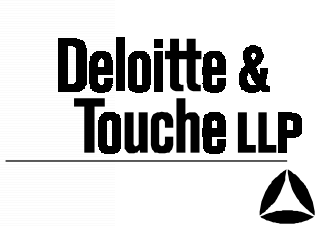
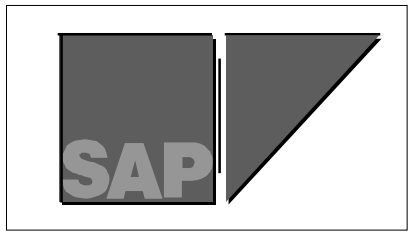




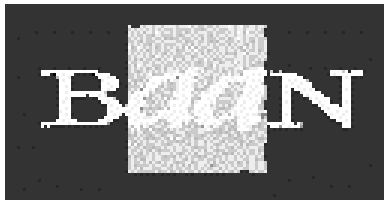
# ERP Systems: Audit and Control Risks

Jennifer Hahn

Deloitte & Touche

ISACA Spring Conference

April 26, 1999

# Session Learning Objectives



- At the end of this session, the participant should be able to:
  - Understand key risks and control issues surrounding the ERP systems
  - Understand the impact of ERP implementation on the internal audit organization
  - Explore alternatives for reengineering the audit approach

# Session Topics



- Key Risks and Control Issues
- Impact on Internal Audit
- Reengineering the Audit Approach
- Questions & Comments

# *Key Risks and Control Issues*

# *Why ERP Audit is Different*

# Technical Complexity



- System usually resides on multiple computers
- Optimum coordination is a challenge
- Reliability and availability of data
  - Effective use of on-line reporting
- System allows flexible configuration, cutomization and maintenance

# Event Driven Processing



- On-line real-time processing
  - All databases updated simultaneously
  - Rely on transaction balancing
  - Demands data validation before acceptance of data
  - Highly dependent on system-based controls
- Traditional “batch” controls and audit trails are no longer available
  - Data entry accuracy is improved through the use of default values, cross-field checking and alternative views into the data

# Integrated Database



- All transactions are stored in one common database
- Modules automatically create entries in the database for each other
- Auditors need to understand the interactions and flow of information
- Databases can be accessed by any module
- System modules (applications) are transparent to users

# Security and Access



- Requires extensive, well thought out definition of security access capabilities
- Authorizations occur within the application, not at the database level
- Delivered system security is not necessarily strong
- Network and database access security is also required
- Significant rise in users who have access
- Increased access from field personnel, vendors and customers

# Implementation Impact



- Typically, an ERP implementation is combined with a business reorganization/ reengineering
- Organizational changes and new business processes may be extensive
- Resulting controls should also be different from traditional ones

# Other Changes



- Lack of hard copy documents
- Controls are sometimes an afterthought
- Traditional general computer controls are implemented within the application in some cases:
  - Security
  - Change Control
- Some ERP Systems are table driven:
  - Tables determine how transactions are processed
  - As table values change, system processing also changes

# *Key Exposures*

# Key Business Exposures



*Organizations face several new business risks when they migrate to a real-time, integrated ERP System:*

- Single point of failure since all of the organization's data and transaction processing is within one application
- Complexity of architecture, applications and data structures makes it difficult to understand and operate effectively
- Reengineering or business process redesign normally included in implementation
- New Technology environment
- User acceptance of the system influences likelihood of success

# Key Business Exposures



- Extensive expertise required to effectively operate
- Significant personnel and organizational structure changes
- Transition of traditional user roles to empowered-based roles
- On-line, real-time system environment requires continuous business environment
- Effort of training a large number of users
- Challenging to embrace a tightly integrated environment when different business processes exist among business units

# Key Technical Exposures



- Inexperience with implementing and managing distributed computing technology may pose significant challenges
- Increased remote access by users and outsiders
- Extensive interfaces and data conversions from legacy systems and other commercial software often necessary
- IS must transition to an organization that can support a distributed computing environment

# Key Control Exposures



- Opportunity to establish control environment is during system implementation since extensive control is within the configuration
- Complexity makes it difficult to understand and audit effectively
- High integration allows increased access to applications and data
- Necessity for temporary and permanent interfaces increases exposures of data integrity and security
- Extensive expertise required to effectively audit and control
- Audit may need to change audit approach

# *Impact on Internal Audit*

# Summary of Audit Challenges



Audit Challenges

- Level of Understanding of ERP System
- Process Audits
- Interface Between Internal Audit & External Audit
- Electronic Information
- Data Issues
- Computer Interfaces
- Managing Expectations

# Audit Challenges



- Level of Understanding of ERP System
  - 1st Year Audits are opportunities
  - Management Perception
  - ERP “does it all”
  - Use of a Subject Matter Expert
- Process Audits
  - Many companies will reengineer business processes
  - Auditing the business process/internal controls will likely become the focus of the audit tests

# Audit Challenges (cont'd.)



- Interface Between Internal Audit and External Audit
  - Partnering with One Another
  - Leveraging Each Other's Skill Set
- Electronic Information
  - Electronic Information vs.. Hardcopy
  - Auditor Profile to obtain information electronically

