

Audit Committee Briefing

AUDIT DATA ANALYTICS

NOVEMBER 2017

Questions for Audit Committees to Ask the Organization's Auditors About Audit Data Analytics (ADAs)

Planned Nature and Extent of Use of ADAs to Enhance Audit Quality

1. What types of ADAs, if any, do the auditors plan to use to enhance the quality of the audit? What matters are being considered in making this decision?
2. Is there a type of ADA the auditors would have liked to use to improve audit quality but are unable to do so because of one or more restrictions (e.g., unable to access relevant data)? What actions would be needed, and by whom, to enable the use of this type of ADA?

Key Matters to Consider That May Affect Planned Performance of ADAs

3. Do the auditors have the appropriate knowledge and skill sets to perform and evaluate the types of ADAs to be used in this year's audit?
4. Do the auditors plan to make use of data analytics performed by management or internal audit?

5. What steps will be taken to ensure the maintenance of security, confidentiality and privacy of data obtained for use in performing the ADAs?
6. If ADAs were used in previous years, were there audit inspection findings related to such use? If so, what were those findings and what have been the responses by the engagement team and audit firm?
7. How are the types of ADAs planned for this year's audit likely to affect the nature, timing or extent of communications between the auditors, management, and the audit committee?

Purpose of This Publication

CPA Canada has developed this Audit Committee Briefing (Briefing) to help members of audit committees initiate dialogue with auditors regarding use of audit data analytics (ADAs). This Briefing provides:

- a description of ADAs.
- brief background information on the evolving technological environment in which entities operate and audits are performed.
- questions an audit committee might ask its auditors regarding:
 - the planned nature and extent of use of ADAs to enhance audit quality
 - key matters to consider that may affect the planned performance of ADAs.

There are two companion pieces to this publication, the first targeted primarily at auditors and the second at the financial management of the audited organization:

- [Audit Data Analytics Alert: Talking to Your Clients about Data Analytics](#)
- [Audit Client Briefing: Why CFOs Should Support the Use of Data Analytics in the Audit of Their Financial Statements.](#)

Description of ADAs

ADAs are IT-based statistical and mathematical techniques auditors may use to discover and analyze patterns in an organization's financial and non-financial data. Examples of ADAs are set out in the [Appendix](#). Software-generated visualizations (graphics and tables) are used to better understand the data and clearly highlight matters of interest to the auditor. These matters may include:

- insights to help the auditor understand the entity and the environment in which it operates
- indications of higher risks of material misstatement or actual material misstatement of the organization's financial statements
- deviations from controls on which the auditor intends to rely.

Evolving Technological Environment in Which Entities Operate and Audits Are Performed

Organizations and their auditors are facing what has been called “a third great wave of invention and economic disruption set off by advances in computing and information and communications technology”.¹ Large and diverse amounts of data are being used by organizations of all types and sizes to improve their strategic, financial and operational decision-making. Global revenue related to analytics is expected to grow from “\$130.1 billion in 2016 to more than \$203 billion in 2020”.² These developments are affecting what is expected of auditors. A KPMG/Forbes Insights survey indicates, for example, that 78% of respondents believe auditors should use more sophisticated technologies for data gathering and analysis. Almost half (47%) say auditors should perform a deeper analysis in areas they already cover.³

In response to this changing environment, increased use of ADAs is important in maintaining the relevance of the financial statement audit and in helping to improve its effectiveness and efficiency. As stated in *A Framework for Audit Quality* developed by the International Auditing and Assurance Standards Board (IAASB), a rigorous audit process includes appropriate use of information technology.⁴

A 2016 survey found that a significant number of auditors in Canada is using ADAs. Those auditors perceive a significant positive relationship between use of ADAs and the confidence they have in their audit opinion. However, many auditors still do not use ADAs.⁵ Therefore, some audit committees may find their organization’s auditors are making extensive use of ADAs, while others may find that their auditors are making little or no use of ADAs. A key issue for audit committees to consider is whether the auditors are keeping pace with management’s use of IT to obtain and analyze data.

