

the software SCENE

TO ASSESS THE SOFTWARE USAGE TRENDS OF INTERNAL auditors worldwide, *Internal Auditor* recently conducted an electronic poll of approximately 2,700 randomly selected IIA members. Of these individuals, 364 responded from Germany, Kuwait, Mexico, Canada, Switzerland, Puerto Rico, Syria, Trinidad, Columbia, Luxembourg, Panama, and the United States. The survey participants indicated how and to what extent their internal audit shops are using software for data extraction and analysis, fraud detection, network security assessment, workpaper automation, e-commerce security, internal control evaluation, and continuous monitoring. The survey results provide an overview of the products internal auditors are using and how they rate their experiences with the latest software options.

Technology continues to offer new options for improving audit efficiency and effectiveness. *Internal Auditor's* sixth software survey shows how the leading products stack up among users.

**BY STEVEN M. GLOVER,
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DATA EXTRACTION AND ANALYSIS

Although a large number of internal auditors have been using data extraction and analysis tools for several years, our findings indicate that usage is now almost universal. More than 98 percent of survey respondents reported that they use software that extracts or imports data from information systems for audit purposes, up from 94 percent in our 1998 survey. The most common applications for these products include selecting data samples for detailed analysis, testing entire populations for exceptions, analyzing results and exceptions found, and detecting fraud. Other uses include financial ratio analysis and risk assessment.

The participants identified increased efficiency and effectiveness, as well as savings in both time and money, as the primary benefits of using the software. In addition, several auditors commented

on their increased ability to perform analyses without the assistance of their organizations' IT staffs. One respondent in the health care insurance industry wrote, "One of the most important benefits of the software is the independence that it provides—we no longer need to rely on data processing professionals to perform data extraction and analysis."

A number of participants also praised the software's comprehensive ability to process data from large populations, which eliminates the need to rely on samples. One respondent in the land transportation industry noted, "The main benefit of data extraction software is the ability to analyze the entire population over an extended period of time. When anomalies are found, we can efficiently review all similar transactions and records to identify other instances of the same problem."

Consistent with our past surveys, ACL Software still seems to be the most widely used data extraction and analysis product. Spreadsheet software—such as Excel, Quattro Pro, and Lotus 1-2-3—and database software—such as Access—are the next most frequently used products in this category.

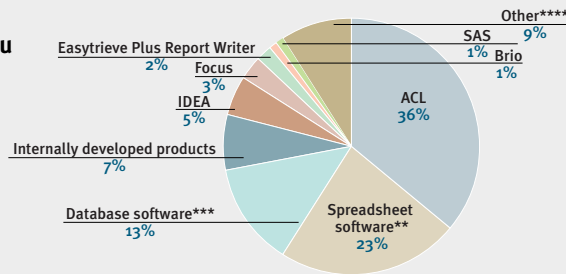
Interactive Data Extraction and Analysis (IDEA) and ACL received particularly high satisfaction ratings, although all other commercial products received moderate to high ratings as well. Interestingly, respondents using internally developed software reported the lowest satisfaction ratings, indicating that the time and effort invested in creating such programs in-house may not have been well-spent.

One of the potential drawbacks of using a data extraction and analysis product is the amount of training required to learn the software. When asked to rate this aspect of the implementation process, participants indicated that most data extraction and analysis packages require significant training. This may be why many auditors continue to rely on generic spreadsheet and database software rather than opting for programs designed specifically for audit purposes.

When asked how the software could be improved, most participants expressed a desire for increased user-friendliness. Other suggestions included enhancing the ability to convert data to spreadsheets, developing better formatting and report-writing capabilities, and increasing the ease of data transfer among different platforms.

Data Extraction and Analysis Software

Which Product Do You Use Most?*



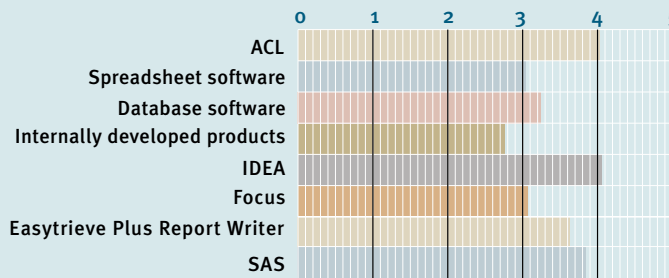
* Percentages reflect only proportion of those who responded to this question; 2 percent did not respond.

