Meeting The Challenge of Technological Change -
A Standard Setter’s Perspective

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INTRODUCTION

Will there still be work for auditors in the year 2016? The continued existence of a meaningful role for external auditors will depend to a great extent on how well the auditing profession can adapt to the continuous and rapid advances in information and communications technology (IT) and the changing information needs of users. While adapting to change ultimately is the responsibility of the individual public accountant, standard setting is vital to helping the profession as a whole move forward and continue to meet the public’s evolving needs and expectations.

Effectively assessing and reacting to the impact of technology is a matter of survival for auditors. In The End of Work Jeremy Rifkin notes that “a survey of recent technological developments and trends in agriculture, manufacturing and service sectors suggests that a near workerless world is fast approaching and may well arrive before society has sufficient time to either debate its broad implications or prepare for its full impact.”¹ Evolving IT is rapidly making its way up the work ladder, replacing not only many blue-collar manufacturing jobs and white collar clerical positions but also an increasingly significant number of middle management positions.² And some professions are beginning to face serious competition from computers which solve the mysteries of the more mundane aspects of professional practice, enabling laymen to do the work themselves or hire a software-armed paraprofessional.”³ The question then is how will auditors cope with, or perhaps even thrive in, a high-tech environment.

High-tech environment

High-tech has been defined as “a term for sophisticated, often complex and specialized innovation.”⁴ The concept of a ‘high-tech environment’ is subjective and constantly changing as IT evolves. However, IT can be viewed as having two fundamental functions, whereby it:

(a) automates (i.e., replaces the human body with a technology that enables the same processes to be performed by a machine with more continuity and control); and simultaneously

(b) ‘informates’ (i.e., generates information about the underlying productive and administrative processes (activities, events and objects) through which an organization

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² Ibid., chapter 1.
accomplishes its work). It provides a deeper level of transparency to activities that had been either partially or completely opaque... For example, scanner devices in supermarkets not only automate the checkout process but also simultaneously generate data that can be used for inventory control, warehousing, scheduling of deliveries and market analysis.⁵

The AICPA Technology Division annually identifies the 15 technologies which have, or will have, the most significant effects on CPA’s and the entities they service.⁶ The automating and information functions underlie all of these technologies and have a profound effect on the way an organization defines and conducts its business and the control elements it establishes to help achieve its objectives. How will these functions affect auditors as technology continues to rapidly develop? This depends on:

(i) whether auditors can effectively respond to changes in the conditions which have traditionally driven the need for audit (assurance) services and thereby meet the changing needs and expectations of users; and
(ii) whether standards, and related guidance, are developed in tandem with the needs of users and providers of assurance services to help ensure that sufficient appropriate information is available on which to base decisions and thereby improve organizational performance.

This paper provides a brief overview of these matters, and contends that if auditors embrace new IT and seize the opportunities it provides, the future of the auditing profession looks bright.

A CONTINUING NEED FOR AUDITORS IN A HIGH-TECH ENVIRONMENT

In 1973, the American Accounting Association (AAA) released A Statement of Basic Auditing Concepts which contains a useful model of the communication of accounting information and the role of the audit function (see Exhibit 1).⁷ The elements of this model continue to apply in a high-tech environment, but with significant changes in the nature and availability of subject matter, the information that can be developed and reported using the subject matter, and the types of objective assurance services and related standards that are needed. Exhibit 2 re-works the AAA model to reflect these changes. The AAA model refers to four conditions creating a demand for auditing.

- conflicts of interest between preparer and users;
- consequence of information to users;
- complexity of subject matter and audit process; and
- remoteness of users from subject matter and preparer.

In a high-tech environment, these four conditions still result in a need (opportunity) for objective assurance services, but the nature, timing and extent of such services, and how they are performed, change significantly.

Conflicts of interest between preparer and users

The sophisticated, complex and specialized innovations associated with a high-tech environment are unlikely to affect conflicts of interest between preparers and users. The objectives,

⁵ In the Age of the Smart Machine - The Future of Work and Power, Shoshana Zuboff, (pgs. 9-10)
⁷ American Accounting Association, A Statement of Basic Auditing Concepts, pg. 11
desires, attitudes that may lead preparers to promote their own self-interest by biasing reports (either deliberately or unintentionally) endure in a high-tech environment. The AICPA Special Committee on Financial Reporting (the Jenkins Committee) has stated that credibility of reporting is still a serious problem, since investors, creditors, and their advisors believe that the reports of many companies reflect the natural tendency of management to report information in the best possible light and to avoid reporting poor company performance. Accordingly, actual or perceived conflict of interest will continue to be a primary driver of a need for an objective attest function. The high-tech environment may provide a user with greater opportunity to forgo the attest function and obtain direct access to the underlying data without the use of an assurer, but whether a user would take this course of action is primarily a function of the complexity and remoteness conditions discussed below.

