might be different from those smaller firms might apply in assurance services. So the subcommittee next considered a study of competencies performed jointly by the accounting professions in Australia and New Zealand. The subcommittee believes that there is sufficient similarity in the nature of auditing practices in the U.S. and Australia/New Zealand to warrant using the Australia-New Zealand study as a surrogate measure of competencies of U.S. auditors.

The Australia-New Zealand study had an advantage over the firm materials the subcommittee considered in that it addressed the entirety of the professions in those two countries, rather than just large firms. The subcommittee found that the discussion of competencies in the Australia-New Zealand study was consis-

tent with what individual firms in the U.S. had said about competencies and contained added insights because it addressed compliance and performance auditing, as well as financial statement auditing. The subcommittee concluded that the combined results of the firms' work and the Australia-New Zealand study would provide sufficient information to identify the competencies currently used in the assurance function.

Competencies and Advantages

The subcommittee initially attempted to apply the concept of "core competencies." Authors Gary Hamel and C.K. Prahalad define core competency as a bundle of skills and technologies that enables a company to provide a particular benefit to customers (for example, at Sony that benefit is "pocketability" and the core competency is miniaturization). To be considered "core" a competency must meet three tests:

- Customer value — A core competency must make a disproportionate contribution to customer-perceived value. This does not imply that the core competency will be visible to, or easily understood by, the customer.
- Competitor differentiation — To qualify as a core competency, a capability must be competitively unique.
- Extendibility — A particular competency may appear to be core in the eyes of a single business unit, in that it meets the test of customer value or competitive uniqueness. However, it may not be a core competency in the eyes of the corporation if there is no way to imagine an array of new products or services issuing from that competency.

Hamel and Prahalad discuss core competencies in terms of individual companies, and the subcommittee found it difficult to apply this concept to the whole profession. In its meeting with human resource professionals, the subcommittee concluded that the profession, as a whole, did not possess "core competencies." The group did, however, agree on four "advantages" (as opposed to competencies) the

CPA profession has over other would-be assurance providers:

- Relationships: The ability to create and maintain objective relationships founded on trust
- Access: Comprehensive access to clients' top management and to the full scope of their operations
- Model building: The ability to identify and implement methods for quantifying enterprise activities
- Verification: The ability to identify and implement methods to attest to compliance with specified standards or criteria

After considering the material in the Australia/New Zealand study the subcommittee arrived at a concept of competencies that integrates what auditors know and what they do. Thus, for purposes of this paper, competencies has been defined as including both what individual auditors know and what individual auditors and audit teams do. Competencies are evidenced by auditors applying their skills in the delivery of services to clients or supporting the delivery of those services.

This definition has been used to determine what attributes of auditors should be referred to as "competencies." Using this definition, one of the advantages the subcommittee identified — access — is not a competency of the profession. Similarly, even though many firms identified objectivity, ethics, and integrity (or the reputation for having these attributes) as competencies, these attributes do not meet the definition of competencies. Still, the reputation for objectivity, ethics, and integrity is clients and the public value. It would likely would be an important advantage to the profession in competing with other would-be assurance providers.

Identifying Competencies

The subcommittee identified the following 19 competencies relevant to the provision of assurance services today:

- Accounting and auditing standards
- Administrative capability
- Analytical skills
- Business advisory skills

- Business knowledge
- Capacity for work
- Communication skills
- Efficiency
- Intellectual capability
- Learning and rejuvenation
- Marketing and selling
- Managing audit risk
- Model building
- People development
- Relationship management
- Responsive and timely
- Technology
- Understanding business processes
- Verification

The subcommittee obtained 18 of these from the competencies listed by the firms and in the Australia-New Zealand study. The subcommittee consolidated descriptions of competencies from these lists and excluded from its own list attributes that did not meet its definition of competencies and competencies that seemed more relevant to an individual firm's strategy than to the profession as a whole. One competency — verification — was not specified by the firms or in the Australia-New Zealand study. Rather, it was developed by the subcommittee in its discussions with human resources professionals.