** Excel, Lotus 1-2-3, Quattro Pro.

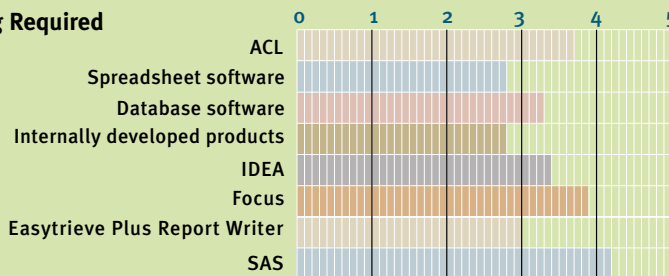
*** Access, NCR, Oracle, SQL.

**** AS400, Query, BancAudit, Business Objects, Congos, Hyperion, Monarch, The Number, PeopleSoft, Sterling MarkView.

Overall Satisfaction
5 = completely satisfied



Level of Training Required
5 = extensive training



FRAUD DETECTION

Detecting and preventing fraud has long been a primary concern for internal auditors. Technology tools specifically designed to assist auditors in this endeavor, however, are still developing. Thus it is no surprise that, similar to our 1998 survey, ACL remains the most widely used product for fraud detection and prevention. The lack of products specifically designed for this purpose may also explain why internally developed software is the third most popular technology solution in this category.

Survey respondents mentioned the following specific uses for fraud detection software:

- Identifying trends that lead to fraud.

- Comparing vendor names and addresses with those of employees to find bogus employee vendors.
- Detecting unusually high pay rates for specific job descriptions.
- Identifying duplicate or fraudulent employee expense reports.
- Identifying duplicate payments to vendors.

More than half the respondents reported that they use the software only to detect fraud—and not to prevent it. In addition, the proportion of auditors using fraud software only if fraud is suspected has risen since 1998—from 26 to 40 percent. These results suggest that auditors may not be tapping into the full potential of this technology.

Several anecdotes shared by survey respondents emphasize the benefits of using fraud software to conduct proactive investigations. For example, one auditor wrote, “While analyzing an insurance claims history using ACL, we noted that two customers had the same identification number. We also observed that individuals with the same name appeared in the database with several different claims pending simultaneously. Follow-up determined that an employee in our claims area had circumvented certain controls and was diverting claim payments to a series of P.O. boxes, where he collected the money for personal use.”

Another respondent in the financial services industry noted, “We use the software to analyze our retail branches, particularly our teller activity. We’ve detected various fraud patterns that have led to discovery of frauds in progress. For example, we match information from our HR system to ‘active’ teller user IDs to monitor for suspicious activity. In two cases, head tellers were using the IDs of terminated employees to commit fraud.”

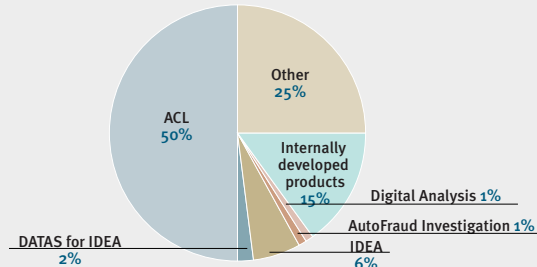
Many other participants related similar instances of success with fraud detection software. Although effectiveness ratings for these products were relatively moderate, a number of auditors apparently find the technology to be useful.

NETWORK SECURITY ASSESSMENT

The increasing complexity of network security issues appears to be on the minds of internal auditors who are responsible for helping to maintain the integrity of information systems. According to the survey, the most commonly used network security

Fraud Detection Software

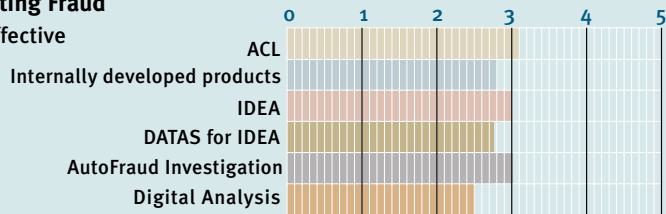
Which Product Do You Use Most?*



*Percentages reflect only proportion of those who responded to this question; 29 percent did not respond.

