



# Access Control for Auditors in Corporate Collaboration

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## INTRODUCTION

To respond to the fast-changing environment, corporations are under pressure to form collaboration within and among organizations. There are many reported examples of how collaboration can be implemented. One of the most mentioned case is the vendor-managed inventories (VMI) model that moves the duty of product replenishment from the retailers to the wholesalers or from the wholesalers to the manufacturers, by allowing the vendor (the wholesalers or the manufacturers) to manage the inventories for the buyers (the retailers or the wholesalers). Under the system, a continuous replenishment program (CRP) allows the suppliers to regularly monitor the point-of-sales (POS) data and determine the replenishment period. To facilitate the collaboration, it is essential to share the ERP data or warehouse data among organizations. Of course, organization may decide to deepen the degree of collaboration by adopting advanced planning and scheduling (APS) which takes the plant capacity and material availability of both the suppliers and the manufacturers into collaborative scheme. Similarly, managers could consider using collaborative forecasting and replenishment (CFAR) so that the demands of retailers and wholesalers can be examined to trig the production activities. Moreover, an integrated approach of APS and CFAR, called collaborative planning, forecasting, and replenishment (CPFR) allows collaborators to manage simultaneously the relationships between retailers and wholesalers and between wholesalers and manufacturers.

Internal auditors appraise the level of efficiency of a firm's operations and the level of its compliance to the existing regulations. On the other hand, external auditors provide assurance to the reliability of a client's financial and non-financial information reported in the quarter and annual financial statements. To fulfill their responsibilities, both internal and external auditors need to evaluate the efficiency and effectiveness of an organization's internal controls. Since internal auditors involve in the entity's daily operations and are independent of business activities, they are the most qualified groups of individuals who can assist the external auditors to conduct an audit engagement. Regardless which format chosen, internal and external auditors of collaborative organizations should have access to the data stored in (and owned by) the various organizations. In this case, it is apparent that an access control to an organization's data is critical to protect the integrity and proprietary information among collaborators. As one may aware, the roles and tasks performed by internal and external auditors are quite different. To the external auditors, their primary responsibility is to examine whether a company's financial statements (balance sheet, income statement, and statement of cash flows) are prepared based on generally accepted accounting principles (GAAP). As part of professional responsibilities, external auditors need to develop a high-level understanding of client's operations, so they can express a professional opinion on a client's financial statements objectively and confidently. On the other hand, internal auditors are in charge of the operational audit and the compliance audit. When performing an operational audit, internal auditors review the efficiency and effectiveness of a firm's operational procedures. Such an audit includes, but not limited to, an

examination of transactions process and the evaluation of less quantifiable information like the degree of customer satisfaction. Moreover, internal auditors are responsible for compliance audit to determine whether the company practice follows the regulations promulgated by authorities such as environmental protection agency (EPA) and Federal Depository Insurance Commission (FDIC).

Traditionally, the external auditors examine the historical data periodically. Since the growth of information technology and the dynamics of the business world, external auditors have gradually shifted their focuses from periodical examination to real-time assurance. Since most internal auditors perform operational and compliance audits on continuous basis, their inputs to the external audit processes are imperative to yield high quality financial audit reports. Therefore, it is essential for the external auditors to work closely with a company's internal audit department during the course of an audit engagement. While working closely, both internal auditors and external auditors share the same concern over the implementation of computer control and information security under the real-time and continuous assurance environment when data is transferred electronically (Rezaee, Sharbatoghlie, Elam, and McMickel, 2002; Elliot, 2002; Daigle and Lampe, 2002).

Although we all aware the existence of information risk when one makes decisions under uncertainty. Such a risk may have indeed increased in an electronic business environment. For example, the bullwhip effect may exist in the supply chain, where the information could be twisted during propagation (Chopra and Meindl, 2001). Moreover, the biases of the information provider and complex data exchanges in the corporate collaboration may raise the level of information risks. To alleviate such a risk and to provide timely information to the public, all audits, including operational, compliance and financial, have to be conducted on a continuous and real-time basis, particularly when an organization engages in collaborative commerce. Such an inter-organization arrangement leads to the need for designing access controls for auditors. The purpose of the study is to propose a model of data access control for external auditors when clients involve in the corporate collaboration.