Appendix 1 to this paper explains each of these competencies by either defining the competency, describing specific tasks and skills that comprise that competency, or both. These definitions and component skills are primarily compilations of information from the materials provided by the firms or from the Australia-New Zealand study. They represent as complete an explanation of each competency as is available in those materials. The subcommittee did not undertake to create its own descriptions of most of these competencies, so there is some variation in the format and extent of the descriptions of the competencies. Also, because it was often difficult to clearly delineate where one competency ended and another began, some component skills are listed with more than one competency.

Categorizing Competencies

The subcommittee divided the competencies it identified into "high opportunity" competencies and "low opportunity" competencies. High opportunity competencies were those the subcommittee believes have a high likelihood of being building blocks for selling or delivering new assurance services. Low opportunity competencies are those that, while important to the delivery of current assurance services, are less likely to be exploited in the development of future services. The following is the subcommittee's classification of the competencies it identified:

Judgments about the relative opportunities available for each competency were based on consideration of information about the future of the assurance function presented to the Special Committee on Assurance Services at its meetings to date. Comparing the competencies defined by the subcommittee with "common needs" identified by the Customer Needs Subcommittee suggests that the "high opportunity" competencies generally could be employed in providing services to fulfill those needs, while the applicability of low opportunity competencies to meeting those needs appears to be more limited. These common information/assurance needs were presented in a paper submitted to the Special Committee on Assurance Services prior to its July 1995 meeting and included assessing quality of a company's management, internal systems, and products; providing better infor-

mation about risk; developing forecasts and forecasting systems; comparing a company to its industry; comparing results to strategic plans; navigating information; reducing the cost of data gathering and analysis; improving timeliness of data; creating new scorecards; auditing performance/outcome information; improving decision models/analysis; providing information for cost reduction information; and overseeing contractors.

The comparison of current competencies with information/assurance needs identified by the Customer Needs Subcommittee does not address what are all of the competencies needed to meet those needs. That will be the Competencies Subcommittee's challenge in the second phase of its work.

The subcommittee also had attempted to classify competencies according to whether they were a "relative strength" of the profession or a "relative weakness." The subcommittee assessed the profession's competencies in relation to its members' perceptions of the competencies of other would-be assurance providers. This assessment was based solely on the judgment of the members of the subcommittee and proved to be somewhat controversial in presentations to the Special Committee on Assurance Services. Because of the lack of an objective basis for classifying most of the competencies and because of the degree of disagreement those classifications, this paper does not classify competencies as strengths or weaknesses.

Classification of Competencies

High Opportunity Competencies

Analytical skills
Business advisory skills
Business knowledge
Capacity for work
Communication skills
Efficiency
Intellectual capability
Learning and rejuvenation
Marketing and selling
Model building
People development
Relationship management
Responsive and timely
Technology
Understanding business processes
Verification

Low Opportunity Competencies

Accounting and auditing standards
Administrative capability
Managing audit risk

Appendix 1: Description of Individual Competencies

Accounting and auditing standards: Understanding of accounting and auditing literature; familiarity with current technical developments; performing thorough and accurate technical research

Administrative capability: Performing administrative responsibilities based on an understanding of practice economics, financial management, staffing and development, and other administrative matters; managing the elements of cost, revenue, and profit to maximize the financial return on the engagement.