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8 The AICPA Special Committee on Financial Reporting, "The Information Needs of Investors and Creditors"
Consequence of information to users

The AAA model states that the more significant the consequence to the user of acting on insufficient or inappropriate information, the more importance he or she will attach to receiving objective assurance. In a high-tech environment, the basic nature of the actions taken by users (e.g., invest, disinvest, loan, demand payment) do not change significantly. However, IT has a significant effect on:

(i) the nature and extent of data and information which may be made available to users; and
(ii) the time-frame in which users expect to receive information relevant to their decision-making.

Effect of IT on the nature and extent of data and information available to users

Because of the power of digitization, a high-tech organization can use IT to capture, analyze and report a wide range of both financial and non-financial performance measures regarding factors that are critical to the organization’s success.
Such performance indicators often would include:

- market/customer indicators (e.g., of measures of product quality, speed of production, on-time delivery; customer demographics, new product introduction)
- internal business process indicators (e.g., measures associated with processes associated with an organization’s critical success factors, such as new product development);
- human resource indicators (e.g., measures of employee’s competence and skill growth; morale; ability to be innovative and creative);
- competitor indicators (e.g., measures tracking competitor’s performance on the same dimensions as those of the organization);
- environmental indicators (e.g., measures of air and water quality; extent of recycling); and
- financial indicators (e.g., revenue growth, customer and product profitability; cost trends, asset management; return on invested capital and equity; return on R&D; cash flows).

Performance measures often will focus on history (i.e., events that have occurred that have resulted in current conditions, risks and uncertainties) but, through the use of IT, these measures can also be designed to provide a basis for more meaningful future-oriented information (i.e., forecasts and projections) which may be even more relevant to the decision-making process of users.

Each performance measure will have varying degrees of relevance to the decisions of particular users, depending on the users’ objectives. However, these measures, overall, may become more important than historical cost financial statements as decision-making tools of users. The Jenkins Committee, the Inter-institute Vision Task Force (of the CICA and Provincial Institutes of Chartered Accountants in Canada) and numerous others have expressed the view that the traditional historical-cost annual financial statement distributed on paper is unlikely to continue to satisfy the market’s need for timely and relevant information. However, if these new performance measures are vital to decision-making, it seems reasonable to suppose that users will want objective assurance regarding the reliability and relevance of such measures.

Shortened time-frame for decision-making

The use of IT has increased the speed with which new information can be made available (and older information made irrelevant) and accordingly the speed with which many decisions can, and need to be, made. Annual audits of financial statements are likely to become less important because users need more timely information. However, auditors have an opportunity to develop assurance services that respond to a short decision-making time frame. For example, the AICPA Special Committee on Assurance Services (the Elliott Committee), particularly its Information Technology Sub-Committee has discussed methods by which auditors may be able to monitor and report on performance measures on a real-time basis. The methods include:

- the introduction of numerous electronic sensors (owned or controlled by the auditor) at key checkpoints in the organization’s information systems, with the sensors automatically identifying subject matter that requires attention; and
- continued development of audit software agents to provide auditors with the capability to search for unusual patterns and/or corroborative patterns in the organization’s data

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9 Faculty of Finance and Management of the Institute of Chartered Accountants of England & Wales, “Good Practice Guideline - Developing Comprehensive Performance Indicators”
bases, and the data bases of other entities involved with the organization (e.g., its EDI partners).

Such methods, of course, require auditors to embrace IT and use it effectively to meet user needs.

The Elliott Committee has also discussed other possibilities of making assurance reports available on a more timely basis. For example, if a user desired assurance regarding the integrity of a database (e.g., a report on the effective operation and continuity of controls (including security controls) over a database system having a link to the Internet), the system could be designed to enable the user to click on an 'assurance icon' to have access to the assurer's report (perhaps for a fee). Another example would be to design a database system to enable users of particular types of data to obtain immediate access to the assurer's latest report on the reliability of those data.

**Complexity of the subject matter and the audit process**

The AAA model is based on a premise that the need for an audit performed by a qualified professional will increase because, as the subject matter, and the process by which it is converted into information, become more complex:

(i) the user of information will find it increasingly difficult or impossible to be satisfied as to the quality of the information being received;
(ii) the possibility of errors in the information increases; and
(iii) the audit process to assess the quality of information demands a level of expertise not possessed by the average user of information.

