Q3 2019 AUD Book Update

Page numbers refer to 2019 AUD textbook pages. When new/edited text is shown along with old text, the new/edited text is highlighted in gray, unless noted otherwise.

Page 2-55

Independence Standards of the Government Accountability Office (GAO)

The GAO is an agency of Congress responsible for investigating how the federal government spends taxpayer money. It is also responsible for setting generally accepted government auditing standards (GAGAS), which are issued in a document referred to as the “Yellow Book.”

The Yellow Book is broken down into sections that include:

- Foundation and Principles for the Use and Application of Government Auditing Standards
- General Requirements for Complying with Government Auditing Standards
- Ethics, Independence, and Professional Judgement
- Competence and Continuing Professional Education
- Quality Control and Peer Review
- Standards for Financial Audits
- Standards for Attestation Engagements and Reviews of Financial Statements
- Fieldwork Standards for Performance Audits
- Reporting Standards for Performance Audits

The General Standards include the GAO's separate, and somewhat more restrictive, independence requirements that apply when performing an engagement in accordance with GAGAS. It indicates that: “In all matters relating to the audit work, the audit organization and the individual auditor, whether government or public, must be independent.” This includes independence of mind, indicating that the auditor is free of influence that might compromise the auditor's judgment, and independence in appearance so that users of the financial information will consider it reliable.

To provide assurance that an auditor is independent both in mind and in appearance, GAGAS incorporates an independence conceptual framework that can be applied in making a determination as to whether or not independence has been impaired. An auditor evaluates independence, applying the framework, whenever facts or circumstances create threats to independence. The approach is very similar to that incorporated into the independence requirements for nongovernmental auditors in the AICPA code of Professional Conduct.

Similar to the approach for evaluating independence indicated in AICPA professional standards, government auditors are expected to:

- Identify threats to independence
- Evaluate the significance of the threats, individually and collectively
- Apply safeguards to eliminate or mitigate the threats such that they are reduced to an acceptable level

The framework is applied by first identifying facts and circumstances that create threats to independence. There are 7 categories of threats in the Yellow Book to independence:

- A self-interest threat occurs when the auditor has a financial or other interest in the entity that might affect the auditor's judgment.
• A **self-review** threat occurs when the extent of nonattest services performed by the auditor for the client raise a question as to whether the auditor will be reviewing judgments and estimates that the auditor participated in the development of.
• A **bias** threat occurs when the auditor is not objective about the client. This may result from the relationship between the auditor and client. It may also be a result of the beliefs of the auditor, which may be political, religious, or philosophical, and that may or may not conform to the objectives, mission, or operations of the client.
• A **familiarity** threat occurs as a result of the duration and closeness of the relationship between the auditor and the client. This includes the threat that the client may anticipate what may be emphasized by the auditor and may be able to effectively deceive the auditor as a result.
• An **undue influence** threat occurs when factors or parties separate from the client might create influence or pressure that may affect the auditor's judgments in regard to the client.
• A **management participation** threat occurs when the auditor takes on the role of management or performs management functions for the client.
• A **structural** threat occurs when the audit entity is connected to the government entity in such a way that may impair the auditor's ability to remain objective in the performance of the engagement or reporting of the results.

If the threat to independence results from the performance of nonaudit services, the auditor will first determine if the service was prohibited. If so, independence is impaired and the auditor will not be able to perform the engagement. If the threat does not result from the performance of nonaudit services, or if the nonaudit services were not prohibited, the auditor will consider the magnitude of threats.

**Prohibited nonaudit services** include:
• Performing management responsibilities, such as strategic planning for the entity, developing entity program policies, directing employees, making decisions regarding the acquisition, use or disposition of resources, custody of assets, reporting to governance, accepting responsibility for internal controls, and voting in the management committee or board of directors;
• Performing certain accounting functions without obtaining management approval, such as determining or changing journal entries, authorizing or approving transactions, preparing or altering source documents, and accepting responsibility for the preparation or fair presentation of the financial statements*;
• Providing internal audit assistance in the form of setting policies, strategic direction, or scope for the internal audit function, or performing internal control procedures;
• Accepting responsibility for the design, implementation, or maintenance (DIM) of internal control, or its monitoring;
• Participation in information technology services including the design, development, or alteration of IT systems that manage aspects of the operations that will be audited, or operating or supervising the operation of such a system;
• Providing valuation services that impact information included in the financial statements; or
• Performing specific additional services related to non-tax disbursements, benefit plan administration, investment advisory or management, corporate finance, executive or employee personnel, and business risk consulting.

