Continuous Audit: The Motivations, Benefits, Problems, and Challenges Identified by Partners of a Big 4 Accounting Firm.

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Abstract

Early efforts regarding research on a new area of interest are, by nature, exploratory. Before theoretical models can be built and before meaningful empirical research can be performed, a careful process of identifying the appropriate research questions and problems must be undertaken. This is the current state of research regarding the relatively new area of the continuous audit (CA). Though the concepts of CA have been around for almost a decade, and recent advances have made the technologies both widely available and very affordable, firms have yet to make significant steps toward implementation. Thus, there is a need for exploratory surveys of key audit personnel in charge of providing assurance services for major clients to bring to light the issues regarding technology, people, and processes with which auditors and their audit clients are wrestling. This paper discusses the results of a survey of the U.S. assurance partners of a Big 4 accounting firm.

The objective of the survey was to get the partners' perceptions and thoughts on the viability of the continuous auditing, the current state of the CA in the audit environment, the impact that CA implementation might have, and the various roadblocks to CA implementation. In addition, various demographic data was collected. So that the open-ended questions of the survey instrument could be systematically categorized and analyzed, and to minimize interpretation bias, QSR NUD-IST© (Nonumerical Unstructured Data-Indexing, Searching, and Theorizing) Version 4 software was used to code responses and capture emergent themes.

> *The process we have is good but is designed for the annual audit… We will need the ability to push a button at any point in time and have the system summarize for the engagement team process issues identified to-date that can lead to risk that the financial statements are inaccurate, rather than rely only on a traditional review of workpapers, manual summarizations of issues and follow-up.*

> *[We need to be able to] use technology to actually audit as opposed to using technology to automate manual auditing procedures.*

These quotes were provided to the authors by Big 4 audit partners who see a future where new information technologies enable more frequent web-based financial reporting and the emergence of the continuous audit (CA). The purpose of this paper is to present the results of this survey, revealing the current state of the CA and the hurdles to overcome in its implementation.

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Continuous Audit

According to the CICA/AICPA Research Report a CA is, "a methodology that enables independent auditors to provide written assurance on a subject matter using a series of auditors' reports issued simultaneously with, or a short period of time after, the occurrence of events underlying the subject matter [1]."

To accomplish that feat, a CA relies heavily on information technology. As one Big 4 partner commented, "As we evolve toward [continuous] audits, the use of technology tools that assist with auditing through our clients' systems will become increasingly important." While the concept of continuous auditing is over a decade old, the rapid advancements in technology have now made continuous auditing feasible [2,3]. Examples of some of the technological advancements include broad bandwidth, web application server technology (e.g., Macromedia's Cold Fusion), web scripting solutions (e.g., Netscape's JavaScript), web services technology, and ubiquitous database management systems (e.g., Oracle, Access) with standard connectivity (ODBC).

A CA leverages technology and open database architecture to enable auditors to monitor their clients' systems over the Internet using sensors and digital agents. Any discrepancies between the client's records and the rules defined in the digital agents are transmitted via email to the client and the auditor. At that point the auditor can determine the appropriate action to take. For example, a digital agent performing analytical procedures on a client's accounts would email the auditor an exception report on those accounts that fluctuate outside the parameters defined in the digital agent (e.g. accounts receivable is significantly higher than prior year). But the CA does not stop there. Once an account has been triggered, the digital agent moves to the transactional level to identify the transaction(s) causing the problem (e.g., an exceptionally large sale posted on December 25th). The details are emailed to the auditor. In this example, once the transaction is identified, a digital agent would send a confirmation to the customer to verify the sale. After the customer verifies the details of the sale, the auditor receives the confirmation via email.

Real-time Reporting Requirement

It is important to note that providing continuous assurance requires that the reports on which the assurance is provided must be available in real-time, and real-time reporting requires that all information reflected in the reports (including estimates and market values) be collected in real time. This is a critical criterion. Although technologies are currently available that enable real-time reporting of financial information, without a commitment by companies to implement these technologies and make key financial figures available to auditors in real-time, a continuous audit is not feasible.

The CA debate has made a recent shift. In the past, CA has focused primarily on technological issues. What is currently being debated is not "Can we do it?", but "Will we do it?". Is there a demand for this product, and, if there is, is anybody willing to pay for it? Will auditors and their clients be willing to retool so that they are competent utilizing the available technologies? Can we define procedures and processes that will make the move to the CA environment manageable for both large and small firms?