**Increased difficulty in assessing the quality of information**

In a high-tech environment, most subject matter can be put into a digital format, thereby increasing not only the volume of information that may be made available to users, but also its level of complexity. Also, users may find the environment in which they must interpret information more complex because they can receive information (often relating to the same subject matter) from a myriad of on-line services and databases.

The IT sub-committee of the Elliott Committee has identified a significant opportunity for the auditing profession to help users sort out complex information by providing user decision-modeling assurance on: problem definition; decision model selection / specification; decision model information requirements; information sourcing / finding; information analysis / interpretation / relevancy; evaluation of alternatives and trade-offs; implementation of actions; and outcome feedback.

**Possibility of errors**

No advance in IT will entirely eliminate uncertainty about the accuracy of information it produces (i.e., the uncertainty principle, a basis for quantum mechanics which governs the behavior of transistors and integrated circuits, is a fundamental and inescapable property of the world). However, IT can significantly reduce errors since computers and other forms of IT are much more effective than humans at performing vast numbers of repetitive tasks with a very high rate of accuracy. Further, the quality of software and hardware likely will continue to improve as the
process of developing them is itself increasingly automated, reducing the risk of human error in the process.

However, a disturbing trend for information suppliers, users and auditors alike is a decrease in the level of human knowledge and skill needed to challenge erroneous information generated by IT. It has been observed that when manual tasks are computerized, the art and skills previously used to manually operate a machine are lost. This loss means that operators no longer have 'checkpoints in reality' that allow them to confront the accuracy of the computer information. If it is valid to generalize this problem beyond the work environment, it seems that users should recognize their own inability to assess the reliability of information received, and accordingly look to auditors to provide assurance on the information. This assurance could be indirect, taking the form of an opinion that the controls over the systems generating the information are operating effectively. On the other hand, blind trust by users that IT-generated information should be almost error-free is not beyond the realm of possibility.

Level of expertise required to perform audits

Auditors who are well-versed in technology often question whether certain auditors (let alone lay-persons) are capable of performing an effective audit in a high-tech environment. The auditors whose performance is being challenged are those who want to continue to take a substantive approach and audit 'around the computer.' As the use of IT such as EDI gains in popularity, the substantive approach will no longer be practicable. As noted in the recent Auditing Procedure Study Audit Implications of EDI jointly developed by the CICA and AICPA, paper documents will no longer be available, and assessing the completeness, accuracy and authorization of transactions will require an understanding of EDI controls embedded within the computerized systems. Also, the most effective way to audit an entity using EDI may involve the use of continuous auditing techniques and on-line real-time auditing tools such as an integrated test facility, embedded audit modules and concurrent audit tools.

Most lay-persons are not interested in spending the time and money to acquire expertise in auditing, particularly expertise involving sophisticated audit tools. Auditing is seen by many outsiders as a tedious profession practiced by the sincerely dull. They would prefer that someone else, with the required expertise, perform the service. This is not to say that some laymen might not want to make use of data extraction tools that may become easy to use with advances in IT. However, expertise in auditing goes well beyond data extraction, and a scenario whereby users commonly perform their own audits, because they have acquired the professional expertise and want to make the effort, seems unlikely.

Remoteness of users from subject matter and preparer

The AAA model takes the position that even if the user of accounting information has the ability to reach a conclusion on the quality of information received through his or her own direct efforts, and has the desire to do so because of the consequences of inferior quality information, he or she may be prevented from doing so by certain barriers, which are components of 'remoteness.'

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11 Zuboff, pg. 66
12 AICPA and CICA, Auditing Procedure Study Audit Implications of EDI., pg. 3
14 Westell, Don, Toronto Globe & Mail, March 19, 1996
15 AAA. pg. 10
Anderson refers to these components as geographic remoteness, legal remoteness and economic remoteness.\textsuperscript{16}

**Geographic remoteness**

Geographic remoteness (the physical separation between the user and the data and data provider) was considered a significant impediment in 1984 but is now irrelevant. In the public domain, for example, the primary focus of the Internet is to provide an immediate link between people and businesses geographically dispersed throughout the world. Information filed with the SEC’s EDGAR system is now available on the Internet. In a more private domain, if an information provider and user become trading partners using EDI, their physical location has no effect on the ability of technology to provide them with immediate links to each other’s data. Geographical remoteness is no longer a raison d’être for assurance services.