*Note that the preparation of the financial statements in their entirety from a client-provided trial balance or underlying accounting records is no longer a prohibited service, but it is considered to create significant threats to independence.

The auditor will consider threats individually and in the aggregate to determine if they are at an acceptable level, which would not impair the auditor's ability to perform and report on the engagement objectively. If threats are not at an acceptable level, the auditor will consider safeguards against those threats. Safeguards are policies and procedures instituted by the auditor to address threats to independence. Safeguards may include:
• Consulting with other auditors, regulators, or other independent third parties;
• Disclosing the nature and extent of services that could potentially impair independence to those responsible for governance and discussing independence issues with them; and
• Using an outside auditor to participate in the audit by performing or reperforming parts of it, or by reviewing the work performed.

The client can also initiate policies and procedures designed to create safeguards. These may include:
• Requiring appointment of the auditor to be approved by parties who are not part of management;
• Establishing procedures for selecting providers of nonaudit services designed to enhance objectivity; and
• Oversight of the auditor’s services by governance.

If safeguards are sufficient to reduce threats to an acceptable level, the auditor will document the analysis and may perform the audit engagement. If safeguards are not sufficient, the auditor’s independence is impaired and the auditor may not perform the engagement.

In addition to establishing the above framework for evaluating independence, the GAO has established independence requirements and guidelines for audit organizations that are located within the entities they audit; audit organizations performing nonaudit services for the entities they audit; and documentation that is necessary to support the auditor's conclusions and demonstrate appropriate consideration to the auditor’s independence.

An auditor that works within the entity that is being audited is considered independent if the head of the audit organization meets all of certain criteria:
• Is accountable to the head or deputy head of the entity or its governance;
• Reports results to both the head or deputy head and governance;
• Is organizationally outside of the staff or line-management function of the audited unit;
• Has access to governance; and
• Is removed from the political process sufficiently to avoid fear of political reprisal.

An auditor may perform nonaudit services for the entity under audit provided that auditor has assurance that management will perform all of the following in relation to the nonaudit service:
• Assume all management responsibility;
• Oversee the service, designating an individual within the organization with the appropriate characteristics to effectively do so;
• Evaluate the adequacy and results of the service; and
• Accept responsibility for the results.

To support the auditor’s consideration of independence, documentation should include:
• Threats to independence and the safeguards applied;
• The safeguards applied if the audit organization is structurally located within a government unit and is considered independent as a result of those safeguards;
• Consideration of management’s ability to oversee nonaudit services provided; and
• The understanding with the audited entity regarding the performance of nonaudit services.

The evaluation of the significance of certain nonaudit services, including:
  o Recording transactions that management has approved.
  o Preparing certain line items or sections of the financial statements based on the trial balance.
  o Posting entries that management approved.
  o Preparing account reconciliations for management’s evaluation.
Management has acknowledged responsibility for:

- Selecting the financial reporting framework (FRF) to be applied
  - Could be a general purpose framework, such as GAAP or IFRS, or a special purpose framework, such as the tax basis, cash basis, a contractual or regulatory basis, or some other framework like FRF for SMEs (Financial Reporting Framework for Small to Medium Sized Enterprises).
  - A fair presentation framework acknowledges that, in rare circumstances, it may be necessary to provide disclosures beyond those specifically required by the FRF, or that it may be necessary to depart from a requirement of the FRF to achieve fair presentation of the financial statements.
- The design, implementation, and maintenance (DIM) of internal control
  - If the accountant accepts this responsibility, independence would be impaired and no assurance can be provided (i.e., a review cannot be performed).
- Preventing and detecting fraud
- Compliance with applicable laws and regulations
- The accuracy and completeness of information provided by management
- Providing the accountant with access to all relevant information and to persons within the entity, as considered appropriate by the accountant
**Written Representations (Management Representation Letter)**

The accountant is **required** to obtain written representations, in the form of a representation letter to the accountant, from those members of management who are responsible for the financial statements and are knowledgeable about relevant matters. This is called a management representation letter.

