Payoff

The objective of the integrated audit approach is to achieve productivity improvement by auditing both the IS and the financial portions of systems with one auditor trained in financial and IS audit disciplines. The information in this article can help management develop an implementation plan to lead its internal audit group through a methodical transition to total integration.

Problems Addressed

Internal control systems have traditionally been reviewed by separate IS and financial staffs, with the overhead of two separate management teams and the production of separate audit reports. Separate audits, which have one budget for the review of non-IS activities and another for those related to IS, consist of separate audit programs, audit management teams, time schedules, testing, and audit reports.

The IS application audit evaluates computer processing controls by analyzing transaction origination, input, processing, and certain output controls performed in the manual environment. However, some of these controls are also examined during the financial audit, resulting in redundancy. Data integrity controls are the user's responsibility during input and output phases, which require coverage in both audits.

The separate audit approach does not address the timing of the two audits, often resulting in inconclusive testing or redundancy. Input, processing, and output control reviews are performed by separate staffs during different periods. Procedural changes in user operations implemented after the first (usually financial) audit but before the second (application audit) may either correct or exacerbate control weaknesses previously detected. This requires repeating certain audit steps.

If compensating controls in the manual or automated portions of the system are not found, audit findings may be invalid. The separate approach creates an environment in which the IS auditor's knowledge and experience become one-sided from concentrating on the IS aspects, and although some review of the manual system is required, the IS auditor is often unfamiliar with the manual operation, accounting framework, or business activities within which computer systems must operate. Supervision of the separate audits requires more time and duplicates effort, because both audits require separate management teams. Separate audits produce redundancies in preliminary surveys, internal control questionnaires, compliance testing, and administration.

The One-Team Approach

To improve on separate audits, some organizations try to share resources and use one management team with a mix of both IS and financial auditors to audit the complete system. Financial and IS auditors may be assigned to the audit under the supervision of one manager, one supervisor, and one in-charge auditor, who plans the audit and designs the testing for both sides of the audit. However, a single audit program is not always developed, and the management teams do not usually have sufficient training to prepare proper IS testing or review IS audit work papers.
An alternative involves the development of a technical support group consisting of high-level IS audit specialists skilled in advanced IS topics to handle data base systems, online systems, systems software, and other audits. They provide technical consulting to the audit staff and conduct systems development reviews.

Benefits of Total Integration

The internal audit industry is now moving toward total integration\(^\text{108}\) With this approach, all management team members are trained in IS and financial audit disciplines, and little crossover consulting is needed. Staff auditors are trained in both audit disciplines and use a single audit program. An IS audit technical support group handles the high-tech IS audits, and a single audit report is issued that covers the total system, including compensating controls and problems. Audit efficiency is at its peak with this approach.

Total integration is designed to analyze the complete control environment with one scope and audit program, evaluate results, and present an audit report covering the total control environment. This approach permits evaluation and testing of the manual and automated systems from a data flow perspective.

Total integration does not suggest total elimination of IS audit specialists. IS audit technicians are needed to review the highly technical areas of IS, because the entire audit staff cannot be cost-effectively trained to keep up with the rapid technological changes of online, operating, data base management systems, and other IS environmental areas. However, the high-level technical IS audit specialist handles only a small segment of what is needed; therefore, integration can reduce overall audit staff requirements and costs.

In-Charge Auditor

Familiarity with system details decreases in higher levels of the audit management organization, regardless of the audit approach. The focal point of the audit work under the integrated organization structure is the staff auditor, because both the automated and manual portions of the system are observed by a single auditor. The knowledge gained from preliminary survey and testing is passed up from this level. All audit team members above the focal point, therefore, have more knowledge of the total system.

The focal point under the one-team structure is the in-charge auditor, because the automated and manual portions of the system are observed by separate auditors and passed to the in-charge auditor. Although the level of detailed knowledge decreases at higher audit management levels, a more extensive knowledge now exists among the audit staff as a whole. Exhibit 1 depicts the one-team organization structure.

One-Team Audit Approach Job Organization Structure

Testing

Compliance testing is designed to test the controls throughout Transaction Processing instead of in separate segments using separate tests. The test programs are designed by a single team on the basis of a preliminary survey of the entire system. The transactions subject to review are completely flowcharted, from transaction origination to report output.

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The testing of a transaction flow is designed to include the effects of the entire system. Therefore, all input, processing, and output controls (manual or automated) are reviewed for each selected transaction, which prevents inconclusive testing. This allows for continuity of testing and documentation of the control weaknesses and permits the issuance of a single report.