Analytical skills: Include the following tasks and component skills:

- Research skills (finding and assessing data)
- Analyzing commercial and financial data
- Systems analysis and review
- Using sophisticated analytic models in support of audit judgment
- Using industry specific data bases in the audit
- Using extra-organizational information in the audit
- Organizational analysis of functions (e.g., financing, marketing, production) and of structures
- Seeing anomalies and recognizing their implications
- Knowing what should be there and sensing what is not there

Business advisory skills: Helping clients think through the implications of critical business issues, create innovative ideas, decide the action steps they should take, and implement those steps; includes the following tasks component skills:

- Applying technical knowledge to provide insightful recommendations to clients regarding the accounting for and the business and economic aspects of contemplated transactions
- Applying the level of synthesis and type of knowledge required to generate sound solutions to client issues
- Proactively providing recommendations that have an impact on client's business across a broad range of issues
- Taking intellectual risk necessary to present creative business ideas that help clients achieve their objectives

Business knowledge: Broad base of knowledge concerning macro environmental, economic and industry issues, and business processes, functions and practices; deep understanding of the implications of these matters — including the inherent opportunities and risks — to clients' businesses; understanding of how clients run their businesses and create value, who their customers are and what they want, who their competitors are and the key competitive risks they present, what the client's business strategy is, and the information needed to implement that strategy

Capacity for work: Demonstrates a strong work ethic; responds well to pressure

Communication skills: Expresses thoughts clearly and succinctly, both orally and writing; skillfully tailors communications for different audiences; listens well and effectively contributes to discussions; makes technical points understandable; demonstrates ability to negotiate effectively; displays ability to think on his/her feet; includes the following component skills:

- Using collaborative approaches to establish and build support for objectives
- Conveying ideas and information, leading discussions, and harnessing the group's potential to make decisions and generate solutions
- Explaining procedures or recommendations firmly, clearly and succinctly to inspire client's confidence

Efficiency: Demonstrates strong organizational skills; manages time well; leverages staff well; uses technology to improve efficiency

Intellectual capability: Includes the following component skills:

- Challenges conventional thinking: Pushes the boundaries of conventional thinking, resulting in innovations or breakthroughs in client's business, client service or engagement economics, and management
- Conceptual thinking: Identifying the key aspects of complex situations and understanding the big picture
- Diagnostic thinking: Recognizing patterns in observation of information and drawing appropriate conclusions
- Evaluative thinking: Thoroughly considering alternatives, weighing options, and assessing risks
- Forward thinking: Foreseeing and taking action to deal with future events, problems, and opportunities
- Imagination: Developing creative solutions and new ways of thinking about situations, problems, and opportunities
- Information seeking: Gathering current information about situations and getting the facts and data before making decisions. Discerning what services/skills are needed to resolve issues
- Systematic thinking: Taking a well ordered and logical approach to analyzing problems, organizing work, and planning actions

Learning and rejuvenation: Creating mechanisms to learn from the environment, clients, competitors, and work performed; and through this learning, continuously improve services, client relationships, and internal processes; includes self-awareness and development, accurately assessing one's capabilities and limitations in order to improve effectiveness, and then taking proactive steps to develop

Managing audit risk: Understanding and applying risk management knowledge and techniques in accepting and performing assurance engagements; differs from understanding client business risks, which is encompassed in business knowledge.

Marketing and selling: Includes the following component skills:

- Having credentials as an expert resource in a relevant industry/marketplace.
- Developing proposals
- Expanding value-added services to existing clients
- Asking open ended questions to learn about client's business issues and needs

- Developing a network of contacts and relationships, and using these as sources of information, support or business development
- Making initial contact and qualifying client interest
- Closing sales

Model building: The ability to identify and implement methods for quantifying enterprise activities; includes the following component skills and activities:

- Reviewing the outcomes of measurement projects — in the light of best practice, targeted improvements, present activity levels, and validity/reliability
- Monitoring the currency of measures in terms of practicality, use and reliability
- Establishing with clients/colleagues the need for measures to guide organizational or audit processes
- Instituting and setting parameters for measurement processes within the client organization or audit firm
- Critically reviewing proposed measures in terms of the processes used in their development, their value/acceptability to users, and the status they might attain
- Negotiating understanding of defined measurements, with clients or within senior levels of the audit firm
- Developing methodologies and databases for establishing performance criteria and measuring performance