- Putting representations in writing may cause management to more carefully consider responses to inquiries and other information supplied to the accountant.
- Management’s refusal to provide written responses alerts the accountant to the possibility of significant issues affecting the financial statements.

Representations are dated as of the date of the review report, which is the date on which the accountant has determined that sufficient review evidence has been obtained to support the accountant’s conclusion. Standards require the accountant to obtain specific representations, including that management (Management Representation Letter):

- Has fulfilled its responsibility to prepare the financial statements such that they are fairly presented in accordance with the applicable financial reporting framework;
- Is responsible for the design, implementation, and maintenance (DIM) of internal control relevant to reliable financial reporting;
- Has given the accountant all relevant information and access to all information and parties considered relevant by the accountant;
- Has been complete and truthful in its responses to inquiries;
- Has disclosed any knowledge or suspicions of fraud, including allegations by others;
- Has disclosed known or suspected circumstances involving noncompliance with applicable laws or regulations that may affect the financial statements;
- Believes that uncorrected misstatements are not material to the financial statements, whether considered individually or in the aggregate;
- Has disclosed known or threatened litigation and claims that may affect the financial statements;
- Believes that significant assumptions used in preparing the financial statements are reasonable;
- Has disclosed all related parties and related party transactions;
- **Has disclosed all information relevant to using the going concern assumption in the financial statements; and**
- Has adjusted for or disclosed subsequent events requiring recognition or disclosure.

Management also represents that all transactions have been recorded and are reflected in the financial statements (completeness).

In addition, the accountant may require management to provide written representations regarding any matters that, in the accountant's professional judgment, are significant and relevant.
Emphasis-of-Matter & Other-Matter Paragraphs

An emphasis-of-matter paragraph is used whenever an accountant wishes to draw attention to a matter that has been properly accounted for and disclosed in the financial statements but, in the accountant's judgment, merits special attention in the report. An emphasis-of-matter paragraph will:

- Immediately follow the accountant's conclusion;
- Have a heading specifying “Emphasis of a Matter” or another suitable heading;
- Include a clear reference to where the matter is described in the financial statements; and
- Specify that the accountant's conclusion is not modified with respect to the matter being emphasized.

An other-matter paragraph is appropriate when the accountant considers it necessary to communicate a matter that is not, nor is it required to be, presented or disclosed in the financial statements but which the accountant believes to be relevant in enabling users to better understand:

- The review;
- The accountant's responsibilities; or
- The review report.

An other-matter paragraph will be presented immediately after the accountant's conclusion and any emphasis-of-matter paragraphs.

An emphasis-of-matter or other-matter paragraph is required in any of the following situations:

- Financial statements prepared in accordance with a special purpose framework;
- A change in a reference to a departure from the applicable financial reporting framework on prior period financial statements presented on a comparative basis;
- When prior period financial statements being presented on a comparative basis were audited;
- A material departure from the applicable financial reporting framework known to the accountant;
- A modification to prior period financial statements presented on a comparative basis resulting from facts discovered subsequent to the release of the accountant's report and affecting the prior period's report;
- Supplementary information accompanies the reviewed financial statements; and
- The applicable financial reporting framework provides for required supplementary information.

- Substantial doubt about the entity's ability to continue as a going concern exists.

When the accountant intends to include an emphasis-of-matter or other-matter paragraph in the review report, management should be informed of the expectation and the proposed wording.
Going Concern Considerations

If the **applicable FRF requires management to evaluate** the entity's ability to continue as a going concern for a *reasonable period of time* (one year, generally) in preparing the financial statements, the accountant should perform review procedures (inquiries usually) to ascertain whether:

- The going concern basis of accounting is appropriate
- Management's evaluation identified any conditions or events that raised substantial doubt about the entity’s ability to continue as a going concern*
- Management has plans to mitigate any matters that raised substantial doubt (e.g., management may plan to sell assets, restructure debt, reduce expenses, increase ownership equity, etc.)
- The related disclosures in the F/S are adequate