One auditor, under total integration, observes the entire flow and all control points associated with that transaction in place of two separate auditors with two objectives observing two distinct and separate portions of the system that actually relate to each other. The testing is more efficient and effective and provides greater probability of isolating all true errors in control techniques. This testing design permits formation of an opinion of the total control environment, reduction in time to perform the audit evaluation of the manual operations flow relating to computer processing, and reduced scheduling and interface problems.

Most programming of automated testing should be left to experienced technicians to permit its timely completion. Simple audit software programming, if closely supervised, can be performed by an inexperienced auditor as a training exercise.

**Timing**

The timing of audit work is totally controlled by one management group and is more easily managed as staff members become available. As information-gathering phases give way to testing, staff size can be altered without regard to coordinating test results with a separate team or another auditor. With the concurrent or even the one-team approaches, the auditor leaving one audit must advise the rest of the testing team, the in-charge auditor, and possibly the supervisor and manager of any test results, perceptions, and opinions they have accumulated during their work. Written documentation is not sufficient; spoken communication is necessary to convey the proper message because someone else will complete the test.

With total integration, one auditor is assigned to test a given transaction. When the audit is completed, this person communicates the completed test results, perceptions, and opinions to the in-charge auditor by way of standard audit documentation. The auditor is then free to move to another task or audit.

**Productivity Implications**

Initially, the budget of the one-team audit remains close to the subtotal of the two separate audits. As experience increases, the hours to complete the one-team or integrated audit decrease, becoming less than the sum of the two parts.

Productivity management constantly searches for methods to reduce cost without reducing quality. The separate audit approach, although necessary in some circumstances, requires more time to complete the extra administrative and functional audit activities.

Through persistent effort in implementing total integration, reductions in hours will be gained slowly in the evolutionary process from separate to integrated audits. The exact reduction is difficult to determine, because it is highly dependent on the organization’s requirements. Generally, a 20% decrease in chargeable time is reasonable. Administrative time reductions are the most obvious; however, other time improvements can be gained by more efficient test design and work assignment.
User and IS Exposure

The separate audit approach induces the auditor to hold postaudit conferences with the user for the manual portion and IS personnel for the IS portion. Although IS personnel share certain insights into manual operations, they do not always completely understand the effect of internal control weaknesses on the total system. With the integrated approach, user and IS representatives are usually invited to a single postaudit conference, exposing both parties to the audit results. This technique gradually increases the understanding of IS and user personnel of the total control system.

Career Pathing

Traditional audit approaches require a certain degree of specialization for each business unit and IS situation. College graduates entering the internal audit profession view it as a stepping stone and are usually willing to work for overall IS and business unit exposure, but few are willing to commit to this degree of specialization early in their careers. Integration, system flow evaluation, and staff pooling permit broad exposure, providing more auditors with a broader understanding of the total system.

With integrated audits, IS auditors can then specialize in environmental and developmental audits. Environmental auditors are technical specialists who concentrate on audits of online systems, systems software, data base administration, and other highly technical areas. They are also best suited to review systems under development. Expensive technical training is limited to a small group of people.

Training

The training necessary depends on the overall job mix, IS audit experience of the management team, and existing level of experience. For example, an IS audit manager may need accounting training or education about the business area. The financial audit manager may need IS audit technique training or consulting assistance. Managers, supervisors, and auditors-in-charge must eventually gain sufficient experience to manage, design, and control technical IS audit aspects; these management techniques can be learned. During the learning period provided by one-team pilot audits, design, implementation, and control of the technical aspects can be achieved through use of the IS auditors on a direct assignment or consultant basis until sufficient experience is gained by the management team. Most important, the manager should possess strong management skills.

Checklist and System Flow Evaluation Techniques

System flow evaluation is a controversial technique because of the extended time required to prepare flowcharts and analyze the control system. Some auditors prefer to concentrate on control points and exposures provided by the checklist technique, but this requires specific training and experience in the subject area, control objectives, techniques, and risks to permit an adequate review so that key points are not omitted. The system flow evaluation technique brings the audit of the manual system more in line with IS application audit techniques. The use of the checklist technique does not prohibit use of the integrated approach.
Checklist Technique

The checklist technique uses standardized audit programs and internal control questionnaires developed through experience and aimed at specific control exposures. It concentrates on specific areas within an auditee's function but does not always examine the complete transaction flow. In an accounts receivable audit, for example, the checklist approach typically reviews controls governing charges, credits, cash receipts, credit and collection activities, and reconciliation to general ledger. The risk of missing compensating controls or the lack of them in other areas is increased.