People development: Attracting, developing, motivating, and retaining high quality human resources; component skills include:

- Developing performance plans, providing coaching and feedback; partnering with staff to help build their performance
- Enhancing the productivity of the team and individual's capabilities by prudently, yet aggressively, allocating work to those capable of high quality results
- Understanding the feelings, attitudes, concerns, and characteristics of others
- Using appropriate interviewing techniques to interview and select new hires
- Projecting a positive role mode for subordinates and peers
- Creating an environment to sustain highly motivated groups working to achieve common objectives
- Conveying knowledge and skill in ways which actively involve the learner and build capability

Relationship management: The ability to create and maintain objective relationships founded on trust; component tasks and skills include the following:

- Understanding clients' needs, goals, and strategies; the industries in which they operate; the competitive pressures they face; and their markets
- Measuring performance for clients to ensure they receive value from the work performed
- Leveraging strong relationships through coordination and frequent contacts with decision makers, both financial and nonfinancial, at appropriate levels and locations
- Establishing and maintaining credibility with and the trust of key decision makers at appropriate levels, so that judgments and inputs are sought, valued and respected.

- Thoroughly understanding issues and considering alternatives, weighing options, and assessing risks. Informing clients of issues, conflicts, problems, and opposition which might impede progress

Responsive and timely: Available when needed; willing to give clients first priority; meets deadlines

Technology: Technology competencies employed in current assurance services include the following:

- Using information technology: audit software, database systems, spreadsheets
- Applying auditing technologies and procedures
- Mastering new information technologies
- Developing audit technologies for reducing audit risk
- Adapting audit methodologies for evaluating controls in computer systems
- Designing new audit technologies for systems analysis and evaluation
- Developing audit technologies for assessing business risk

Understanding business processes: Understanding how business processes are structured; how they affect clients' businesses throughout the value creating chain of their industries; how processes link people, critical business activities, and goals; and how they can be continuously improved. Includes understanding how organizational design and incentive systems affect organizational performance and attainment of goals. Includes knowledge of best practices, business analysis, control practices

Verification: The ability to identify and implement methods to attest to compliance with specified standards or criteria; component skills include:

- Disaggregating summarized information into components
- Developing audit objectives for each of those components
- Designing and performing procedures to obtain sufficient, competent evidence relevant to each of the audit objectives
- Evaluating the evidence resulting from the performance of audit procedures to conclude on compliance with criteria

AICPA

Special Committee on Assurance Services

Compendium of Commonly Asked Questions and Answers

AICPA Special Committee on Assurance Services Compendium of Commonly Asked Questions and Answers

Rationale for the Project

Q. Why should nonauditors, such as consultants, tax specialists, or CPAs who provide other accounting services be concerned with the future of the auditing practice?

A. The audit is the profession's defining service and much of the value of the CPA certificate—even to nonauditors—comes from the goodwill resulting from the public's trust in this function. Diminution of the certificate's value affects all those who get a competitive advantage from it. Thus, strengthening the profession inures to the benefit of nonauditors. In addition, of course, any new assurance services can be provided by all practicing CPAs. So there is potential growth for them as well.

Q. Why is this initiative necessary when most financial statement users are satisfied with what they are currently receiving? Why raise preparers' costs unnecessarily?

A. The committee is unaware of data that suggest users are totally satisfied with the information they currently receive; in fact, many persons believe the reverse is true. CPAs, like others who provide goods or services, continue product development even if all identified needs are met, because there may be latent needs or ones that will arise in the future. Latent needs might have unexpected consequences. For example, to fill their unmet needs, users with clout such as institutional investors might each insist on closer scrutiny of operations and require a separate audit effort. In this scenario costs would rise as companies had to undergo several audits a year instead of just one.