*If the accountant *becomes aware of conditions or events* that raise substantial doubt but the **applicable FRF does not require management to evaluate** the entity's ability to continue as a going concern, then all of the above procedures should still be performed, with the exception of inquiries regarding management's evaluation (i.e., since the evaluation wasn't required).
Work of Other Accountants
The accountant may rely upon the work of other accountants who may have performed reviews or audits on significant components of the reviewed financial statements, such as consolidated or unconsolidated subsidiaries or significant investees. When that is the case, the accountant should communicate with the other accountant to make certain that:

- The other accountant is aware that reviewed financial statements will include that component;
- The audit or review report on the component will be relied upon;
- When applicable, the review report will refer to the audit or review report of the component;
- The other accountant is independent and understands the ethical requirements relevant to the engagement;
- The other accountant is familiar with the applicable financial reporting standards and relevant professional standards to enable performance of the audit or review in conformity with them; and
- Review procedures will be applied to the elimination of intercompany activity and the uniformity of accounting policies and practices of the component in relation to those of the reviewed entity.

If the accountant decides not to take responsibility for the work of the accountant performing the audit or review of the component, the accountant will make reference to the audit or review of the other accountant in the review report. The reference should clearly indicate:

- That the accountant used the work of other accountants; and
- The magnitude of the portion of the financial statements attested to by the other accountants.

Note, however, that another accountant's report cannot be referenced if:

- It is restricted for limited use; or
- The financial statements are prepared based on a different FRF, unless
  - The measurement, recognition, presentation, and disclosure criteria applicable to all material items in the component's financial statements are similar to the criteria applicable to all material items in the reporting entity's financial statements (e.g., GAAP and IFRS frameworks would be considered similar enough, but special purpose frameworks would not); and
  - Sufficient appropriate review evidence has been obtained for purposes of evaluating the appropriateness of adjustments needed to convert the component's financial statements to the FRF used by the reporting entity without assuming responsibility for, or being involved in, the work of the other accountants.
International Reporting Issues

SSARS No. 24 introduced new AR-C Section 100, Special Considerations—International Reporting Issues, effective June 15, 2019, to provide guidance to accountants performing compilations and reviews under either of the following circumstances:

- The F/S have been prepared in accordance with an FRF generally accepted in another country.
- The engagement is to be performed in accordance with both SSARS and another set of standards (e.g., ISRS 4410 or ISRE 2400).

Considerations for Acceptance

In a compilation or review of F/S prepared in accordance with an FRF generally accepted in another country, in determining whether the FRF selected by management is acceptable, the accountant should obtain an understanding of:

- The purpose for which the F/S are prepared and whether the FRF applied is a fair presentation framework
- The intended users of the F/S
- The steps taken by management to determine that the applicable FRF is acceptable

The accountant should obtain an understanding of the legal responsibilities involved when the engagement is to be performed in accordance with both SSARSs and another set of standards and both of the following are true:

- The F/S are intended for use only outside of the U.S.
- The accountant plans to use the report form and content of the other set of standards.

Reporting

- If the F/S will be used in the U.S., the accountant should report in accordance with SSARS.
- If the F/S will be used only outside the U.S., the accountant has a choice of using:
  - A report in accordance with SSARSs that includes:
    - AR-C 80 (Compilations) or AR-C 90 (Reviews) requirements, as applicable
      - Note that the requirements in each section to provide a paragraph regarding the use of a special purpose framework are specifically identified as not being applicable in this case.
    - A reference to the note, if applicable, that describes the basis of presentation of the F/S, including the country of origin if the FRF is generally accepted in another country
  - The report form and content in accordance with another set of standards, if:
    - The report would be issued in the other country in similar circumstances.
    - The accountant has obtained sufficient appropriate review evidence to support the conclusion expressed in the review report, if applicable.
    - The accountant has complied with the reporting standards of the other set of standards and identifies those standards in the report.
- If the F/S will be used both inside and outside the U.S., the accountant may issue two reports to comply with both of the above reporting requirements.
Add to end of Lecture 8.06

GAGAS Performance Audits

Required Procedures

- *Performance audits* are primarily designed to determine the **economy, efficiency, and effectiveness** of a program in achieving its goals.
- Such audits also include consideration of fraud, compliance with laws and regulations, and I/C related to achieving program goals if they are significant to audit objectives. If I/C is significant to audit objectives, the auditor should:
  - Obtain an understanding of I/C
  - Assess I/C to the extent necessary to address audit objectives
  - Evaluate I/C deficiencies and determine if such deficiencies were the cause of other audit findings (i.e., any noncompliance, fraud, waste or abuse found)
    - Waste is defined as “the act of using or expending resources carelessly, extravagantly, or to no purpose.” It primarily relates to “mismanagement, inappropriate actions, and inadequate oversight.” It can include activities that do not include abuse or a violation of law.