Assuming the answer to these questions is "yes", when and how CPA firms move toward offering the service is still unsure. In the current environment, there may be multiple forces driving the adoption and implementation of the CA concept. These would include 1) the market, 2) the government, and 3) companies themselves.

CPA firms who currently provide auditing services may soon have to move toward some form of continuous auditing to compete in the marketplace. This is especially true for firms auditing public companies. As one Big 4 assurance partner stated,

> *My clients continue to read about the leading edge companies and their rapid reporting capabilities. I think the driver for these discussions is the thought that some day soon the market will expect much more rapid reporting from the best performing companies. The benefit of this information being audited is the integrity of the data. I believe this will be a requirement in the very near future.*

In the aftermath of the Enron hearings and investigations, it may be the government that makes a push for more rapid reporting. A recent Associated Press wire (March 7, 2002, by Scott Lindlaw) reported that the White House has proposed that investors be given quarterly access in "plain English" to corporate information needed to judge a company's financial performance and risks. The White House appears to agree that investors can benefit from more frequent reporting.

Notwithstanding the driving forces coming from the market and the government, companies themselves may adopt CA as a tool to help manage their reputations. The CA may be equally as beneficial to companies who enjoy a good reputation and want to enhance it as it as it would be to those companies whose reputations have been damaged by recent events. The increase reporting of a company's information should benefit the company. A company increasing its reporting cycle should reduce uncertainty and enhance investors' perceptions of the company. The audit of the more frequent information will ensure "the integrity of the data."

Some form of CAs may be a required in the future for CPA firms auditing public companies. What is more, CPA firms that currently audit private companies can also benefit from offering CAs. CPA firms must continuously seek more efficient methods of conducting audits that allow their scarce resources to be utilized in the most cost-effective and value-maximizing manner.

Evolutionary Stages of CA

Because of the requirement that all information reflected in financial reports be collected in real time, CAs will not (indeed cannot) be implemented quickly. It will take several years for the CA to be widely implemented. We expect that efficiencies made available by CA technology will gradually penetrate the existing audit environment rather than revolutionize it. Evolution of the CA should follow the following stages. In the initial stage, CA technologies will be used to reduce the amount of work done between the year-end and the audit report. In the second stage, these efficiencies will be applied to facilitate the audit of a quarterly close. In the final stage of CA evolution, the granularity will continue to increase until audited financial reports are able to be generated on a continuous, real-time basis.

What will cause the adoption of this technology to be evolutionary rather than revolutionary are various impediments to CA implementation regarding people, process, and technology. These impediments were identified and discussed by the partners responding to our survey. Along with these impediments, partners discussed the viability of the CA, the current state of the CA in the audit environment, the impact that CA implementation is expected to have. In addition, various demographic data was collected.

Survey

The survey was administered over the web. The address of the web survey was embedded in an email that was sent to all U.S. assurance partners of a Big 4 accounting firm (The survey was sent out in September of 2001, before the Enron scandal). It was sent to approximately 500 partners; 217 partners responded to the survey. The survey itself had two parts. Part I of the survey consisted of 14 questions measuring the partners' perceptions about the potential value and impact of a CA, as well as the content of any partner/client discussions on CA (5 point Likert scale used).

Part II of the survey collected some demographic data on a client selected by each partner, asked about the timing of engagement work, and had the partners identify and discuss various impediments to CA implementation in the areas of people, process, and technology. So that the open-ended questions of Part II of the survey instrument could be systematically categorized and analyzed, and to minimize interpretation bias, QSR NUD-IST© (Nonumerical Unstructured Data-Indexing, Searching, and Theorizing) Version 4 software was used to code responses and capture emergent themes.

Survey Results

The remainder of the paper presents the results of the survey. These results will be discussed in six sections: 1) predictions about capital markets, 2) discussions with clients, 3) user expectations, 4) impediments to CA implementation, and 5) solutions to impediments.