System Flow Evaluation

System flow evaluation is a technique for review and documentation of a business area that is accomplished by focusing on the flow of information created to complete business activities. Because each business area uniquely defines its activities and functions, the auditor must have a general control evaluation technique that is easily adaptable to and considers the individual characteristics of an area. A common denominator among all business area activities is the transaction, an event recognized as affecting the organization's financial statements.

The system flow evaluation technique is a detailed analysis of internal controls for a set of activities affecting a transaction. Various monetary and nonmonetary events can be grouped into similar transactions because they are subjected to similar processes and can be combined into a single transaction review. The major phases of system flow evaluation include preliminary survey, compliance and substantive testing, other audit and review procedures, closure, housekeeping, and report follow-up.

The preliminary survey accomplishes the following:

- Grouping events into similar transactions.
- Obtaining information on all functions affecting each transaction.
- Isolating the control techniques to prevent, detect, and correct irregularities.
- Transcribing this information into flowchart form.
- Testing each information flow line with a minimal number of transactions to ensure accuracy.

Compliance and substantive testing tasks are self-explanatory. Other audit and review procedures include special items that need attention and are not part of the routine audit (e.g., operational audit and special investigations). Closure consists of the steps necessary to prepare the audit report, including the postaudit conference with the auditee.

Implementation

As with any change, the implementation of the integrated approach requires a plan that depends on the existing audit philosophy and approach. To accomplish integration, it is best to use an evolutionary or phased approach.

The first phase is the one-team audit, which merges the audits of IS and non-IS systems into one total review, eliminating the redundancies in completing the preliminary
survey, testing, and administrative duties. The objective of one-team staffing is to produce a balance of IS and financial audit expertise that matches the system's sophistication and to eliminate redundant management, specifically at the in-charge, supervisor, and manager levels.

The second phase is total integration in which staff auditors are trained in both disciplines, there is no distinction between IS and financial auditors, and only one audit program is used. Total integration is the next logical step after the successful use of the one-team approach. By either means, the integrated audit approach:

- Produces an opinion of the total control environment.
- Reduces job staffing requirements.
- Reduces the time needed to audit a system.
- Evaluates the manual system flow as it relates to computer processing.
- Reduces scheduling and interface problems of two separate approaches.
- Lowers the recognition and resolution focal point of weaknesses in the total system.
- Simplifies supervision.
- Increases education of the user and programming personnel regarding the total system.
- Improves career path options for auditors.

Either approach requires one manager, one supervisor, and one in-charge auditor. The one-team audit uses an appropriate mix of IS and financial auditors to review a given area. The disadvantage of the one-team audit is IS audit staff supervision and review of IS audit work papers by supervisors and managers who may have insufficient IS audit experience.

**Overnight Change**

Implementation of the one-team approach can be accomplished through an evolutionary process or an overnight change (i.e., all audits after a stated date will be accomplished through the one-team approach). The overnight change assumes that:

- Audit management possesses sufficient administrative skills.
- Audit management possesses sufficient IS and IS audit skills.
- The staff is adequately trained.
- An effective standardized planning technique exists.
- Organizational changes are accepted by the staff.

**Evolutionary Change**

The evolutionary process permits:
· All audit personnel to learn new techniques on the job over a period of time, eliminating intense classroom training in all topics.

· Audit management to learn new administrative and planning techniques through experience instead of in the classroom.

· Implementation of a new planning technique, if needed.

· A series of gradual minor organization changes, if needed, instead of major changes all at once. This gives people time to adjust and increases the chance of staff acceptance. Simultaneous major organizational changes may cause dissension, which could undermine the team spirit needed for this approach.

**Phased Implementation**

Experience has shown this method to be another effective means of implementation. If the integrated audit approach is to be beneficial to the organization, it should be phased in one audit at a time until all the bugs have been worked out. The phased implementation approach should include the following procedures:

· Selection of a simple automated area that is appropriate for the one-team approach.

· Preparation of a single audit program covering financial and IS functions.

· Selection of a pilot management team and staff to conduct the audit.

· Extensive review of the audit program with the pilot team to ensure it is efficient and effective.

· Training of the pilot team in IS and financial audit disciplines as needed.

· Training of the management team in review techniques for IS audit work papers.

· Conducting the audit and closely monitoring progress of all members of the audit team.

· Documentation of the complete flow of transactions, including the manual and automated interfaces.

· A review of all work papers, including the IS tasks, by the pilot management team. If the IS audit manager and supervisor are not part of the pilot team, one of them should review the IS transactions.