**Legal remoteness**

Legal remoteness (the absence of an enforceable right, by statute or contract, to direct access to data by a user) remains a significant factor which leads users, who perhaps would prefer direct access to data, to use an auditor. Historically, providers of information have been reluctant to allow unrestricted access to their data, even though this may be technologically feasible, since this may not have been in their best interests. While EDI requires greater access by customers and suppliers to information once considered highly confidential (e.g., inventory levels; production plans), there are drawbacks. For example, sensitive information may be inadvertently or deliberately disclosed on the network or in the mailbox system, and increased access to computer systems could increase the opportunities to change an entity’s computerized records and those of its trading partners, enabling significant fraud to be perpetrated.\textsuperscript{17}

Also, in many jurisdictions, there is still legislative support for restricted access to corporate information. For example, under Corporations Acts in Canada, shareholders have no right of direct access to the records of the company whose shares they hold. This right of direct access is granted to the external auditor.

**Economic remoteness**

Economic remoteness occurs when the costs (time and money) of directly accessing data outweigh the related benefits.\textsuperscript{18} Traditionally, there are those who have had right of access to an entity’s data but have chosen not to exercise it, because the costs of doing so outweigh the benefits. For example, taxation authorities, who typically have access to the records of an entity to perform tax audits, visit only a relatively small number of entities (for which taxpayers are most grateful.) Such visits are not economical, and the taxation authorities typically only monitor the information filed, including audited financial statements. However, many tax returns are now filed electronically. Will the next step be electronic access by taxation authorities to personal and corporate files? Taxation authorities might see the benefits of such access outweighing the costs, but this view would not likely be shared by taxpayers.

\textsuperscript{16} Anderson, R.J. *The External Audit*, 2n Ed. 1984, pg. 5
\textsuperscript{17} AICPA/CICA Joint Auditing Procedure Study pgs 19-22
\textsuperscript{18} AAA pg. 10
EDI provides a useful example of where benefits often outweigh the costs of establishing relatively extensive and complex electronic links between entities. Costs of EDI include hardware and software costs associated with the installation, systems development costs, initial maintenance of the data entry system, legal and administrative costs associated with setting up trading partner relationships, network communication and security costs and training. As well, there are exposures such as total systems dependence, loss of confidentiality, potential increased exposure to unauthorized transactions and fraud, concentration of control within the computer systems, increased reliance on third parties and potential legal liability. For the EDI arrangement to work, the partners must be satisfied that these costs and exposure may be more than offset by the related benefits which include quick response and access to information to process transactions, cost efficiency associated with lower inventory levels, improved production schedules, reduced paperwork, better communications and customer service and integration of other systems, such as Just-In-Time inventory.\textsuperscript{19}

In situations when EDI or other forms of IT are used to establish close links among parities, there is still a need for objective assurance services, even though the parties can satisfy themselves regarding the accuracy and completeness of the data they exchange. For example, third party service providers, such as Value-Added Networks (VANs) may find it necessary to have an objective assurer issue a report on whether the VAN's controls are operating effectively. Also, the linked parties will still typically have to provide information to outside users, who will require objective assurance on such information.

**Summary**

The conditions identified by the AAA as creating a demand for auditing change to some extent in a high-tech environment. However, overall, they create a demand (or at least an opportunity) for a wider range of assurance services. Part of the effort needed to take advantage of these opportunities will be the development of standards responsive to user needs.

\textsuperscript{19} AICPA/CICA Joint Auditing Procedure Study chapter 3
DEVELOPING STANDARDS RESPONSIVE TO USER NEEDS

Information users in a high-tech environment still need standards to assess the quality of information received and the quality of services provided by the assurer. However, standards have to evolve to be more responsive to the changing needs of users in a high-tech environment. This requires an assessment of how the continued and rapid changes in IT should affect the nature and extent of updated or new standards to be developed, and the process for developing such standards.

Nature and extent of updated or new standards to be developed

The financial statement audit model is relatively easy to apply in practice. The auditor performs the audit in accordance with generally accepted auditing standards to obtain sufficient appropriate evidence to enable him or her to report whether the audited entity's financial statements have been prepared by management in accordance with generally accepted accounting principles. Key elements of this model include;

(i) an accountability relationship between the provider (management) and users (shareholders and others) of the information;

(ii) the need for management to prepare the statements in accordance with criteria (generally accepted accounting principles) which reflect the needs of a large homogenous group; and

(iii) the need for the auditor to perform the audit in accordance with the standards governing his or her profession (i.e., generally accepted auditing standards), with the basic requirement that the auditor possess the professional expertise to perform the service.

These key elements need to be reconsidered in developing updated or new standards in a high-tech environment.