1. <u>Predictions about Capital Markets</u>

Capital markets are moving towards a continuous reporting model.		
<u>Response</u>	**<u>%</u>**	**<u>n</u>**
Strongly Disagree	7.37%	16
Disagree	0.46%	1
Not Sure	29.49%	64
Agree	53.00%	115
Strongly Agree	9.68%	21
Capital Markets are moving towards a continuous assurance model.		
<u>Response</u>	**<u>%</u>**	**<u>n</u>**
Strongly Disagree	17.97%	39
Disagree	0.46%	1
Not Sure	48.39%	105
Agree	29.49%	64
Strongly Agree	3.69%	8

Table 1: Predictions about Capital Markets

According to Table 1, when asked if capital markets are moving towards a continuous reporting model, less than 8 percent of the partners surveyed disagreed. And when asked if capital markets are moving towards a continuous assurance model, although almost half were not sure, only 18 percent of the partners surveyed disagreed. Responses to these two questions indicate that assurance partners believe that capital markets will be expecting new reporting and audit models in the near future.

2. Discussions with Clients

Have you had a discussion with any of your clients about ways to reduce the lag between the end of the period and the issuance of the audit report?		
Response	**%**	**n**
Yes	78.34%	170
No	21.66%	47
Have you had a discussion with any of your clients about audited quarterly financial reports?		
Response	**%**	**N**
Yes	16.59%	36
No	83.41%	181
Have you had a discussion with any of your clients about rendering opinions on information other than financial statements?		
Response	**%**	**N**
Yes	23.04%	50
No	76.96%	167
Have you had a discussion with any of your clients about providing assurance on real-time reports of any nature?		
Response	**%**	**N**
Yes	5.99%	13
No	94.01%	204

Table 2: Discussions with Clients

As can be seen in Table 2, over 78 percent of the partners indicated they have had discussions with some of their clients regarding ways to reduce the lag between the end of the period and the issuance of the audit report (i.e., audit report lag). Of those partners answering in the affirmative, almost 36 percent indicated the discussions centered on shifting more work to interim dates and accelerating a hard close to earlier months. Other discussions held with clients varied from general discussions on joint actions aimed at reducing the audit report lag to ways of accelerating the earnings sign-off.

Just over 16.5 percent of partners said they had discussion with their clients regarding auditing quarterly financial statements. One partner stated that there was an interest in audited quarterly financial statements from larger institutions. Another mentioned the clients probably believe the firm audits the quarters anyway. When asked if they have had discussions with their clients on rendering opinions on information other than financial statements, 23 percent said they had. According to the partners, the types of information their clients are interested in having an opinion given on are:

- Non-financial and financial information reported more frequently than financial statements.
- Compliance with established procedures, controls, or policies of outside agencies.
- Performance metrics

In summary, there has been some discussion with clients on providing assurance services beyond the traditional audit; however, the move toward real-time reporting has received scant attention. While 78 percent of the partners have had some form of discussions with clients regarding reducing the lag between the end of the period and the audit report date, the discussions are anchored in the traditional audit model mindset. In other words, the bulk of the discussions are on the audit team performing traditional audit procedures at earlier dates in the year. The objective is to shift more work during the period instead of after the period end. The same audit is performed, just earlier. While over 33 percent of the partners surveyed believe that capital markets are moving towards a continuous assurance model (Table 1), less than 6 percent of the partners indicated they had discussions with any of their clients about providing assurance of real-time reports of any nature.

3. User Expectations

Continuous auditing on continuous reporting will increase users' expectations about auditors' ability/responsibility to report going concern problems more timely.		
Response	**%**	**n**
Strongly Disagree	4.15%	9
Disagree	0.92%	2
Not Sure	10.14%	22
Agree	55.30%	120
Strongly Agree	29.49%	64
Continuous auditing on continuous reporting will increase users' expectations about auditors' ability/responsibility to detect fraud.		
Response	**%**	**n**
Strongly Disagree	10.60%	23
Disagree	0.46%	1
Not Sure	23.04%	50
Agree	49.77%	108
Strongly Agree	16.13%	35
Continuous auditing on continuous reporting will increase users' expectations about auditors' ability/responsibility regarding the degree of reliability of financial information.		
Response	**%**	**n**
Strongly Disagree	8.76%	19
Disagree	0.46%	1
Not Sure	5.99%	13
Agree	58.53%	127
Strongly Agree	26.27%	57

Table 3: User Expectations

Given that a significant number of surveyed partners believe that capital markets are moving in the direction of continuous reporting and continuous auditing, how will user expectations be affected? This is the focus of Table 3. As can be seen, most partners surveyed believe that continuous auditing of continuous reporting will increase users' expectations about auditors' ability/responsibility to report going concern problems more timely. Eighty-five percent of the partners surveyed believe that continuous auditing of continuous reporting will increase users' expectations about auditors' ability/responsibility to detect fraud. And 65 percent of the partners surveyed believe that continuous auditing of continuous reporting will increase users' expectations about auditors' ability/responsibility regarding the degree of reliability of financial information. This is an interesting finding in light of the Enron debacle.