## USING VMI AS AN EXAMPLE

This section uses vendor-managed inventories (VMI) to illustrate how the access control can be implemented in a corporate collaboration. The implementation platform is the Oracle database management system. Since the VMI allows the suppliers to manage the inventory of their buyers, a part of the data in the buyers' databases should be accessible by the suppliers so that the suppliers can manage the inventory promptly and properly. To do the auditing task, the auditors of the suppliers should be allowed to access the data owned and managed by the buyers. A detailed description of the audit tasks is provided as follows;

### Partners

- Evaluate the possible threats from external forces (competition, technological advancement, obsolete inventory) which may cause problems to a going-concern.

- Evaluate whether the client's R&D activities are sufficient to sustain the level of competition in the industry.
- Evaluate whether the client's strategic alliance is strong enough to meet the external forces in the industry.
- Evaluate the validity of the assumptions made by the client regarding its business risks and financial risks.
- Evaluate whether the design of the control framework established by the client adequately addresses the business and financial risks.
- Evaluate whether the client has sufficient control to monitor and react to the significant risks in order to achieve its strategic intent.
- Determine the overall effects of the client's strategy on audit.
- Evaluate whether there are proper links between strategic, control and operating activities that result in a reliable set of financial statements.
- Determine the sufficiency of audit evidence to support audit opinions.

#### Managers

- Understand the client's business philosophy and detail, and assess the appropriateness of the management processes.
- Evaluate the client's internal control framework.
- Evaluate the client's detailed monitoring process.
- Evaluate the client's underlying accounting choices and financial statement disclosures.
- Understand client's estimates and valuations.
- Determine whether the client's estimates and valuations properly reflect the client's business risk and financial risks.
- Determine how the client's strategic intents and control framework affect the company's operating activities.
- Establish a level of materiality for audit testing.
- Assess whether there is additional audit work, related to the client's business process and transactions, not in the original audit plan, that needs to be conducted.

#### Seniors (In Charge)

- Establish a clear understanding of the relationship between the client's internal controls and its business activities.
- Review last year's working papers to identify key areas for planning and focusing on the current year's audit.
- Conduct audit planning.
- Coordinate with the client's personnel, such as the internal audit department, for the current year's audit.
- Assign audit tasks to the audit team.
- Document the client's internal control framework and activities using DFD.
- Assess the strengths and weaknesses of client's internal controls.
- Revise the internal control questionnaires to evaluate the control framework and processes.
- Determine the level of reliance on the client's internal controls.
- Design sampling plan and determine the proper sampling methods.
- Identify benchmarks for comparisons.
- Build relationships between financial and non-financial data.
- Perform analytical procedures (cross-sectional and time series) on client's financial data.
- Evaluate whether it is necessary to adjust the level of materiality and its effect on the budget and audit tasks.
- Review working papers prepared by audit team members and clients.
- Communicate and discuss with the client's management any issues encountered during the auditing processes.

- Review working papers completed by assistants to ensure audit quality.

#### Staffs (Assistants)

- Update the client's DFD from the last audit period.
- Test of internal controls based on the client's internal control framework and control activities documented in DFD.
- Complete the internal control questionnaires.
- Conduct audit sampling based on the acceptable audit risk, inherent risk and control risk.
- Report the results of the tests of controls to in-charge auditors.
- Print listing of off-premises inventory for confirmation, and print confirmations.
- Conduct physical counts of the client's inventory.
- Tally perpetual inventory records in descending order by dollar amount to select target items for test counting.
- Access and print year-end receipts and shipments for agreement with cutoff information with cutoff information obtained during the physical inventory observations.
- Trace details in perpetual records to machine-readable source documents (e.g., receiving reports, production records etc.).
- Verify footing, cross-footing, and extensions of final priced inventory and/or perpetual accounting records.
- Trace details in final priced inventory to perpetual inventory records.
- Select inventory items for price testing using internally stored random number generators and perpetual inventory records.
- Perform price tests.
- Compare charges/credits in perpetual records with purchases/sales master files.
- Examine the condition of the inventory and determine whether inventories are obsolete.
- Merge physical inventory counts with perpetual inventory records.

#### CONCLUSIONS

When a company has collaborative relationships with other organizations, the appropriate design of data access controls is important. The access controls should specify various control policies to collaborators for different purposes. Depending on the type of collaboration, the access controls can be very complicated. For example, if the collaboration is on product development, the access control on the product definition data should include intricate formats of read and write privileges. However, the access control for auditors is relatively straightforward, read-only privileges are given. The access control for the auditor to the client data is the highest read privilege since all data are subject to audit. When the company forms a collaborative network with collaborators, the access control should consider giving different access control policies to the auditors of different collaborators.

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