# Audit Challenges (cont'd.)



- Data Issues
  - Data Retention
  - Data Entry
  - Segregation of Duties
- Computer Interfaces
  - Number of Interfaces
  - Data Analysis and Drill-Down

# Audit Challenges (cont'd.)



- Managing Expectations
  - Self-sufficient in identifying and drilling down into information
  - Change in Audit
    - Sharing of best practice information
    - Adding Value
  - Reduction in Hours
    - Effective and efficient audits with little start-up costs
    - All processes and computing on one system, therefore hours are expected to be lower

# Audit Organization Impact



- Internal Audit Must Address the New Environment in Several Respects:
- Training
- Staffing
- Implementation Approach
- Audit Methodology
- Roles for the Auditor

# Staffing



- Complexity of system environment requires staffing model with higher ratios of:
  - Information Systems Auditors
  - Integrated Auditors
- Traditional Financial and Operational Auditors must transform to Integrated Auditors
- Audits of complex and technical areas may need to be supplemented by experienced resources

# Training



- Detailed knowledge of ERP Systems necessary in order to effectively understand security and control issues over:
  - application areas
  - technical environment
- Significant training necessary to adequately understand the new environment
- Must learn a security and controls implementation methodology
- May need to learn new tools (e.g., ABAP/4 for SAP) in order to effectively audit ERP
- Consider vendor training and joining user groups

# Implementation Approach



- Audit should take an active role during the implementation
- Reengineered business processes require a change in the method of control
- New security, audit and control tools should be developed to facilitate the effective implementation and operation of the control environment
- On-going involvement with R/3 implementations required

# Audit Methodology

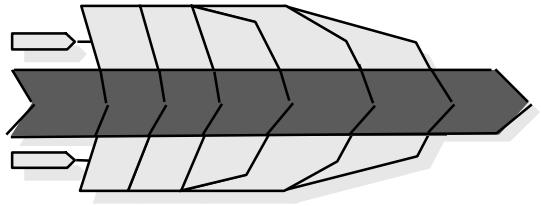


- Traditional audit methodologies and approaches must be modified to effectively audit R/3 in a cost-effective manner
- Integrated audits necessary for the new environment
- New audit tools should be developed to facilitate efficient and effective audits

# Roles for the Auditor

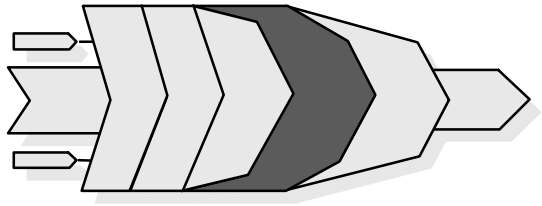


## Integrated Approach



- Focus on the Design and Implementation of Controls for New Systems
- Give consideration to
  - Project Risk
  - Business Process Risk Assessment
- Perform tests to Ensure Implementation of Controls

## Pre-implementation Review

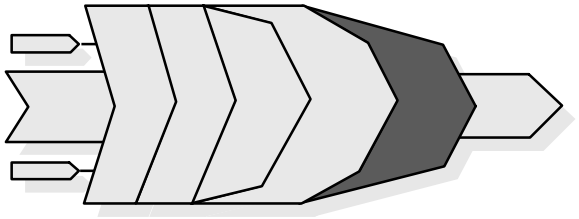


- Focus on the Controls Design for New Systems
- Give consideration to
  - Review of Business Case
  - Project Risk
  - Business Process Risk Assessment
- Review of Performance Measurement Criteria

# Roles for the Auditor

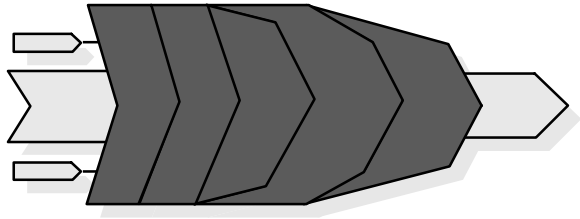


## Post-implementation Review



- Focus on the Implementation of Controls for New Systems
- Give consideration to
  - Risk Assessment of Business Process
  - Achievement of Project Objectives and Business Case
- Review of Implemented Performance Measurements

## Quality Assurance Audit



- Participation throughout Project
- Focus on overall quality of Business Process Reengineering Program
- Give consideration to Ability to Impact Project
- Consider specific deliverables at each key project milestone

# *Reengineering the Audit Approach*

# Audit Scope



- Evaluate the complexity of the technology environment
- Identify which ERP modules have been implemented
- Evaluate the existence of distributed applications
- Determine whether legacy systems are used
- Obtain an understanding of the organizational model
- Obtain a high level understanding of the controls in place over:
  - General Computer Controls
  - Business Process Controls

# Testing Considerations



- Difficult to perform financial audits without relying on internal controls:
  - Clients using ERP are usually large multi-national corporations with complex structure and reporting
  - More internal control testing, less substantive testing
- Documentation of testing
- Design of effective tests of controls
  - Audit steps are different
  - Audit issues are different