Q. Does the committee believe that historical financial statements are worthless?

A. No. Historical financial statements and audits of them have value. However, they are only one part of the information mix that many people want. Information

needs have expanded and much of the information used to make decisions is not subjected to objective testing. The committee is seeking to find out what other information needs can be met by CPAs—how they can add value by providing assurance on information other than historical financial statements. For example, CPAs might add value by reporting on nonfinancial information or systems that produce or store information. The committee believes that CPAs need to seek out that economic white space (that is, services not provided by anyone else) to add value and grow as a profession.

Q. Isn't this just a method to increase CPAs' fees?

A. CPAs increase sales the same way any other business does—by providing additional or improved products or services that meet customer needs. If the committee's recommendations result in new services that add value for customers, CPAs will be engaged to provide them and increased fees will result. If the recommendations are not seen as adding value, they won't be demanded and won't result in additional income.

Q. Why is it necessary to advance change at the professional level rather than just letting the nimble firms exploit marketplace opportunities.

A. There are several reasons:

- Some opportunities could run afoul of existing professional standards, statutes, or regulations. If these require change, it can only be effected at the institutional level.
- Litigation is a continuing threat. Practitioners derive comfort from the existence of professional standards.
- Some of the new opportunities involve entering areas where CPAs do not enjoy market "permissions." The profession as a whole can more readily develop such permissions than any single firm, no

matter how prominent. The flip-side of this coin is that the public may cede "ownership" of new areas to CPAs if we can demonstrate the highest and most relevant standards — which can only be adopted at the institutional level.

Q. Will the SCAS change the standards for auditing or financial reporting?

A. The committee has no standard-setting authority. Its mandate is to identify and examine issues and make recommendations. It will be up to bodies with the requisite authority to consider and act on the recommendations as they believe appropriate. For example, if the committee suggests performance or reporting standards need to be changed to accommodate new services, it would be up to the Auditing Standards Board to consider and, subject to its due process requirements, establish them.

Q. What will the committee's final product look like?

A. The committee is a catalyst for change, so its conclusions will be intended to stimulate change. It will produce a plan for change along with strategies for implementing it. The form and content of any final product will be consistent with the committee's goal but neither has been predetermined. The committee is expected to communicate its conclusions to the AICPA Board of Directors in October 1996. In all likelihood, at the end of the process there will be some form of formal report with recommendations. The committee will communicate regularly with interested parties so that any promising ideas can be implemented right away rather than delayed while awaiting a formal report.

Q. Will the committee expose its proposals before they are issued?

A. The committee has embarked on an extensive communications effort to ensure that parties interested in the committee's efforts are informed about its progress and conclusions as they evolve. The form of the committee's final output and the process that will be used to issue any final report are as yet undetermined. An

exposure draft is not necessarily anticipated.

The Committee's Approach

Q. What is the makeup of the committee?

A. The committee and executive director include: 4 small firms, 1 medium firm, 6 large firms, 2 academics, 1 government accountant, and 1 member from industry. Three are full or part-time consultants, 6 have served on the Auditing Standards Board, others have served on the SECPS and PCPS Executive Committees, TIC, Accounting and Review Services Committee, Quality Review Executive Committee, AICPA Council and Board of Directors, among others.

Q. Does the Committee has adequate information technology capability given the prominent role of IT in the future of assurance services?

A. The committee has drawn on expertise beyond the committee's members. Its Information Technology Subcommittee has representatives from the AICPA Computer Audit Subcommittee and the Information Technology Executive Committee; it is chaired by an IT consultant. In addition, it has sought others' views of the information technology trends, such as from Intel Corp.

Q. How will the committee identify new services?

A. The committee undertook a substantial effort to talk to existing and potential customers (that is, persons who use information for decision-making, not just clients) to find out their information needs now and what they are likely to be in the future. The committee also considered the context, that is, the social, political, and economic environment, in which services will be provided 10 years from now. This information is intended to help the committee develop services that will be valued by customers in future.