4. Impediments to Reducing Post Year-end Audit Work

When asked to indicate the total annual audit hours that represent the audit work performed after the client's financial year-end, almost three-quarters of the partners indicated at least 30 percent of the total audit hours were for post year-end work. Over one-half said it was at least 40 percent, while nearly 40 percent of the partners said at least 50 percent of the audit hours represent work performed after year-end. The partners were asked to comment on the major impediments in reducing the number of days between the period end and the date of the audit report by half. There were three major impediment categories given, 1) People, 2) Process, and 3) Technology. The partners provided comments on each of the three major impediment categories for both the client-side and the audit team.

People Impediments

The lack of resources, including time constraints, was the most frequent comment received from the partners regarding client-side people impediments (24% of partners). The same impediment was the third highest audit team impediment mentioned with almost 21 percent of the partners commenting on it. Many of the partners basically indicated their clients are at full capacity and the client's staff would have to work overtime to accommodate earlier audit schedules. "Having the appropriate resources—both financial and IT related," was another resource deficiency comment received. On the audit team side, the "lack of manhours" was a frequent comment from the partners. One partner stated, "We run our business so lean these days there is little availability of people if problems arise or if someone leaves the firm."

Over 22 percent of the partners indicate changing the mindset of the client is the biggest client-related people impediment. As one partner put it, "Timely completion is not emphasized/valued by upper management." Another one stated, "Client is resistant to speeding-up the process." The key point here might not be that clients are resistant to accelerating the process, but that accelerating the process is not a high priority. The view of many partners can be summarized by the following partner's comment, "Management probably spending as much time preparing it's Board and analysts presentations during the [time] up to press release as it does on closing the books and preparing the financial statements." The top priority is getting information ready for the earnings announcement, not the audited financial statements. An ideal state might be to fit the audit process within the earnings announcement timeline.

Twenty partners did comment that there would have to be a change in the audit team's mindset to reduce the audit report lag. One partner commented, needing to change the "mindset that we need to do the same things, only faster, more efficiently, instead of doing different things. Audit firms seem to change more slowly." A second partner stated, "There will be many issues including new competition for this business. The surviving firms will have to truly thing out-of-the-box to stay in business."

Even if the client's and the audit team's mindset were changed, the appropriate skill level appears lacking. As one partner stated, there is a "lack of skilled people [at the client] to properly analyze the financial data to detect errors." Another commented, "Systems would have to be better understood by more of client's staff." Most of the comments from the partners that identified lack of skills/training with the client's staff were non-specific in nature. However, the partners were more specific when identifying the audit team members' deficiencies. Below are some of the specific comments partners made in highlighting audit team members' lack of skills/training in reducing the audit report lag in half:

- *"Audit team must be trained to better use technology and rely less on manual procedures."*
- *"Lack of understanding of crucial controls."*
- *"Need better IT skills and understanding of system controls."*
- *"Lack of managerial and time planning skills."*
- *"Our audit is based on a do and review model—the doers are inexperienced and incapable of identifying and resolving issues."*
- *"Need training to focus on true risks."*
- *"Lack of understanding process controls."*
- *"Better analytical tools and training to spot and detect key indicators."*

Some partners even mentioned the education received from colleges should be changed to account for the new technologies available and how it relates to the audit process. There appears to be some consensus that to significantly eliminate the audit report lag requires increased training at the collegiate and firm level, in addition to increased training of the client's staff.

Process Impediments

One partner encapsulated the biggest client-side process impediment mentioned in the survey when he stated,

> *If the client's controls are not top-notch, we have no chance at continuous auditing.*

Many of the partners mention the less than adequate control environment existing in many of the companies they audit. The partners were very blunt in their assessment, with one stating, "Clients do not have strong controls that are documented." Another concluded, the client's "control environment is not to the point to allow total system based audit." While the inadequacies of the control environment top the partners' list, their clients' closing process was a close second with over 26 percent of the partners identifying that impediment. The third most identified client-side process impediment was the consolidation process, which coincides closely with the closing process.

The closing process and the consolidation process received similar comments from the partners. The most identified problem with those processes was the fact that both are still largely manual processes that are very labor intensive (16.6% of partners). The automation of the closing and consolidation process must precede any attempt at compressing the audit report lag.