Accountability relationship

Largely because of IT developments, there is an opportunity (need) for public accountants to provide assurance on a wide range of performance indicators. The CICA has taken its first major step to recognize the need for a broader range of assurance services by issuing an Exposure Draft (ED) Standards for Assurance Engagements, the responses to which are now being analyzed.\(^2\) This ED defines an 'assurance engagement' as an engagement where, pursuant to an accountability relationship between two or more parties, a practitioner is engaged to issue a written communication expressing a conclusion concerning a subject matter for which the accountable party is responsible. The ED defines an 'accountability relationship' as a prerequisite for an assurance engagement. An accountability relationship exists when one party ('the accountable party') is answerable to and/or is responsible to another party (the 'user') for a subject matter, or voluntarily chooses to report to another party on a subject matter. The accountability relationship may arise either explicitly, as a result of an agreement or legislation, or implicitly because a user can be reasonably expected to have an interest in how management has discharged its responsibility for a subject matter.

The need for an accountability relationship is consistent with the AAA model for communication of accounting information, and the audit service which supplements this communication process. This need distinguishes an assurance engagement from a management consulting engagement where there need not be a provider of information who has a responsibility to users. Such a distinction would

\(^2\) CICA Auditing Standards Board, ED "Standards For Assurance Engagements", 1995
seem necessary to put a reasonable boundary around the types of services demanded in a high tech environment that can, and should, be addressed by standards. That is, standards should be meant to address situations where there is a primary communication process between a preparer and a user of information, and a supplementary communication process whereby an assurer attests to the quality of the information. The assurer normally will focus on verifying assertions underlying the report of the information provider.

However, this model may be challenged by some. For example, the Elliott Committee has discussed the need for 'user decision modeling assurance'. This type of 'assurance service' does not involve an accountability relationship (i.e., the information provider cannot be held responsible for the user's decision-making model). The Committee admits that it would be taking a very broad perspective in defining an assurance service as any service that assists information users in improving the quality of their decision-making information.

Public accountants obviously can provide services when an accountability relationship does not exist. But an effective standard setting process for assurance services needs to be based on a clear model involving responsibilities and criteria related thereto. For example, postulates underlying assurance engagements, such as the objectivity of the assurer, professional skepticism, and assumption of management's good faith, become irrelevant when the engagement does not involve someone who is accountable to another party. From a standard-setting viewpoint, defining assurance services to comprise all types of consulting services would not seem to be workable.

Standards to meet needs of specific users

Generally accepted accounting principles are designed to meet the needs of a large homogenous group of users. The evolution of IT now makes it possible for users to more readily access data and information to meet their own specific needs. Accordingly, standards are needed which relate to assurance engagements designed to address the needs of specific users.

The CICA's ED Standards for Assurance Services recognizes this change in needs. This ED is meant to provide a framework on which standards for specific types of assurance services should be based. It states that when practicable, the practitioner should reach an understanding and agreement with the intended user and with management as to the objective of the assurance engagement. This understanding will assist the practitioner in assessing whether the conclusion can be meaningful to intended users. The ED also reaffirms the concept in the AAA model that users need to provide criteria (directly or indirectly) to the assurer. The ED:

- defines suitable criteria as those yielding information useful to intended users, stating that the criteria are 'context-sensitive' (i.e., relevant to the particular circumstances) and that without suitable criteria, inappropriate conclusions may be drawn; and
- states that the practitioner should use generally accepted criteria in forming his or her conclusion except when, and only when, the intended users of the practitioner's report are an identifiable limited group of users and such users agree their needs are met by using criteria other than generally accepted criteria. In such cases, the practitioner's report should include a caution that the report is intended only for the use of the intended users because those users have agreed to criteria other than generally accepted criteria.

The ED, however, introduces a concept which is foreign to the AAA model - the 'direct reporting' engagement. In such an engagement, management does not provide a report to users, and accordingly makes no assertions regarding the information. This can result when management refuses to acknowledge its accountability relationship with one or more users, or when it
acknowledges the accountability relationship but has not (or will not) prepare reports on information required by the users. This situation is a fairly common occurrence in the public sector (GAO) where legislation empowering an entity may be open to interpretation regarding for what the entity is accountable and to whom. In these circumstances, the ED takes the position that the assurer needs to obtain evidence to be satisfied first, that an accountability relationship does, in fact, exist, and second, that suitable criteria for the engagement can be identified or developed (with such criteria being explicitly described in the assurer’s report). The group of users affected may constitute a wide variety of people (e.g., stakeholders in a government entity) so direct consultation with them regarding their needs and what they would consider appropriate criteria may not be practicable.