Reporting Requirements

- The auditor’s report will include:
  - Objectives and scope (including any limitations) of the audit
  - Methodology of the audit (including any significant assumptions made, techniques used, and criteria applied)
  - The auditor’s findings, conclusions, and recommendations for corrective action of significant findings, if any
  - A summary of responsible official’s views on the auditor's findings
  - The nature of any confidential information omitted from the report

- When I/C is significant to audit objectives, the report will also include:
  - The scope of work on I/C
  - Significant I/C deficiencies
Benefits of Data Analytics

While accountants are generally skilled at analyzing data already, the proliferation of “big data” at our fingertips combined with advances in storage technology and software to model and visualize the data have ushered data analytics to a whole new level of utilization. Data can be extracted, both internally and externally, for every facet of operations to gain insights that are then used to strategize and drive an organization's decisions to meet its goals and solve its problems. It's probably no surprise to you that much of the same data and tools used to analyze that data are valuable resources to the auditor as well. The auditor can mine an entity's data (as well as external data) to discover relevant patterns and anomalies and analyze such information through modeling and visualization to gain a deeper understanding of the business and its environment, assess the risks, and plan the audit accordingly. It doesn't end there though; auditors have the opportunity to use different data analytic techniques throughout the audit to perform tests of controls, tests of details, and substantive analytical procedures, as well as in the conclusion of the audit. As you can imagine, audit data analytics (ADAs) are having a profound effect on the audit from beginning to end. For example, instead of sampling, auditors can test entire populations of data efficiently and effectively, thereby increasing the possibility of detecting material misstatements. To top it all off, ADAs also improve the auditor’s ability to communicate effectively with those charged with governance.

AICPA's Guide to Audit Data Analytics

Note that there is no authoritative guidance with respect to the use of ADAs specifically. To help auditor’s through this transition of using more ADAs throughout the audit, the AICPA has published a nonauthoritative Guide to Audit Data Analytics. Among the useful information contained within the guide are ideas for effectively using and streamlining ADAs, including examples and illustrations, as well as connections to the existing generally accepted auditing standards (GAAS) that apply. ¹ The guide also suggests the following 5-step process for auditors to follow:

1. **Plan the ADA.**
   - Overall purpose of the ADA?
   - Specific objective(s) of the ADA?
     - Items/assertions being analyzed?
   - Data population to be used?
   - ADA techniques, tools, visualizations, etc. to be used?

2. **Access and prepare the data for purposes of the ADA.***
   - Extract the data from the system it lives in.
   - Transform the data into a format the auditor can use.
   - Load the data into the analysis software.

3. **Consider the relevance and reliability of the data used.**
   - Nature of the data?
   - Source?
   - Process used to produce the data?
   - Should procedures be performed to verify that the data is sufficiently reliable?

¹ We appreciate the AICPA’s permission to provide you with some highlights of their work and a few of their examples and illustrations within this lecture.
4. Perform the ADA.*
   o Does the ADA need to be revised and reperformed?
   o If not, and the ADA has identified items that need further investigation, plan and
     perform additional procedures on those items that are consistent with the
     purpose and specific objectives of the ADA.
5. Evaluate the results
   o Were the purpose and specific objectives of performing the ADA achieved?
   o If not, plan and perform other procedures to achieve the objectives.

*Note that the CPA Exam is not currently testing the candidate’s ability to access, prepare, or manipulate data to perform an ADA.

Types of Data
- **Structured** – Data contained in fields within records or files (e.g., databases and
  spreadsheets). ADAs are typically focused here.
- **Unstructured** – Raw data not contained within a database/spreadsheet (e.g., text, video,
  audio, photos, etc.).
- **Semi-structured** – Data that has information associated (i.e., metadata or tags) that makes
  it easier to process than unstructured data (e.g., HTML tagged text).