The partners also mention that many of the accounts are not adjusted until year-end and, as a result, they would have to re-audit those accounts at year-end if audited earlier. Lastly, with regard to the consolidation process, a major impediment is the lack of coordination from global subsidiaries. The shear complexity of consolidating a global entity is over-whelming and leads directly to longer sign-offs.

The final client-side process impediment to discuss is the use of judgments and valuations in the financial statements. As one partner stated,

> *Closing the books requires more than posting all subsystems to the G/L, it also needs a review of estimates and complex accounting judgments.*

Another partner added,

> *Accruals and reserves require some level of substantive evaluation, which typically occurs post period end.*

These statements also represent the mindset of the partners being grounded in the traditional audit model.

This is not more evident than the comment by one partner stating,

> *The accuracy of reserve estimates is improved with an increasing amount of subsequent payment data.*

Regardless of the impediments imposed by the client, the partners had issues with the current audit process itself. Almost one-quarter of the partners commented the audit process was a hindrance to reducing the audit report lag. As one partner put it, the audit is

> *geared for [an] annual push, as opposed to continuous information flow.*

Similar to the comments on the closing process, many partners mentioned the audit process was "still manual intensive," and "tend to drift towards a substantive rather than process approach." As more than one partner asserted, the focus needs to be on processes, not year-end balances.

The second most mentioned process impediment on the audit team side was the review process. The partners mentioned that the review process is just too "cumbersome." Another problem was that reviewers at the manager, partner, and concurring review levels want "one more look" before signing-off. One partner observed that the

> *inefficient review of audit workpapers and our annual report creates rework, [which result in the] client receiving several sets of changes to draft financial statements.*

There are two more areas worth noting, the documentation requirements and the handling of unusual/complex transactions. One partner stated that the

> *audit process has become too complex and too form-driven. Concerns over many forms and complexity could hinder being able to see the full issues and big picture.*

Another partner mentioned,

> *In our effort to reduce risk and push more work into the pre year end period, we have greatly expanded our audit documentation requirements. This diverts significant attention to 'getting the forms filled out' from getting the job done.*

Lastly, one partner succinctly commented on the handling of unusual/complex items:

> *While much of this can be addressed, there will be times that require additional thought, e.g., year-end transactions, changing economic events, that may require not meeting the earlier reporting dates. This needs to be able to be done without a usually negative reaction by analysts and the markets, sometimes things should not be rushed.*

Based on the partners' comments, the current audit model must change before significant audit report lag reductions are viable. The new audit model should be process-based and not substantive testing-based. One must keep in mind that some transactions and/or events will not fit cleanly in a continuous auditing environment. However, the bulk of transactions handled throughout a year do not fall into that category. The goal should be to automate the recurring/normal audit and review process and use the freed capacity to expeditiously handle the unusual/complex items that arise throughout the year.

<u>System Impediments</u>

Inadequate and disparate clients' systems are the biggest system impediment in eliminating the audit report lag, as identified by the assurance partners. Over 20 percent of the partners commented on the unsophisticated systems operating most clients' businesses, while almost the same percentage mentioned the systems the clients use lack any level of integration. As one partner said, "Usually poor integration of different systems within the same company results in too much manual intervention." Another partner concluded, "The client is light years away from the technology to effectively close and report earlier."

On the audit team side, the need for effective tools was the most frequent comment received from the partners. Below are some representative comments received:

- *"Need better tools to monitor the financial data."*
- *"Need tools to audit through the technology system..."*
- *"We simply need tools that are much more robust for working remotely out at clients locations."*

Exploratory Regression Analysis

It was decided to use regression analysis on the relationship between the audit report lag and the impediment categories (Question 16 and 18, respectively). The impediment sub-categories discovered from the QSR NUD-IST© analysis were used in the regression model. The dependent variable (ANN216) was calculated by taking the difference between the estimated audit report lag five years hence and the current audit report lag. The independent variables were coded 1 or 0 depending on whether the partners identified the impediment sub-category. Variables to control for client size was also included in the regression models.

The exploratory regression analysis involved several steps. First, a stepwise regression was performed using all 24 impediment sub-categories and 3 control variables. In addition, a least squares regression was run on the full model to compare to the results of the stepwise regression. Based of the results of those regressions, the significant variables were identified and another regression was run (Table 4).