Questions for Audit Committees to Ask the Auditors Regarding Use of ADAs

Sample questions audit committees might consider asking the auditors of their organization regarding use of ADAs are set out below. Matters to note regarding these questions include the following:

- These sample questions are intended to be asked when the audit is being planned. An audit committee would likely have follow-up questions to ask in subsequent meetings. Follow-up questions might focus, for example, on whether the nature and extent of use

1 The Economist, “Special Report—The Third Great Wave”, October 2014. (www.economist.com/news/special-report/21621156-first-two-industrial-revolutions-inflicted-plenty-pain-ultimately-benefited)

2 IDC press release, October 3, 2016 (www.idc.com/getdoc.jsp?containerId=prUS41826116)

3 “Audit 2025—the future is now”, CPA Magazine (electronic version), June 9, 2017. www.cpacanada.ca/en/connecting-and-news/news/professional-news/2017/june/audit-2025-the-future-is-now. Link to survey: https://www.forbes.com/forbesinsights/kpmg_audit2025/index.html?mkt_tok=eyJpIjoiWXPBek1qQTJORFV5TTJNNSIsInQiOiJmMUkwMOZEcDh-aS1V4YnBidFo1QUVnU1hTWIFMzjZhcEs2ZEIndmxyd1BwYWZvenBSajVDUmhhYXFCMkUxZE1EbzNmVjF3ZOQyclRpSnRvU2Z-JbmN3RFdObkUyVUxvU5EKzhweFJaZ0RoV2s3cDIOaEd2dVF6K0FKUnNWZ0VrOCJ9

4 *A Framework for Audit Quality: Key Elements That Create an Environment for Audit Quality*, International Federation of Accountants, February 2014, p. 12.

5 More information on the survey and its results can be found at www.cpacanada.ca/en/business-and-accounting-resources/audit-and-assurance/canadian-auditing-standards-cas/publications/audit-data-analytics-alert-ada-survey-results

of ADAs, are consistent with what the auditor planned. If significant changes were made, the audit committee would likely ask what those changes were and the reasons why they were made.

- In many cases, a question may result in a three-way discussion among the audit committee, the auditors, and management. One reason is that use of many types of ADAs requires the co-operation of management, including IT personnel.
- These sample questions focus specifically on use of ADAs. In some cases, the questions may have broader implications. For example, Question 5 regarding confidentiality, security and privacy of data may be asked regarding all data used by the auditor, with data used in performing ADAs being only one area on which to focus.

Planned Nature and Extent of Use of ADAs to Enhance Audit Quality

1. What types of ADAs, if any, do the auditors plan to use to enhance the quality of the audit? What matters are being considered in making this decision?

Various types of ADAs, such as those noted in the [Appendix](#), may be used in any phase of the audit, including planning, identifying and assessing risks, performing substantive procedures in response to assessed risks, and in forming an overall conclusion regarding whether the audited financial statements are consistent with the auditors' understanding of the organization. The audit committee may find the auditors are considering using ADAs for the first time, or are considering making significant changes from how ADAs have been used in previous audits. Examples of matters that might be considered when making these decisions, including possible enhancements of audit quality, as well as other potential benefits costs and risks, are set out below.

Possible enhancements of audit quality:

- ADAs may make it feasible for the auditors to analyze up to 100% of data relevant to the audit. Therefore, the auditors may be able to efficiently and effectively obtain a clearer and deeper understanding of the organization, including the environment in which it operates, its processes relevant to the audit and internal control over financial reporting. The result may be improvements in the identification and assessment of risks of material misstatement and the procedures planned and performed to respond to those risks, in particular, significant risks.
- Use of ADAs may enable many more routine aspects of the audit to be automated thus enabling the auditors to devote more time to difficult matters requiring significant use of professional judgment.

Other potential benefits:

- *More efficient and effective interactions between auditors and the entity's finance staff.* CFOs sometimes express concern about the amount of time finance staff have to spend dealing with questions from auditors. More extensive use of ADAs by auditors may improve the relevance and specificity of questions they ask of management.