Examples of Data Sources

<table>
<thead>
<tr>
<th>Internal*</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting data</td>
<td>Industry data</td>
</tr>
<tr>
<td>Customer data</td>
<td>Government data</td>
</tr>
<tr>
<td>Employee data</td>
<td>Social media</td>
</tr>
<tr>
<td>Marketing data</td>
<td></td>
</tr>
<tr>
<td>Supplier data</td>
<td></td>
</tr>
<tr>
<td>Shipping data</td>
<td></td>
</tr>
</tbody>
</table>

*Consideration should be given to whether internal data is obtained from within the financial accounting reporting system or
outside that system (i.e., not controlled by the accounting department).

Examples of Data Characteristics/Attributes

<table>
<thead>
<tr>
<th>Nature</th>
<th>Timing</th>
<th>Extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial</td>
<td>Point in time or over a period of time</td>
<td>Volume of data</td>
</tr>
<tr>
<td>Nonfinancial</td>
<td>The rate at which the data changes</td>
<td>Variety of subject matter (i.e., scope)</td>
</tr>
<tr>
<td>Descriptive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process-related</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control-related</td>
<td></td>
<td></td>
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<tr>
<td>Regulatory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demographic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geographic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Historical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prospective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time-sensitivity</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Basis of Aggregation
- By database file, table, or field.
- By frequency (e.g., annually, monthly, daily, etc.)
- At F/S item level, account balance, or part of an account balance.
- At the consolidated entity level, or by segment, division, location, etc.
Types of Data Analytics
There are four main types of data analytics. An auditor, however, would generally be focused on the first three here:

- **Descriptive Analytics** focuses on *what has happened*.
- **Diagnostic Analytics** aims to tell you *why something happened*.
- **Predictive Analytics** tell you *what should happen* based on past patterns and trends.
- **Prescriptive Analytics** use the other three types of analytics to tell you *what to do* to get to the results desired.

Examples of Techniques, Tools, & Visualizations
While there are four main approaches to data analytics, there are many different techniques, tools (ie, software), and visualization options to choose from. We've listed some examples of each below.

<table>
<thead>
<tr>
<th>Techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sorting – A simple categorizing of data to identify outliers.</td>
</tr>
<tr>
<td>• Cluster analysis – Grouping data by similarities in a way that shows the structure/relationships between the data.</td>
</tr>
<tr>
<td>• Matching – Comparing data from various sources (eg, electronic documents) to identify unexpected differences.</td>
</tr>
<tr>
<td>• Process mining – Identifying deviations from a specified process.</td>
</tr>
<tr>
<td>• Comparative analysis – Comparing the relationships between variables (eg, financial statement items) over two or more periods.</td>
</tr>
<tr>
<td>• Trend analysis – Analyzing changes in data (eg, account balances) over time to look for trends (a type of comparative analysis).</td>
</tr>
<tr>
<td>• Ratio analysis – Calculating ratios to discover relationships among financial and nonfinancial data.</td>
</tr>
<tr>
<td>• Predictive modeling – Comparing expectations to actual data to identify deviations (aka, reasonableness test).</td>
</tr>
<tr>
<td>• Regression analysis – Using a statistical analysis to examine the relationship between one or more independent variables (ie, predictors) and a dependent variable.</td>
</tr>
<tr>
<td>o Time-series regression analysis – A regression analysis that uses data from <em>more than one past periods</em> to make predictions for future periods.</td>
</tr>
<tr>
<td>o Cross-sectional regression analysis – A regression analysis that uses data from <em>one period of time or a point in time</em> to make predictions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Excel (smaller amounts of data)</td>
</tr>
<tr>
<td>• Python™</td>
</tr>
<tr>
<td>• IDEA™</td>
</tr>
<tr>
<td>• R</td>
</tr>
<tr>
<td>• ACL™</td>
</tr>
<tr>
<td>• Tableau™</td>
</tr>
<tr>
<td>• MySQL™</td>
</tr>
<tr>
<td>• SAS™</td>
</tr>
</tbody>
</table>

Data visualization boils down to four basic presentation types: *comparison, composition, distribution, and relationship*. Some techniques, such as regression analysis, are generally associated with certain visualizations, like a scatterplot, which shows both distribution and relationship, but most visualizations are a matter of professional judgement as to which options to use and combine to best communicate the results of an ADA. The auditor will need to find the right balance of information to present in each graphic; that is, the information presented in a visualization should be neither too scant nor too crowded. The user should be able to figure out
what the graphic is trying to communicate without needing to read too much. The following are some great examples of the use of visualizations from the AICPA’s ADA Guide.  