Source	DF	Sum of Squares	Mean Square
Model	3	2327	775.9
Error	182	14848	81.58
Corrected Total	185	17176	
F Value	Pr > F		
9.51	<.0001		
R-Square	0.1355		
Adj R-Sq	0.1213		
Variable	DF	Estimate	Pr > |t|
Intercept	1	-8.8772	<.0001
CTA	1	0.0005	0.0099
PEA321	1	-5.8847	0.0001
SA522	1	-5.1421	0.0266

Model:
ANN216 = – 8.87 + 0.00047(CTA) – 5.88(PEA321) – 5.14(SA522)

CTA: **Total Assets**
PEA321: **Lack of audit team skills/training**
SA522: **Lack of audit team connectivity**

Table 4: Regression Analysis

Based on the regression results, the average reduction in the audit report lag expected within the next five years is almost 9 days. The two significant impediments are lack of audit team skills/training in reducing the audit report lag in half, as well as, the lack of connectivity between the audit team and the client. The presence of insufficient skills and training with the audit team results in the difference in the audit report lag increasing by almost six days. Similarly, the lack of system connectivity increases the difference by just over five days. Lastly, the larger the size of the client (as measured by total assets) the smaller the difference between the audit report lag expected in five years and the current audit report lag.

The results of the regression model are not surprising. To-date, current audit training focuses on the traditional year-end audit model. New training and skills in the information systems domain, among others, are necessary to eliminate the audit report lag. Another crucial element in eliminating the audit report lag is increasing the integration and connectivity between systems. This is especially important for firms moving toward a continuous audit model.

4. Solutions to Impediments

As discussed above, the assurance partners identified several impediments to reducing the audit report lag. Fortunately, many of the partners also offered their thoughts of how to overcome those impediments. This section details the solutions identified by the partners for the People, Process, and Technology Impediments discussed above.

Solutions to People Impediments

The partners identified several areas where training should be increased. The areas ranged from general accounting and business knowledge, to specific IT knowledge, to better training in internal controls. One partner surmised, "Our training has been lacking over the years and our people aren't coming out of college with necessarily what it takes to succeed as auditors. Part of the problem is that we expect everyone to be good accountants and auditors and that is difficult to do with the vast complexity of accounting rules to apply these days." Another partner stated, "[Our people] need a MUCH STRONGER understanding and ability to execute and to understand audit theory."

Many partners stated the audit staff would need to increase their IT skill-sets. One partner mentioned the increased training should begin in school. While another commented the firm should hire more experienced professionals. What is needed is, "Quality team members that understand the technology and how to EFFICIENTLY integrate this into an audit approach."

Several partners identified flexibility in the scheduling process as a potential solution. One partner recommended the firm should "attempt a one-time major rescheduling of engagements." Another partner stated the desire to schedule one year in advance where possible. While a third partner flatly stated that reducing the audit report lag is a "manpower allocation issue…our resource allocation issues are terrible." It might be easy to identify the scheduling shortfalls, actually changing the process is much more challenging. As one partner said, reducing the audit report lag "requires major analysis and rethinking of [the] client base and [a] clean sheet of paper approach to scheduling the jobs."

Solutions to Process Impediments

While over 14 percent of the partners gave specific solutions to the audit process similar to the opening quotes, many partners commented that it was the client where the real problem, thus solution, lies. One partner said, "Our approach is geared to the client's processes—we can adapt." Another one mentioned, "We are dependent on client timing, and, for certain issues, there is little likelihood that the client can expedite the process in any consequential way." And one partner identified probably the tallest hurdle that must be overcome, "I think we currently have the capability yet some clients are not willing to give use the level of access needed to overcome this issue." Definitely the audit profession has to work closely with their clients in developing and integrating this new audit methodology.

Many partners indicated that the firm must work with their clients in strengthening and testing the control environment. In addition, they mentioned that the audit team must improve their understanding of clients' systems and the controls over them. This relates to what was alluded to earlier—the new audit methodology must be process based and control dependent.

Solutions to System Impediments

There were not many solutions identified with handling the system impediments with just over 20 percent of the partners providing any specific details. The solutions centered on IT tools and connectivity. Some partners mentioned they needed, "better tools to analyze processes" and "software auditing tools to run audit procedures directly within clients' systems." Others mentioned the need for "improved tools which are compatible with clients systems," and the "implementation of a client database that would automatically notify team members of the impact of new accounting standards impact on companies in the client's industry, news regarding clients and C level executives."