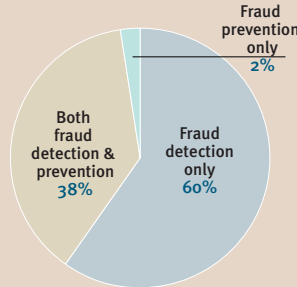
Effectiveness in Preventing and Detecting Fraud

5 = very effective



HOW AND TO WHAT EXTENT IS FRAUD SOFTWARE USED?

PRIMARY USE

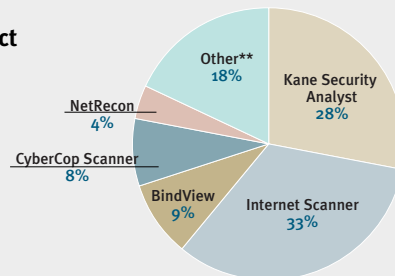


EXTENT OF USE



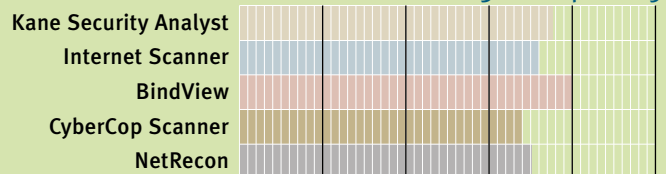
Network Security Assessment Software

Which Product Do You Use Most?*



* Percentages reflect only proportion of those who responded to this question; 70 percent did not respond.
 ** AuditWare, Enterprise Security Manager, firewall software, Net Ranger.

Effectiveness Rating
5 = very effective



assessment packages are Kane Security Analyst and Internet Scanner. These two products also received relatively high effectiveness ratings, as did BindView.

Although 36 percent of respondents who completed this portion of the survey indicated that they do not currently use a network security assessment package, the

majority of these individuals reported that network security is handled by the information systems department within their organizations or by outside consultants. Auditor involvement in this area seems to be on the rise, however, as a number of respondents indicated that they are just starting to engage in network security

monitoring and assessment. Some internal auditors are already deeply involved in this type of assessment—a few respondents indicated that they analyze network security constantly.

AUTOMATED WORKPAPERS

Traditionally, audit work has been documented in manual form, but technology now enables auditors to automate some of the more tedious paper-based tasks, such as creating workpapers. Survey responses in this category, however, seem to indicate that automated workpaper software is still in its infancy. More than 20 percent of respondents reported that they don't use any kind of workpaper software, and 46 percent merely adapted an office suite package for audit documentation purposes. Several participants cited cost as a major inhibitor. One auditor in the banking industry noted, "We haven't migrated to automated workpapers. For our staff size and budget, this isn't an economical option yet." Fourteen percent of respondents reported that they use internally developed workpaper software.

Although results indicate that spreadsheet and word processing packages are the most common solutions used for automating workpapers, these types of products received the lowest overall satisfaction rating. General office productivity software may not offer many of the audit-specific features contained in an integrated workpaper package, which could explain the low rating among participants. Nevertheless the satisfaction ratings for most of the software in this area are generally high, indicating that using software to manage audit workpapers generally has led to positive results for internal auditors.

E-COMMERCE CONTROL

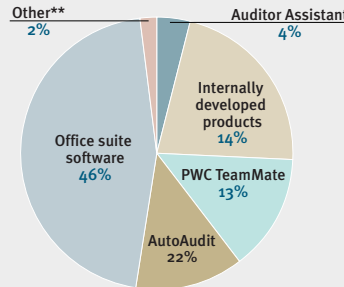
Cybercrime and other e-business threats represent a significant exposure to organizations, and internal auditors involved in their companies' e-commerce operations undoubtedly face increasing challenges regarding information security. Therefore, it seems surprising that only 15 percent of survey participants indicated that their companies' security had been compromised through e-business access points. Due to the sensitive nature of this type of information, however, some auditors may have been reluctant to report e-commerce security issues. In fact, one U.S. respondent argued, "Every-

Automated Workpapers Software

Which Product Do You Use Most?*

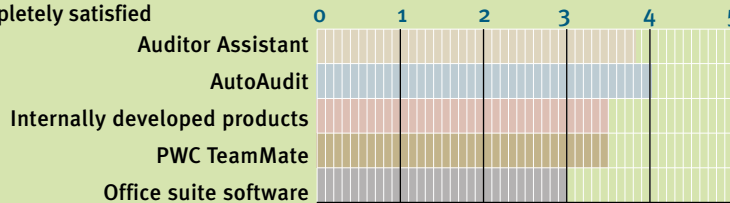
*Percentages reflect only proportion of those who responded to this question; 53 percent either did not respond or indicated that they were not using this type of product.