Further, rather than focusing on what happened, questions may often focus more productively on why a significant matter has arisen, and its consequences. ADAs may result in higher-quality dialogue among auditors and finance staff.

- *Providing more robust performance information for management as a by-product of the audit.* For example, in auditing accounting estimates such as allowances for doubtful accounts, inventory obsolescence or warranty provisions, ADAs may enable the auditors to obtain useful information on many aspects of transaction flows (e.g., product inflows and outflows, customer behaviours in terms of purchases, payments and returns of goods). This may include, when practicable, comparisons to performance measures used by the entity's peers that operate in a similar environment.

Costs:

- A transition to use of ADAs may often require the auditor to make significant investments in the first year (e.g., purchasing analytics software licences, support and other IT-related costs, and training engagement teams).
- The time required to perform the audit may increase, particularly when ADAs are being used for the first time or require a significant change from the approach previously taken.

Risks:

- Regulators, like auditors, will experience a learning curve in how ADAs can be used to enhance audit quality. Audit committees should be aware that some auditors may be reluctant to use ADAs because of concerns that audit regulators may react negatively to such use.

2. Is there a type of ADA the auditors would have liked to use to improve audit quality but are unable to do so because of one or more restrictions (e.g., unable to access relevant data)? What actions would be needed, and by whom, to enable the use of this type of ADA?

In some cases, an auditor may be of the view that use of a particular ADA would improve the quality of the audit (e.g., make it more effective or efficient). However, the auditor may face significant barriers against use of this ADA. For example, there may be circumstances when management (including IT personnel) resist providing the auditor with access to data relevant to performing the ADA. In this circumstance, the audit committee may play a key role in promoting dialogue between management and the auditors regarding this issue and in achieving the co-operation needed to enable the ADA to be used.

Key Matters to Consider That May Affect Planned Performance of ADAs

3. Do the auditors have the appropriate knowledge and skill sets to perform and evaluate the types of ADAs to be used in this year's audit?

The auditors might provide the audit committee with an overview of how the audit firm's quality control procedures have been applied to demonstrate that those performing the audit have the appropriate knowledge and skill sets regarding the ADAs to be used. The audit committee might also ask about the planned nature, timing and extent of the involvement of the engagement partner in the planning and evaluation of these ADAs.

4. Do the auditors plan to make use of data analytics performed by management or internal audit?

Management of some entities makes extensive use of data analytics, some of which may be relevant to the audit. In that case, the auditors would consider how management's analytics and the results obtained from them would affect planning and performing audit procedures.

The auditors may decide it is appropriate to use the work of internal auditors, including work involving the use of data analytics. The auditors would comply with the requirements in CAS 610 *Using the Work of Internal Auditors*.

5. What steps will be taken to ensure the maintenance of security, confidentiality and privacy of data obtained for use in performing the ADAs?

The audit firm should have effective processes and controls in place to maintain the integrity and security of the data accessed from the client's systems, including any personal identifiable information required for purposes of the audit. The audit firm's software would be designed to read and, in some cases, extract but not alter the data. Regarding storing extracted data in audit files, the audit firm should, for example, restrict physical access to the auditors' hardware containing the audit documentation and restrict remote access to authorized users only.

6. If ADAs were used in previous years, were there audit inspection findings related to such use? If so, what were those findings and what have been the responses by the engagement team and audit firm?

Audit regulators are likely to have questions regarding how auditors have used ADAs, and perhaps include issues related to ADAs in the findings from their inspections of previous audits. Input from audit regulators is important for assessing and improving audit quality. Accordingly, audit committee members should discuss this input with the auditors, including how the auditors plan to address any potential concerns expressed by audit regulators. In communicating findings from audit inspections, reference could be made to the *Protocol for Audit Firm Communication Of CPAB Inspection Findings with Audit Committees* (www.cpab-ccrc.ca/Documents/Topics/CPAB%20Prototcol/CPAB%20Protocol-%20Final.pdf).