Q. Is the work on customer needs a repudiation of the customer-needs work and findings of the Jenkins Committee?

A. The committee will fully use the Jenkins Committee findings, but they were almost exclusively directed at accounting issues, not assurance issues. Also, the Jenkins Committee's customer work considered only investors and creditors, and SCAS is considering a much broader customer set.

Q. What's new here? Many innovative services are already provided by consultants and internal auditors. How are the new service different?

A. Some of the services might or might not resemble services already provided by some accountants. The difference between consulting or internal audit services and assurance services will likely depend on the objective: consulting services and internal audit services are generally done to improve operations; assurance services are designed to improve the information or context used to make decisions, which, indirectly should improve outcomes of decisions.

Q. What materials are available?

A. The committee has provided articles for state society journals and newsletters and an article in the July 1995 *Journal of Accountancy* (also: Bob Elliott published related articles in the September 1994 *Journal of Accountancy*, September 1994 and December 1995 *Accounting Horizons*, and the Winter 1994-5 *Journal of Corporate Accounting and Finance*). The committee's interim report to Council and background materials are available on the CompuServe Accountants Forum. Several videos are available through the committee. Committee members have made scores of presentations to various groups.

Effect on the Profession

Q. Isn't this exercise largely a large-firm effort? Will there be any benefit for small firms?

A. Although specific technological innovations may affect large companies before small ones, the customer focus applies to firms and clients of all sizes. The key to providing new assurance services is

strong knowledge of the needs and capabilities of client companies; which many local firms already have but don't fully exploit. In addition, the new services will probably provide many opportunities for specialized, niche services for many types of information users. Many small firms will be able to fill these niches.

Q. Won't implementation of far ranging, speculative, or esoteric forms of service separate the large firms who can afford to implement and market them from the small firms who can't?

A. Evolution of assurance products will both provide opportunities and pose threats to CPA firms. Many small firms will likely find opportunities to provide new services and establish new niches. It might also require a change in doing business. Small CPA firms (as well as large ones) will have to make the investment necessary in personnel and technology to meet the challenges of the 21st century whether the SCAS makes recommendations or not. The committee is aware of the unique challenges faced by small firms. Its membership includes small firm practitioners and actively seeks insights from small-firm CPAs around the country.

Q. While there has been a trailing off of attest work for the private sector, there has been significant growth of government audits. How does this jibe with the model SCAS is using?

A. Government audits demonstrate the appeal of the customer-based model. These audits are not GAAS audits, but are tailored to meet the needs of the user (as specified by A-128, A-133, and the Yellow Book). As expected, the demand for the product designed expressly for the information-user's needs is growing. Of course, government agencies have the clout to demand a custom-tailored product. In the future, others, such as institutional investors or groups of individuals linked in by an Internet chat line, might also wield such clout.

Q. Some people believe that CPAs should narrow their services to what they

do best. How do you reconcile this with broadening the assurance function?

A. The committee has attempted to identify what CPAs do best and what can be transferred to new services. The committee's ultimate recommendations will be focused on information services, which are the profession's strength. It is unlikely to suggest that CPAs get involved in unrelated service areas.

Future Services

Q. How will the new services fit with existing services offered by CPA firms?

A. While it's too early to predict the committee's ultimate recommendations, it's not unreasonable to assume that the new assurance products will require auditors to make use of a broader range of talents and approaches than current audits. They might, for example, include features now found primarily in some types of consulting services. (State CPA societies might find opportunities to assist practitioners to acquire the necessary skills.)

Q. How can the committee propose new services when there is such widespread criticism of current audits?

A. The committee is exploring the current state of the audit as a foundation for its recommendations for new services. Its focus is on the future, but that doesn't preclude recommending ongoing improvements to current audits.

Q. What will the CPA's responsibility for finding fraud be? How will new complex technology affect this?

A. Ideally CPAs will provide assurance about fraud. No audit system is fraud-proof, but better systems and audit design can improve both company and auditor performance. To improve fraud-detection performance may require new competencies.