**Visualizations**

**Comparative Analysis**

**Divergent bar charts are good for showing data that have both positive and negative values.**

**Trend Analysis**

**Stacked column charts show how the parts make up the whole, and the trend lines show how they have changed over time.**

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\[2\] Note that the AICPA’s ADA guide and our online e-text are in full color, possibly making these visualizations a little easier to read than they will be in our printed text.
Trend Analysis

Multiple-line charts can be used to show and compare the trends in data over time.


Trend Analysis

Grouped column charts are used to compare different categories of different groups of data.


Ratio Analysis

Column & line charts (aka, dual-axis chart) can be combined to show the correlation over time between variables with different scales of measurement.

Graphic Source: AICPA ADA Guide, Exhibit A-6
### Process Mining

Flow charts are essential for showing the steps in a process and the variances from that standard process. Note that the thicker lines here represent the standard path, while the thinner lines indicate the variant paths.

### Regression Analysis

Scatterplots and regression lines show the correlation ($R^2$) between two variables. The closer $R^2$ is to 1, the stronger the correlation and the more precise a prediction of the dependent variable (Y) based on the independent variable (X) will be. Here, $R^2$ means that only 39.95% of the variance in Revenue can be explained by the regression model in relation to Production (i.e., a weak correlation).

Graphic Source: AICPA ADA Guide, Exhibit B-4
Access and Preparation of Data

Sometimes referred to as Extract, Transform and Load (ETL), the process of accessing and preparing the data to be analyzed can be the most complicated part of using an ADA. There are two key issues regarding access to data:

- Gaining access to the data in a format the auditor can use
- Maintaining security, confidentiality, and integrity of the data (e.g., the entity may be concerned that the auditor could corrupt the data).

Preparation of the data includes “cleaning” or “scrubbing” the data. This is the process of identifying and removing errors in the data (e.g., empty fields, numeric fields that contain text, etc.) so that it can be analyzed properly. Such issues could indicate that controls are not working properly, and in some cases, the data may not be auditable until the entity addresses the cause(s) and corrects the problem(s). Data preparation may also require merging the format of a field from different systems into one. For example, the format of dates could be different—MM/DD/YYYY vs. DD/MM/YYYY.

Relevance and Reliability of Data

AU-C 500, Audit Evidence, requires the auditor to consider whether information used as audit evidence is relevant and sufficiently reliable. This topic was covered in another section, so we'll stick to the basics for ADAs here.

- **Relevance** – Relevant data has a logical connection with the purpose of the audit procedure and the assertion being considered.
- **Reliability** – The auditor should evaluate the accuracy and completeness of the data in determining whether it will be sufficiently reliable to meet the objectives of the particular procedure.
  - The reliability of audit evidence is influenced by its source and nature, as well as the circumstances in which it is obtained. For example, the reliability of data obtained from a system with adequate controls over the preparation and maintenance of such data would be more reliable than data obtained from a system with weak controls.
  - The auditor might also consider the following in assessing the reliability of data:
    - The ADA's purpose (e.g., test of controls, test of details, etc.) and the specific objective of the procedure. Data should be sufficiently precise and detailed for the auditor’s purposes. For example, data used for a substantive analytical procedure ADA may need to be more persuasive than data used in a risk assessment ADA.
    - The risk assessment of the account and/or assertion being audited.
    - The extent of other procedures performed with regard to the account/assertion being audited. That is, if other audit procedures are performed with respect to the account/assertion, the reliability of the data used for the ADA may already be somewhat vetted.
    - Performing procedures to assess data reliability (e.g., verifying the continuity of invoice numbers and the absence of duplicates). In addition to the above considerations, the auditor might consider other factors, such as the characteristics of the data and the availability of relevant and reliable sources of audit evidence, in determining the nature, timing, and extent of procedures to assess data reliability. For example, it may be difficult to obtain evidence regarding the reliability of certain external data sources.
Items Requiring Further Consideration