7. How are the types of ADAs planned for this year's audit likely to affect the nature, timing or extent of communications between the auditors, management, and the audit committee?

ADAs may improve the quality of communications among the audit committee, the auditors and management. For example, ADAs typically involve the use of effective graphics that may be useful when communicating the auditors' concerns and findings regarding complex accounting and auditing issues to both management and the audit committee.

The auditors' use of ADAs is likely to provide a sound basis for more substantive discussions regarding not only aspects of the quality of the audit performed, but also on matters related to how the audit added more value to the organization.

Additional Resources

- [CPA Canada Audit Data Analytics Committee Landing Page](#)
- CPA Canada Publication—[Audit Data Analytics Alert—Talking to Your Clients About Data Analytics](#)
- CPA Canada Publication—[Audit Client Briefing: Why CFOs Should Support the Use of Data Analytics in the Audit of Their Financial Statements](#)
- CPA Canada Publication—[Audit Data Analytics Alert: Keeping Up with the Pace of Change](#)
- CPA Canada Webinar—[Business Analytics Part 1: An Introduction to Analytical Thinking](#)
- CPA Canada Webinar—[Business Analytics Part 2: Implementing Analytics in Your Organization](#)
- CPA Canada Webinar—[New Insights, New Models: The Power of Big Data and Analytics](#)
- AICPA [Audit Data Standards](#)—Voluntary, recommended data standards for the extraction of information. These data extract standards do not represent authoritative auditing or accounting standards.
- AICPA Publication—[Audit Analytics and Continuous Audit: Looking Toward the Future](#)

CPA Canada Audit Data Analytics Committee

CPA Canada expresses its appreciation to the author for developing this *Audit Committee Briefing* and to the members of the CPA Canada Audit Data Analytics Committee for their contribution to its preparation.

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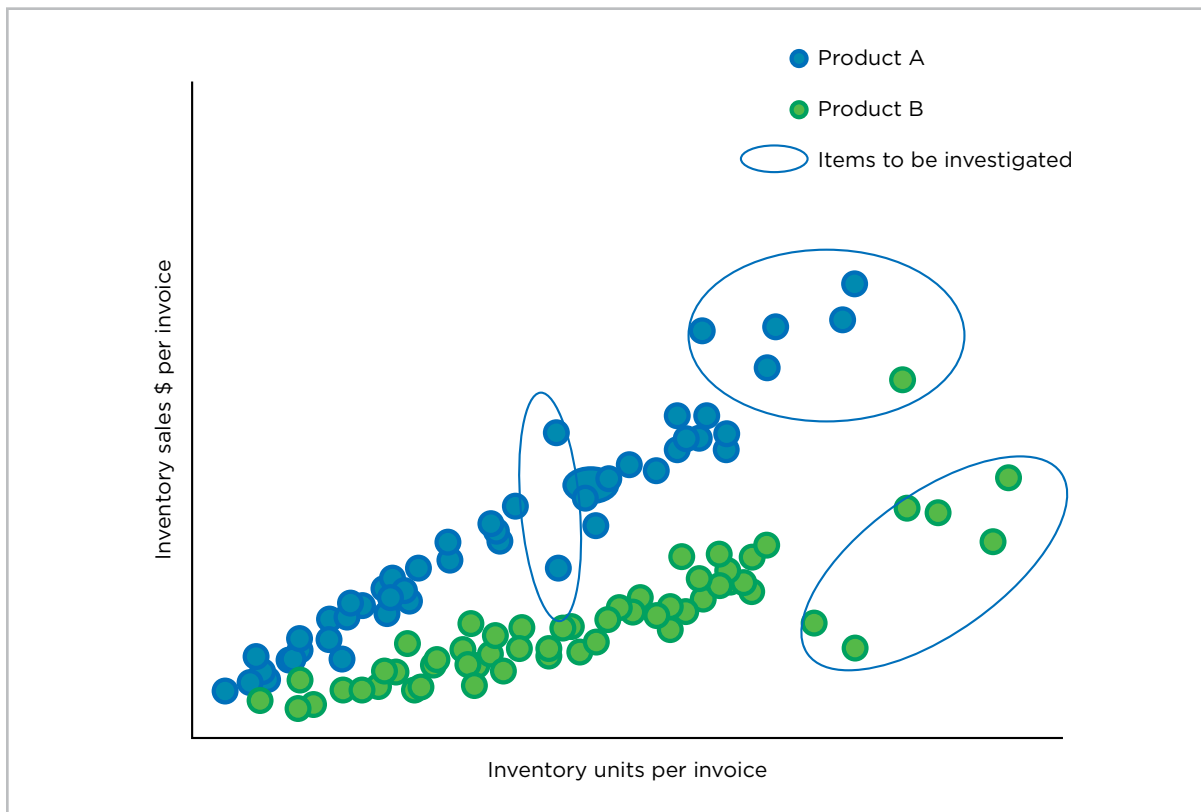
Appendix