The use of a direct reporting engagement may be controversial because it effectively allows the preparer to be left out of the communication model in certain circumstances. However, these circumstances do exist in practice, so that the key question may be to what extent standards and related guidance need to be developed to assist practitioners in assessing the suitability of criteria for engagements intended to meet specific user needs.

Does this move towards meeting the needs of specific users mean the end of general purpose financial statements? Likely not. General purpose financial statements provide a useful overview of the results of an entity’s efforts to meet its objectives. Generally accepted accounting principles continue to evolve to make general purpose financial statements more relevant to users. For example, in 1995, the CICA issued new generally accepted accounting standards regarding the disclosure and presentation of financial instruments which includes disclosure of matters such as interest rate risk, credit risk and cash flow risk. Initiatives to make historical cost financial statements more relevant by incorporating more ‘soft-information’ into them are likely to continue.

**Defining professional expertise**

The AAA model states that “to be judged competent, the auditor must possess the common body of knowledge with an in-depth understanding of the subject matter from which the information is drawn, of the process by which the information is developed, and of the audit process. In addition, the auditor must have acceptable experience at an appropriate level of work in the application of relevant knowledge to real-life situations.”

This concept is reflected in generally accepted auditing standards which require the auditor to have adequate technical training and proficiency in auditing. However, with the evolution of IT and the resultant broadening and complexity of subject matter that may be dealt with by assurance services, it is no longer clear what types or level of professional expertise are expected of the assurer.

**Need for expertise in IT concepts and functions**

Auditing standards currently do not give appropriate recognition to the pervasiveness of IT or the auditor’s need for expertise in the concepts and functions associated with IT to competently perform a financial statement audit, let alone the expanded range of assurance services that are needed in a high-tech environment.

There is a need for IT concepts and functions to be integrated into auditing standards and related guidance, rather than being treated as a supplementary topic. The AICPA has started this process as a result of its project on ‘electronic evidence.’ In the CICA Handbook, the concept that

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21 CICA Handbook, Section 3860 “Financial Instruments”

22 AAA, pg. 17
computerized systems are now the norm is not effectively recognized (EDP Auditing Guidelines, themselves outdated, are contained in separate part of the Handbook). Also, the International Federation of Accountants (IFAC) has identified as a high priority auditing issue the need for standards to discuss the level of IT knowledge for 'general auditors,' the need for the profession to establish a clear definition of the minimum levels of competency required in IT (taking into account the various fields in which accountants practice) and the need to undertake an aggressive campaign to ensure practitioners gain the minimum level of IT competency through a more systematic approach to continuing professional education.23

Need for specialization and new competencies

The IFAC also recognizes the need to create specialist designations and related education programs for IT specialists, who would be publicly recognized as having the competence to perform assurance services related to data integrity and system security for highly complex state-of-the-art IT.24

In addition, the performance of a wide variety of assurance services will require auditors to acquire new competencies beyond the traditional accounting and finance expertise. The CICA Vision Task Force also recognizes the need to develop a certification process for specialists within the public accounting profession (typically based on knowledge of a particular industry and/or a particular function).

The involvement of persons possessing specialized knowledge is discussed in the CICA ED Standards for Assurance Services. It states that the practitioner and any other persons performing the assurance engagement should collectively possess adequate knowledge of the subject matter. Accordingly, it is recognized that an individual practitioner is not expected to possess all the expert knowledge needed to perform an assurance engagement, which may involve, for example, expertise in fields such as engineering, statistical analysis, human resource management and economics. However, the question arises as to what should be the expected nature and extent of the contribution to the engagement of a generalist practitioner. The ED takes the position that when a specialist is involved, the practitioner should consider whether the practitioner’s involvement in the engagement and knowledge of the subject matter elements involving the specialist is sufficient to enable the practitioner to discharge his or her responsibilities.

A CICA auditing standards task force (which will report to the Auditing Standards Board) will soon start a project to update and expand standards on the assurer’s use of the work of a specialist. This project will address issues such as: the nature and extent of the procedures expected to be performed by the practitioner to gain a knowledge of the methods, assumptions and source data used by a specialist and the extent of the knowledge of the subject matter and the methods and assumptions employed by the specialist that the practitioner should have in order to meaningfully carry out an assurance engagement. Based on its discussion paper The Auditor and the Environment it would seem that the International Auditing Practices Committee (IAPC) believes that when an assurance engagement involves the work of a specialist, there would be separate reporting. That is, the specialist would report on the specific work he or she performed and the practitioner would report only on the ‘non-specialist’ aspects of the engagement. But such an approach is unlikely to be acceptable to most users of assurance services who will, and should, expect someone to take overall responsibility for the assurance being provided. In our view, a practitioner should be prohibited from undertaking an assurance engagement when the specialist would be performing virtually all of

23 International Federation of Accountants Information Technology Committee, “Action Plan”, May 1995
24 Ibid.

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the work, since the practitioner would not be in a position to provide any significant value to the user.