**AuditSystem2, AWS, CARDmap.



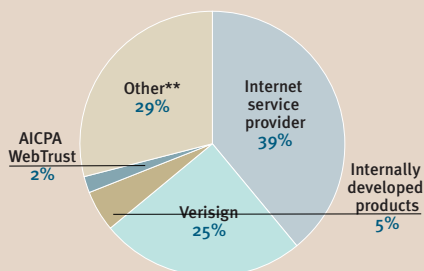
Overall Satisfaction

5 = completely satisfied



Electronic Commerce

WHICH AUTHENTICATION SERVICE DO YOU USE MOST?*

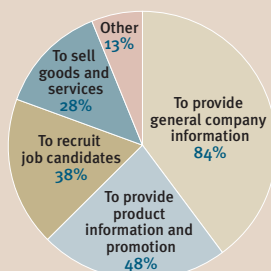


*Percentages reflect only proportion of those who responded to this question; 53 percent either did not respond or indicated that they were not using this type of product.

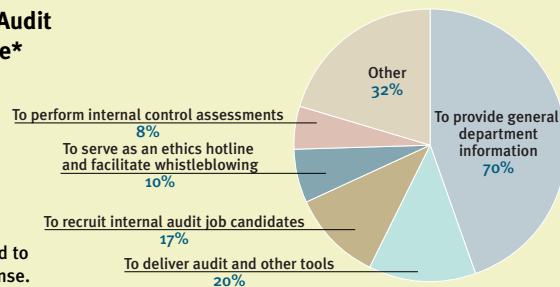
**Includes password security systems, digital certificates, and various other methods.

***Respondents were allowed to give more than one response.

PURPOSE OF COMPANY WEB SITE***



Purpose of Internal Audit Department Web Site*



*Respondents were allowed to give more than one response.

body involved in e-commerce has experienced security breaches, whether they disclose it or not.” The most common incidents reported were attacks by hackers, denial of service attacks, and virus infiltrations, such as the recent “ILOVEYOU” bug. A few participants also mentioned that their companies’ security had been breached by in-house contractors and employees.

Several auditors reported that they are still in the beginning stages of addressing e-commerce risks; some admitted that they are “behind the curve” in this area.

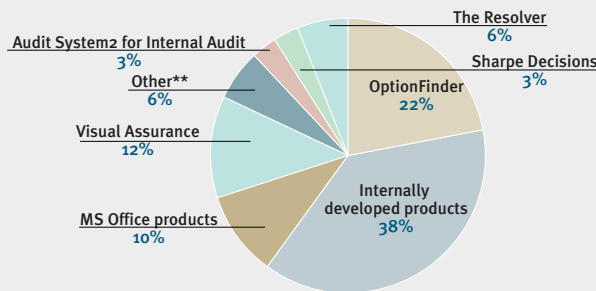
One respondent’s comments captured the essence of a recurring concern among the participants who have little experience with e-commerce assessments: “We are just entering the e-commerce environment, and we haven’t established controls or performed an audit in this area yet. We hope it doesn’t become too overwhelming before we’re ready.” A number of auditors also mentioned that their primary approach to e-commerce security involves manually evaluating the design and settings pertaining to e-commerce processes.

Almost half of the participants indicated that they don’t use any software to control or audit the risks of e-commerce. Auditors in this group generally reported that their companies either weren’t fully engaged in e-commerce—58 percent—or that they outsourced this responsibility to consultants or security professionals—36 percent.

Respondents indicated that the top e-commerce risks facing their companies are viruses and other malicious attacks, the privacy and protection of confidential customer information, and the security of data and transactions. According to the results, the most common off-the-shelf products for controlling and auditing these risks are Norton—8.5 percent—and McAfee—5 percent—anti-virus software. Other tools employed for this purpose include firewalls, digital certificates, and data encryption.

Internal Control Evaluation Software

Which Product Do You Use Most?*



*Percentages reflect only proportion of those who responded to this question; 79 percent either did not respond or indicated that they were not using this type of product.
 **Auditor Assistant, AutoAudit, MeetingWorks.