# Operational Audit Considerations



- Increased difficulty and importance in definition of the scope of the audit
- A detailed understanding of client processes is required
- An increased level of Operational Audit technical knowledge and computer-related controls is required
- The roles and responsibilities of Operational Audit and Computer Audit becomes more integrated

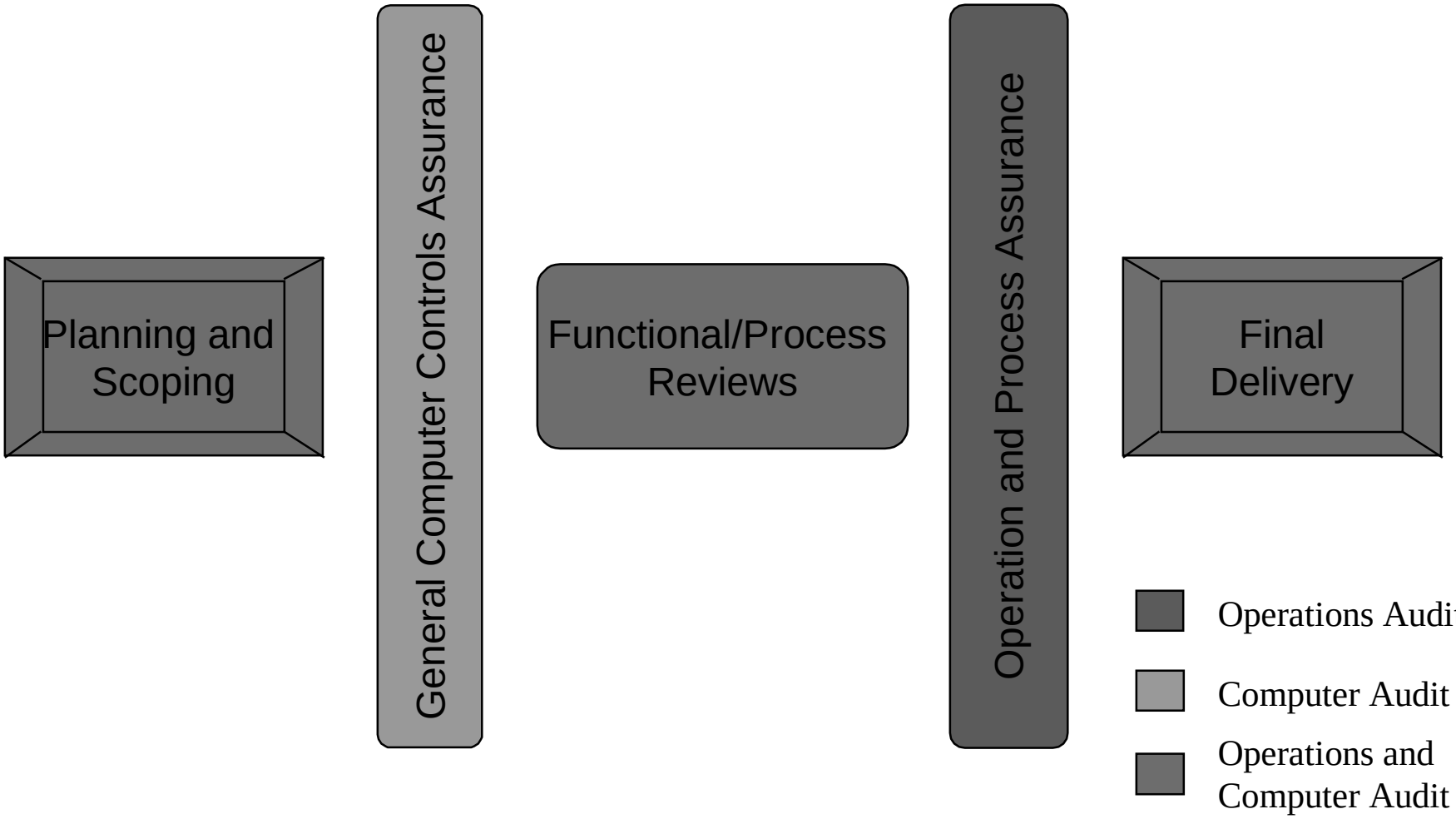
# Computer Audit Considerations



- An increase in the level of technical Enterprise Resource Planning (ERP) system knowledge
- A detailed understanding of ERP specific General Computer Controls, especially
  - Security Authorization Structure
  - Correction and Transport System
- An increased understanding of business processes and the related ERP controls
- An increase in the integration of Computer Audit and Financial Audit

# Audit Process





# Roles and Responsibilities



- Identify all the team members that will serve the client: Operations Audit, Computer Audit and Other Specialists
- No hard and fast rule to split roles and responsibilities between audit groups
- Actual differentiation of roles and responsibilities is determined on a client-to-client basis
- An evaluation needs to be made by the audit team as to how the roles and responsibilities should be defined
- The important issue is that the client should have a
  - **seamless and efficient audit**
  - **from a well integrated and knowledgeable team**

# *Questions & Comments*