Process for developing standards

Dissatisfaction has been expressed regarding the processes presently used to develop standards for assurance services. There are concerns, for example, about the lack of speed with which standards are developed in most jurisdictions and the duplication of effort that seems to take place when standard setting bodies in various jurisdictions separately develop guidance on the same topic. The bodies responsible for setting assurance standards in various jurisdictions need to reassess when, how, where and by whom such standards should be developed and promulgated. These questions are all interrelated.

Time taken to develop and issue standards

In a high-tech environment, change occurs rapidly. Users expect the elapsed time for developing standards and related guidance to be shortened considerably. If traditional methods are used to attempt to develop standards and related guidance for assurance services related to new types of IT that evolve, the services may be out of date by the time the standards are issued.

However, there are at least three significant issues to consider. The first is whether standards should follow or lead best practice. For example, at the Canadian Institute of Actuaries, some actuaries feel that the Institute was moving too quickly in promulgating standards of practice for life insurance when there may not have been sufficient evidence that these standards were acceptable to a broad majority of the practitioners in this area. However, there is a danger that if a standard setter does not provide leadership, the result may be the entrenchment of poor practices or, at best, the development of a number of inconsistent approaches to providing a service which may be difficult to resolve at a later date. At a minimum, standard setters should set up the mechanisms, and spend the time needed, to monitor matters such as the development of new financial and non-financial performance measures and related assurance services so that continuous assessments can be made of what, if any, action is needed regarding setting standards or related guidance and project priorities. The Elliott Committee and its Canadian equivalent, the Thesberg Committee, are developing means for performing these functions.

The second is whether standards are really necessary to address each new service. It would seem that a better approach would be to develop more general, but fundamental, standards that practitioners can apply to most new types of service. More detailed, but not necessarily authoritative, guidance could be issued in forms such as interest group newsletters.

The third is the limited availability of volunteer time. Standard setting bodies are typically composed of volunteers who have only a limited amount of time to devote to the process. For standards to be effective, there must be buy-in by practitioners and other affected parties. Therefore, it would not be acceptable for standards to be developed solely by full time staff, despite the reduction in development time which might result.

Standards boards, do however, have to come up with ways to improve the process for issuing standards on a more timely basis. In Canada, standard setting boards now make exposure drafts available on the Internet (a copy is also distributed in CAmagazine which arrives a month later.) The payback may not be large at present (since not all practitioners are on the Net), and deadlines for responding to EDs, while shortened, still allow time for a paper-based approach. As more
practitioners connect to the Net, it may be possible to quicken the pace of the due process of getting consensus on proposed new standards.

More radical approaches to standard setting also could be tried. For example, instead of going through an extensive due process before releasing a standard, a proposed standard could be developed with minimal consultation and issued for a ‘trial period’ to see if works effectively in practice. However, such an approach could be confusing (i.e., is a trial period standard really a standard?) especially when accounting and auditing standards are often recognized in statutes. Also, the time to finalize standards could actually be longer than for the approach currently followed in most jurisdictions.

A CICA Task Force, composed of volunteers with various interests and expertise, has just started a project to review all aspects of the process for developing Canadian standards and guidance. As part of its mandate, the Task Force will consider:

- whether the standard-setting Boards are strategically positioned to meet the new thrusts of developing non-financial and broader financial performance measures and the expansion of assurance services; and
- whether current structures provide the most appropriate framework to meet evolving needs.

Need for intra-jurisdictional cooperation and coordination

The development of new accounting standards, auditing standards and standards in other matters such as control need to be complementary. For example, the CICA’s Accounting Standards Board is planning to continue to expand GAAP beyond the traditional historical cost model to include more ‘soft’ information. This raises significant issues regarding the auditability of soft information and whether auditors need more guidance on auditing such information. Also the CICA’s Criteria of Control Board (CoCo) has issued its first volume of Guidance on Control. This guidance is already being used by entities in Canada, the U.S.A. and the U.K. Auditors likely will use guidance published by CoCo as criteria by which the effectiveness of controls should be evaluated. Accordingly, in Canada (and likely most other jurisdictions), closer working relationships are needed between those developing standards on the preparation and presentation of information and those developing standards for providing assurance on such information.