Examples of ADAs

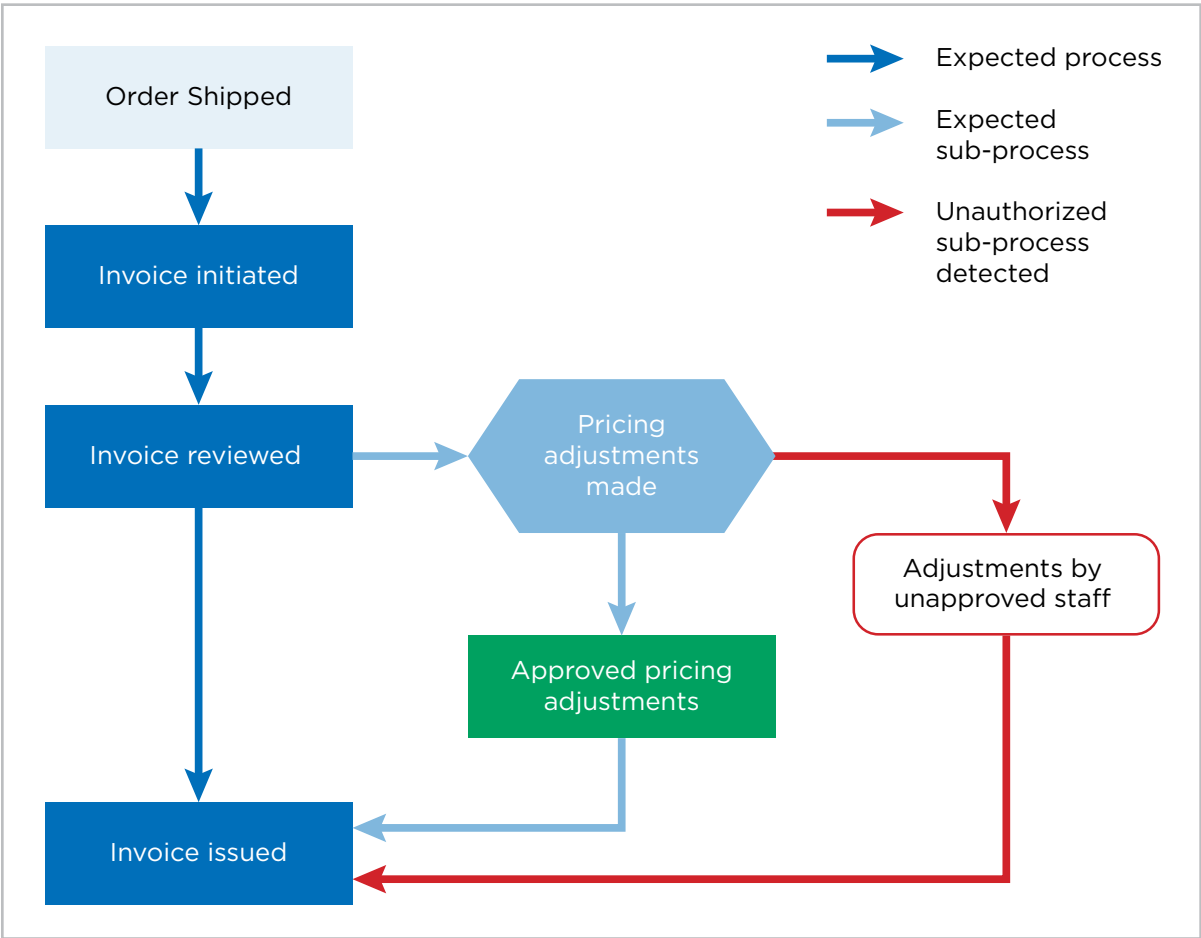
The following are a few examples of ADAs that auditors might use. Examples of visualizations (graphics) that might be used in performing an ADA are provided for two of the ADA types: pattern analysis and process mining.