· Preparation and issuance of a single audit report, including comments on IS and the operations area.

· Conducting a postaudit review to isolate problem areas and fine tune the audit program and planning techniques.

· Fixing any problem areas and selecting another area for the pilot team to conduct a one-team audit.
· Repeating the one-team audit pilots until management is confident that the audit process is effective and efficient.

Phased implementation is more manageable and less expensive from a training standpoint, because any problems are isolated to one audit instead of several. The usual audit coverage is therefore not disrupted, and the training needs are more readily identifiable.

**Recommended Course of Action**

A recommended implementation plan may begin with an audit staff using a separate audit approach and a checklist technique. The point at which a particular audit staff begins in this plan depends on its existing approach. The suggested steps are:

· Adopt a system flow evaluation technique for appropriate business areas.

· Adopt a detailed planning technique, including:
  · Task hours budgeting with actual hours tracking.
  · Task start and target dates.

· Adopt appropriate audit management approval for and a methodology by which to identify and report:
  · Audit objectives.
  · Audit scope exclusions.
  · All transactions that exist and those to be reviewed.
  · Control objectives by transaction.
  · Key controls by transaction.
  · Risks and exposures and their priority by transaction.
  · Budget hours by task for each major phase.
  · Staffing, assignments, and time frame.

Execute IS and financial audits of the same area concurrently using standardized communication procedures for the management team, issuing one report if time permits. Assign one team to an audit with dual in-charge auditors, supervisors, and managers when necessary to achieve an appropriate technical and management skill mix. Begin migration to the one-team approach using the phased implementation approach. Adopt the one-team approach with one management team for all audits. Create new job descriptions for all auditor levels and remove the distinction between IS and financial auditors. All auditors have the same authority and responsibility for reviewing the business area activities and application system interface. Create work-paper preparation standards and procedures for
total integration, focusing on the fact that one auditor will complete a transaction review. Revise work-paper review standards and procedures, and remove the distinction between IS and financial audit work papers. Focus on work papers that would be prepared under total integration. Select a simple automated area that is appropriate for the integrated approach. Prepare a single audit program covering financial and IS functions considering the fact that one auditor will complete a transaction test. Select a pilot management team and staff to conduct the integrated audit. Extensively review the audit program with the pilot team to ensure it is efficient and effective. Identify training needs (IS and financial audit disciplines as appropriate) for management and staff. Train the pilot team in IS and financial audit disciplines as needed. Train the management team in review techniques for IS areas. Conduct a pilot audit and closely monitor progress of all audit team members. Review all work papers, including the IS tasks, by the pilot management team. An extra review by the IS audit manager and supervisor would help. Prepare and issue a single audit report. Conduct a postaudit review to isolate problem areas and fine tune the audit program and planning techniques. Fix any problem areas and select another area for the pilot team to conduct an integrated audit. Refine audit programs, standards and procedures, and administrative and planning procedures. Repeat the integrated audit pilots until management is confident that the audit process is effective and efficient. Develop a new integrated organization structure, create new roles and responsibilities, and revise job descriptions. Focus on the shift of IS audit specialists to high-tech areas. Obtain audit committee and executive management approvals for the new approach, organization structure, and job descriptions. Implement the integrated audit approach and organization structure.

**Management's Role**

The audit management team must be staffed with appropriately experienced personnel and must be well organized and able to work as a team. The audit manager provides an overview, keeping the audit on track with major objectives and within acceptable time frames. The supervisor concentrates on the details of the survey, testing, and technical advice within the scope of the audit. The auditor-in-charge is responsible for the detailed day-to-day task completion by the staff, isolating problems with the system or the staff, and reporting them to the supervisor for resolution.

The integrated approach is conducive to small audit staffs because they cannot afford to have extensive numbers of specialists for business activities and IS. New audit standards and regulations, particularly in the banking industry, tend to pressure all audit staffs to conduct more frequent and comprehensive audits. In addition, with distributed data bases and applications, the auditor's job has become more complex because several business areas may need to be reviewed at the same time. Total integration is an effective and efficient approach for coping with challenges posed by distributed computing.

Each organization must, of course, evaluate the integrated approach to determine whether it is functional and beneficial. The implementation costs of the integrated approach include training, development of an audit program, and management and planning techniques. Maintenance costs include the training of new staff and higher salary levels because of the IS training and experience. The key benefits of this approach are reduced cost, increased productivity, and more comprehensive audit coverage. Before implementation, it is necessary to develop techniques that can measure these benefits during a series of pilot audits.
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