INTERNAL CONTROL EVALUATION

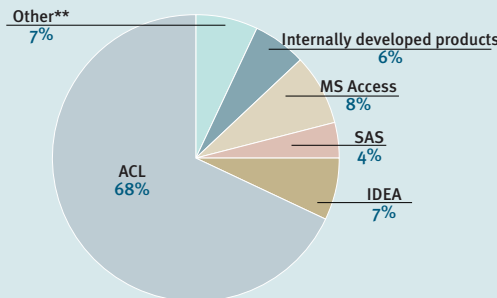
Most participants who responded to this portion of the survey noted that they employ internal control evaluation software to facilitate control self-assessments (CSAs). The most frequently used off-the-shelf package was OptionFinder, but 38 percent of respondents indicated that they opt for internally developed programs. This finding may indicate that commercial products don’t meet the highly specialized needs of the participants involved in this type of auditing. In fact, 10 percent of the respondents reported that they were unable to find adequate CSA software.

Among the auditors who do employ these products, many listed specific reasons. Several respondents cited benefits such as the ability to perform anonymous voting, increased efficiency, improved ability to quantify results, and greater satisfaction among customers with the evaluation process. One government auditor said, “It enables us to think outside the box and apply professional audit skills without relying on canned approaches that do not address the needs of management.” Another participant noted that the greatest benefit of the software is that it focuses business owners on risk exposures and the means to mitigate those risks.

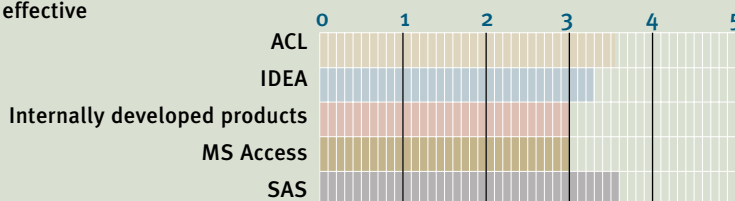
Twenty percent of respondents reported that they don’t use CSA software at all, and several indicated that they have no plans to do so in the future. Reasons for not using these products include lack of need, inadequate adaptability for specific audit tasks, and cost issues. One respondent

Continuous Monitoring Software

Which Product Do You Use Most?*



Effectiveness Rating
5 = very effective



*Percentages reflect only proportion of those who responded to this question; 66 percent either did not respond or indicated that they were not using this type of product.
 **Auditor Assistant, Cognos, Focus, ISS System Scanner, PeopleSoft, RACF, SAP.

wrote, "We're able to identify risks and controls without purchasing software." Another noted, "We don't use software to evaluate internal controls; we do it the old-fashioned way." Only a small number of those who don't currently use this type of software had plans to develop their own internal programs.

CONTINUOUS MONITORING

Advancements in audit software technology increasingly enable internal auditors to transition from traditional, periodic audits to a continuous auditing environment. Almost half of the survey participants indicated that they use continuous monitoring software, up from only 24 percent in 1998. Respondents use the software primarily to find and document trends, to create exception reports, to detect fraud and irregularities, and to locate duplicate transactions. Many participants also reported that their customers actively participate in the continuous monitoring process. One internal auditor in the financial services industry said, "In some cases, clients will soon be requesting licenses themselves so that they can run ACL for data monitoring."

More than two-thirds of those who perform continuous audits are using ACL; this product also received the highest effectiveness rating. In addition, only 6 percent of participants indicated that they use internally developed products. This proportion has decreased significantly from 30 percent in 1998, which may indicate that today's commercial products are better equipped to meet the specific needs of internal auditors.

WHAT THE FUTURE HOLDS

In many categories, 10 to 20 percent of respondents reported reliance on internally developed software to meet their auditing needs. Satisfaction ratings of such tools ranged widely, indicating a potential opportunity for software developers to provide more customizable tools for specific markets. In addition, a relatively small number of products appear to dominate most software categories. Only time will tell whether the commercial giants will address the needs of those who do not currently use these products or if other competitors will take up the challenge.

Regardless of who provides the tools, software will undoubtedly play an increasing role in addressing the risks of e-commerce and other computer-related issues. As audit challenges continue to grow more technological in nature, the methods required to address them must be responsive to the increased demands of doing business in the 21st century.

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