- *Pattern analysis* (e.g., data mining, trend analysis, regression analysis)—The auditors analyze various types of data (e.g., time series, cross-sectional, or cross-sectional time series (panel) data) to identify unusual patterns that may indicate, for example, a higher risk of material misstatement. Use of ADAs enables the auditors to examine extensive data sets spanning longer periods of time and at more disaggregated levels to improve the likelihood of identifying items of interest to the auditors.

An example is depicted in the graphic below. A company sells two main products, A and B. The sales prices were expected to be stable during the period under audit. Each dot on the graph represents an invoice, with its position determined by sales dollars and sales units from the invoice. Most invoices should appear on a straight line (i.e., the pattern expected), with the slope for the higher-priced product (product A) being steeper. Those invoices significantly above the straight line may represent overbillings; those significantly below the straight line may represent underbillings. The ADA links each invoice to underlying data to help enable efficient and effective follow-up audit work on outliers. Even though the graphic shown is simplified, the ADA could also be used to analyze very large invoice populations.



- Process mining*—The auditors use software to identify, for example, whether the audited entity’s system is processing transactions in a manner that will achieve effective internal control. One approach is for the auditors to use event logs from the organization’s enterprise resource planning (ERP) system to trace actions performed by the system (including those initiated by employees) for significant transaction streams. The number and types of transaction flows and sub-flows may be quite different from what the organization intended and the way they may be described in systems documentation. A graphic similar to that shown below might be generated using the process mining ADA.



- Peer analysis*—The auditors compare or benchmark key performance measures of the entity with those of entities in the same industry or otherwise comparable. This may be done for a period of time or as at a point in time. Use of IT enables broader and deeper analyses than would be practicable manually.
- Three-way match procedure*—The auditors compare key common fields in documents issued or received during the period under audit (e.g., quantities, prices and product identifiers in customer purchase orders, sales invoices and shipping documents). A mismatch may be indicative of a problem (e.g., a control weakness). The matching procedure often encompasses 100% of the documents issued in the period, potentially providing more in-depth knowledge of control risks.

- *Journal entry analytic*—The auditors examine attributes of up to 100% of journal entries made during the period under audit to reveal relationships and patterns in account codes affected, the person who authorized and posted the entries, and the timing and amounts of posted entries.
- *Segregation of duties analysis*—The auditors access user identifier fields for various types of transactions for the period under audit to identify instances when the same individual performed incompatible functions. For example, the ADA could be applied to all sales transactions for the year to identify instances when the same individual executed sales order and delivery document processing and applied cash receipts.
- *General ledger account reconciliation*—The auditors use software to verify, for example, that opening balances agree with ending audited balances for the preceding period, that the closing balances for the current period equal opening balances plus or minus the current year's transactions and adjustments, that the general ledger is in balance and that balances in the control accounts in the general ledger are in agreement with those in the relevant subledgers.
- *General ledger account balance analysis*—The auditors use software to identify significant changes in account balances from prior periods, trends in balances, and to calculate key performance indicators. The software used typically generates graphics to enable the auditors to readily identify matters that likely warrant exploration.

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