Q. How will the CPA look at controls in the future?

A. CPAs will be more involved with control systems. But it's difficult to achieve a useful level of assurance by

coming in after the fact and examining an existing control system. It would be more effective to be involved at the time the system is designed. Controls will be built in rather than added on so that the focus is on error-prevention rather than detection.

In addition, the profession needs a more modern conception of controls — a broader view of the risks to be controlled and a way to make controls dynamic so they don't wind up suffocating companies, impairing their nimbleness in the marketplace.

Q: Are you really talking about INsurance rather than ASsurance?

A: No; for three reasons:

1. It would be impossible with our lay jury system to get a reliable decomposition of risk into information risk and economic risk.

2. There is insufficient insurance capacity in the world for the large firms to insure today's level of risk; there would, a fortiori, be insufficient capacity under an insurance model.

3. It would not be a good idea to remove too much risk from investors. To the extent they face a one-sided game (stock goes up, they pocket the gain; stock goes down, they collect the insurance), they have insufficient reason to be careful in allocating capital.

Q. Models that suggest on-line access to financial information seem to envision publicly-held companies with many unrelated investors. Is this model relevant to a practice that focuses on privately-held companies or entities that report to regulators rather than investors and creditors?

A. Although the breadth of access to financial information differs in the absence of widely-held investment, neither creditors of small companies nor regulators are likely to be satisfied with periodic, after-the-fact reports in the future. Fortunes can change rapidly even in regulated industries such as financial in-

stitutions (see, for example, Barings or Daiwa Bank).

Q. Will companies really agree to open their books to allow electronic access to their records?

A. Initially they will probably resist. However, they will ultimately do it because it will be economically beneficial for them. But, any information access will have to be carefully designed to prevent disclosure of competitively disadvantageous information.

Q. What is the litigation risk of the any new types of services? Isn't there a real chance that they'll be too risky in our litigious society?

A. The committee is not limiting its considerations because of potential litigation risk. Its approach is to fully explore options and back off services that don't appear to be cost-beneficial, rather than prematurely close off avenues for fear they will be too risky. The committee is in contact with those involved in the profession's litigation-reform effort to make sure its recommendations are compatible with that effort. It is even conceivable that the two efforts could produce some synergy—for example, a case might be made that the profession could provide new, valuable services to society but cannot bring them to market for fear of unwarranted litigation.

Q. What will the AICPA do to enable practitioners to provide these brave new services?

A. The profession will need to establish a new customer-oriented mindset. The committee hopes to provide the impetus for such a change. Practitioners might also need new skills and knowledge to perform new services. The committee has undertaken a project to identify existing competencies and new ones that might be needed. The AICPA expects to communicate with educators and CPE developers and providers to make sure that CPAs are adequately prepared to provide new services.

Independence

Q. To accomplish the goal of expanding service beyond the traditional, might the profession cast aside independence and objectivity?

A. This is an important issue. The committee believes that independence and objectivity are critical attributes of CPAs. Accordingly, they should not be abandoned but, rather, should underlie any new service opportunities. However, as recommendations take shape, the committee might conceivably recommend changes to how independence standards are written or applied.

Payment

Q. How will CPAs get paid for these new services? How can you be sure that competition will not drive down the price of new services as it did for audits?

A. Obviously, the committee has not established payment methods; it hasn't yet identified the services. In some cases, the issue is irrelevant. For example, when a client pays for a service such as an audit of historical financial statements for the benefit of a third party the cost of the audit is imbedded in the transaction price (the interest rate on loan for example). In many cases is this cost far outweighed by the benefit received by the client (for example, lower interest rates; in fact if the cost wasn't lower the client would not engage an auditor). Nonetheless, the committee believes in other cases, it may be preferable to provide information directly to—and receive payment directly from—the ultimate consumer of the information. This area will be explored further.