Need for international cooperation and coordination

Developments in IT enable an increasing number of businesses to operate multinationaly. Electronic communications cross borders very easily. In a high-tech multinational environment, intercorporate arrangements, strategic alliances and other business practices are more becoming complex. This makes it difficult for assurers to function effectively when there is no general acceptance by all jurisdictions of uniform sets of accounting and auditing standards.

There are frequent calls in Canada to make more use of international and U.S. standards. The CICA’s Auditing Standards Board is planning to identify specific areas where it feels joint projects should be undertaken with standard setters in other jurisdictions and promote the need for more joint efforts. With issues of concern to the AuSB being increasingly similar to those of other standards setters around the world, there would seem to be less justification for homegrown standards. However, it may be difficult for a standard setter in any jurisdiction to rely heavily on work done by others for reasons such as the following.
• International standard setting activities are typically not well-funded. In developing international auditing standards, the IAPC relies heavily on work already done in Canada and the United States and other jurisdictions. The IAPC does not have the personnel or financial resources to fund development of standards from scratch.

• Simple adoption of standards developed in another jurisdiction, without review and change, seldom seems to work. Invariably, standards are significantly influenced by legal, political, social and business environment factors that continue to be significantly different among jurisdictions (even among countries with cultures as similar as those of Canada and the United States).

Nevertheless, there are many opportunities for effective collaboration. For example, the IAPC anticipates issuing an Exposure Draft on Assurance Standards in late 1996 or early 1997. This should provide many countries with a useful basis for developing specific assurance standards. Also, the AICPA and CICA have recently released the joint Audit Procedure Study *Audit Implications of EDI* and the AICPA has kindly allowed Canadian participation in the Elliott Committee. Further, a meeting of the volunteers and staff of Auditing Standards Boards of AICPA and the CICA is planned for June 1996. The CICA’s AuSB will continue to actively participate in IAPC standard setting activities and to monitor the activities of standards setters in countries such as the Netherlands, the U.K. and Australia to identify areas of mutual concern and interest.

**Leading edge issues - the need for input from academics**

There is need for standard setters to obtain much more input from academics. In a high-tech environment, there are more leading-edge issues about which relatively little is known and which accordingly require a significant amount of research by experts in particular fields.

Such research must be designed to provide a sound basis on which to develop practical guidance. For example, the CICA’s Auditing Standards Board is sponsoring a research project on audit inquiry as a form of audit evidence. Because IT is causing the disappearance of traditional forms of audit evidence (e.g., documentation, confirmation), there is a need to consider means of obtaining sufficient appropriate audit evidence which may be effective alternatives (or complements) to computer-based audit strategies. The terms of reference for the project (being conducted by two Ph.D.’s who report to a steering committee chaired by a volunteer CA) are:

• to examine the existing theory of audit evidence to see whether it provides a broad enough base from which to expand the reliability of inquiry methods;

• to investigate current best practices and skills that are now being used within the auditing profession, to determine how best to describe them so that the means now used by expert auditors may become generally available;

• to examine and describe methods and standards used by other professionals (such as psychiatrists, police officers, lawyers) that appear to be relevant to the current needs of the auditing profession and suggest how they might be adapted most effectively;

• to describe other initiatives that are considered relevant to the conduct of inquiry and suggest how they can be adapted to an auditing context; and
to suggest extensions that need to be made to the theory of audit evidence to accommodate these new analytical skills.

Such research provides a useful mix of theory and practicality.

As another example, the CICA’s Criteria of Control Board has identified as a high priority the need to develop guidance on the effect of IT on control. This is a very broad and complex subject area. Assistance will not doubt be needed from academics having expertise not only in the mechanics of IT but also in the psychological and sociological effects of the use of IT to identify significant issues that should be addressed and perform the required research.

It will be necessary for standard setters to establish closer links with the academic community, keep up to date on relevant research and identify those who may best be able to provide the assistance needed to address leading-edge issues.

CONCLUSION

Assurers can still ‘add value’ in a high-tech environment. The real-time availability of limitless sources of information provides many opportunities for assurers to help users make better decisions and thereby improve organizational performance. But while the traditional audit role has been effectively sheltered from competition by regulatory requirements, public accountants are likely to face stiff competition in obtaining and holding a significant share of the market for new assurance services. Success will depend on the willingness and ability of public accountants to acquire the new skills required by the high-tech environment and of the profession to continue to develop the standards which users recognize and use as the basis for assessing the quality of service provided.