"As we evolve toward real time audits, the use of technology tools that assist with auditing through our clients systems will become increasingly important." That partner's comment is stating exactly what continuous auditing will do. The technology is now available; however, is a CA a value-added service.

Does continuous auditing provide value to the clients?

	Percent of partners (n=122)
Provides credible, timely information to financial statement users, enhances public perception and understanding of events impacting company (i.e., eliminates surprises, reduces insider trading).	41.0%
Value to the markets will drive the reporting of more frequent information, and the audit thereof, as much as value to the client.	16.4%
Helpful to internal decision-makers.	5.7%

Table 5: Value in Continuous Auditing

Over one-half of the partners agreed that there is some value to the clients in reporting information more frequently than they currently report. Of those that agreed, an overwhelming majority (71.3%) said there is also value to the clients in having that information audited. Table 5 lists the most frequent comments made by the assurance partners in why they agreed that there is value in continuous auditing.

Based on the comments from the partners it appears external users of the financial statements will drive the move toward more frequent reporting of financial information, with only 5.7 percent of the partners stating that more frequent reporting would be helpful to internal decision-makers. Reducing uncertainty and enhancing public perception are the biggest factors in the value-added service of increasing the frequency of reporting financial information. Those factors are extremely important in light of the Enron scandal. The public appears to want increased visibility and the partners appear to agree that increasing the reporting of information is one way to increase the public's perception of a client. The auditing of that information should only increase that value.

Limitations

There are a few limitations to this research project that deserve mention. First, because of how the survey was administered (through a web form), there may well be some level of response bias. It is possible that the partners who were less literate with regard to technology may have been a significant percentage of those who did not respond to the survey.

Second, it is possible that those surveyed didn't know enough about CA to be able to give a substantive opinion. To attempt to address this, we described CA in the first few paragraphs of the survey itself.

Third, this paper, by the very nature of the project, was not theory based. Some would say that without theory, there is no research. We would disagree only with regard to early studies of the subject of research. As was mentioned in the abstract, early efforts regarding research on a new area of interest are, by nature, exploratory. There is a certain amount of preliminary, exploratory work that must be done before theoretical models can be built and before meaningful empirical research can be performed.

Conclusion

"I believe the fast paced nature of the markets will ultimately mean that those companies which provide more frequent information will be viewed favorably in the marketplace. In addition, if that information is audited, it will lend more credibility than if not." This observation by one of the partners surveyed provides the motivation for moving clients toward a CA. The partners surveyed have focused the discussion on continuous auditing by identifying the impediments to its implementation as well as some solutions to removing those impediments.

The biggest impediments appear to be the mindset of the client, the lack of controls at the client, and the lack of skills and training with the client's staff and audit team members. The solutions identified center around increasing training and improving audit tools. In addition, the controls at the client must be improved, as well as, the firm must demonstrate the value of continuous auditing to the clients.

Research into this domain is at its infancy and theoretical as well as empirical research is needed. The audit domain is changing and it is imperative that the research community has a voice in the change. Practitioners and standard setters alike will look to the research community for guidance on how to implement continuous auditing techniques and technologies, as well as determining the consequences and benefits.

While the anticipated benefits of CAs may be high, the survey indicated several hurdles that must be overcome before CAs becomes a reality. Notwithstanding the technical hurdles of moving from manual, disparate systems to integrated information systems, two of the biggest hurdles are 1) client buy-in and 2) staff training. While clients are always eager to reduce audit hours, most are accustomed to the annual audit process and all it entails. Transforming a client from the annual audit to a CA will not be easy; however, the CPA firm must be ready as clients begin to realize the financial incentives for moving toward CAs (e.g., lower cost of capital, and faster reporting). In addition, CAs will require CPA firms be permitted direct access to their clients' systems. Clients are already uneasy about the level of access audit firms have now. Allowing direct access to their information systems will require very high levels of trust and commitment.

Focused training in the CA approach will be necessary, along with increased training in information systems. The toolset of the new auditor should include various aspects of information and web technology in order to be able to design and maintain the process for continuous auditing. As a partner of a small CPA firm commented, "Education of the CPA, especially [for] the smaller firms, in how [to] provide these services must be addressed." In addition, the training should begin at the collegiate level. Audit and accounting information systems courses should begin addressing the continuous auditing domain.

References

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