Regulation and Standards

Q. How does the committee expect to accomplish real change, when standard-setting, regulatory bodies take such a long time to address change?

A. The committee is working with standard setters to keep them aware of its progress and involve them in the process. Many of the eventual recommendations

will probably be outside the purview of these bodies and can be implemented without standard setting or regulatory changes.

Q. Will any new services be restricted to CPAs?

A. The committee is not counting on expanding the assurance function through a government-ordered monopoly on any new services. It's also not certain that any new services would be mandated by law. Therefore, it is likely that CPAs will have to compete with nonCPAs to sell and provide new services. However, the committee is studying the core competencies of CPAs to determine those attributes of CPAs that give them a competitive advantage over would-be competitors and expects that new services will take advantage of those competencies. For example, CPAs generally have unique competence in designing tests and reporting the results. The public also holds in high regard their reputation for integrity, objectivity, and independence. If new competencies are identified as needed but currently lacking, the committee will communicate this to educators and others so that the profession will have the appropriate tools.

Q. What is the role of the current regulatory framework governing CPA practice in the new assurance-services world? Is deregulation of the profession anticipated?

A. The committee doesn't anticipate total deregulation of the profession. However, many of the services that might ultimately be recommended would probably not be covered by regulation or protected by monopoly. In addition, new markets might not value rulebooks; customization or judgment might be more important than standardization.

Q. Some examples of future services look more like valuation and economic decision support — much different than what we do now. What is the role of rule-making relative to going into new areas?

A. With a "hard" product (e.g., a standardized, manufactured item), the con-

sumer can judge product attributes without referring to product standards. But with services or "soft" products (like information products), standards can serve a role in creating a uniform perception of their attributes and qualities in the marketplace. Examples are the ANSI and ISO standards. In some cases, standards are even proprietary (e.g., DEC, Microsoft). The key is to express standards in terms of product qualities, not production rules. That way, suppliers can compete to improve the production technologies without running afoul of the standards.

CPA Training

Q. How are you considering the need for additional CPA training, specifically: university curricula, the CPA exam, and continuing education?

A. The committee intends to address specific training needs later in the project when recommendations start to take shape. However, one of the committee's projects is to identify CPAs' existing competencies and, later, to compare them to those that will be required in the future.

The committee has begun discussions with both the AICPA Academic and Career Development Executive Committee and an American Accounting Association committee. Members of the committee have also been involved with Accounting Education Change Commission. In addition, two of the members are academics.

The committee has also spoken to the AICPA's CPE division to keep it apprised of the direction and are keeping the staff informed.

Q. What should educators be exploring relative to curricula?

A. The committee's work is not complete, so it would be premature to redesign curricula based on it. An issue to consider is whether competencies are innate or learned. If learned, curriculum redesign should focus on teaching them. If innate (e.g., right-brain skills), curriculum redesign should focus on attracting students who possess the competencies into

the accounting curriculum and then the accounting profession. In this regard, the design of the first course in accounting is critical, because it acts as a student filter. If students who have newly required competencies are repelled, the profession will be deprived of necessary competencies for its future development.

Q. What will the future of CPA training look like? Will we train CPAs in specialties or train specialists in other domains to be CPAs?

A. Most of the new services envisioned by SCAS will not be restricted to CPAs. In the past, CPA education and training, and the CPA exam have stressed mainly recall of facts. CPAs need to develop higher order cognitive skills, e.g., critical thinking.

Clients only want to pay for value added, and that requires experience and maturity. If this becomes the dominant model, the historical pattern will reverse: instead of CPA firms training people for industry, industry will train people for CPA firms. This could have major implications for curriculum and acculturation of professionals.

Q. Will CPAs have to become infotechie in this new world?

A. CPAs will need to considerably increase their ability to understand and use technology, but the essential CPA skills of understanding business operations and designing and interpreting performance measures will continue to be more important than technology skills.