When testing very large populations (e.g., 100 percent), an ADA may produce too many items for an auditor to address individually. While some of the items found can indicate real problems (e.g., unidentified risks, control deficiencies, or misstatements), an ADA is likely to highlight many nonissues, or “false positives” as well. As a result, the auditor may need to consider:

- Reperforming the ADA after narrowing down the analyzed data with more specific criteria (i.e., characteristics/attributes of data that are indicative of issues that actually require an audit response).
- Breaking the population down further into groups and applying additional procedures to each group. These procedures could produce evidence that the group as a whole is, or is not, problematic (i.e., needs further consideration).
- Applying another ADA or other procedure

GAAS Requirements & ADA Examples for Different Types of Procedures

The most important overarching GAAS requirements to remember with respect to planning, performing, and evaluating the results of ADAs are the auditor's requirements to use professional judgement and maintain an attitude of professional skepticism throughout the audit. Since these requirements were discussed at length in a previous section, we won't go into all the specifics again here.

Risk Assessment Procedures

AU-C 315, Understanding the Entity and Its Environment and Assessing the Risks of Material Misstatement, defines risk assessment procedures as “[t]he audit procedures performed to obtain an understanding of the entity and its environment, including the entity’s internal control, to identify and assess the risks of material misstatement, whether due to fraud or error, at the financial statement and relevant assertion levels.” Some of these procedures are required to be analytical procedures, so ADAs may be a perfect fit for identifying and assessing risks of material misstatement (RMM). Note that some risk assessment ADAs could provide audit evidence that fulfills other purposes as well (e.g., tests of details, tests of controls, etc.).

In planning a risk assessment ADA, the specific objectives might be affected by the requirements in AU-C 315 to obtain an understanding of:

- Relevant industry, regulatory, and other external factors.
- The nature of the entity, including its operations; its ownership and governance structures; its investments; and the way the entity is structured and financed.
- The entity's selection and application of accounting policies.
- The entity's objectives and strategies and those related business risks that may result in RMM.
- The measurement and review of the entity's financial performance.
- Relevant internal controls

Performing an ADA is an iterative process.* Once the auditor has decided that the ADA no longer needs to be revised and reperformed, the auditor should evaluate the results. As previously mentioned, large populations can sometimes produce a large number of items to address, so the auditor may want to sort and filter the items into groups; for example, here it might make sense to group items by common characteristics that indicate a particular risk at the relevant assertion

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3 AU-C 200, Overall Objectives of the Independent Auditor and the Conduct of an Audit in Accordance with Generally Accepted Auditing Standards
level. Also, after weeding out any false positives that do not require further consideration, the auditor can group the remaining “notable items” from a risk assessment procedure into the following categories:

- Items that represent previously unidentified risks (ie, new risks)
- Items that represent risks that are higher than originally assessed
- Items that provide information to better design further audit procedures to address the RMM (ie, items that are consistent with the original assessment of risk)

If the number of notable items found is too large to address manually, the auditor may need to design further risk assessment ADAs to obtain more information about the items.

*Again, the CPA Exam is not currently testing candidates on their ability to manipulate the data, but it is a good idea to be familiar with the process used to achieve the results that candidates will be required to evaluate.

If you are an auditor of a small printer manufacturer and you’re assessing the RMM and you want to know if there were any unusual changes or trends in sales this year compared to prior years, how might you design an ADA to achieve this objective? In doing so, what else might you learn from this ADA?

Additional information:

- Annual sales are generally about $25 million.
- Your firm has audited the financial statements of the client for the last three years (ie, 2012 – 2014).
- There was a labor strike at one of the company’s plants for more than half of the current year. It ended in the third quarter.
- A new advanced printer (Type H) was introduced early this year (2015) and quickly became the best-selling product.
- The company began operations in Q2 of 2012.
- Inquiries of management indicate that there were no sales of the Type D printer in the current year since production was discontinued last year.

Based on this information, what would you expect to see in the ADA results?

1. **Plan the ADA.**

<table>
<thead>
<tr>
<th>Overall purpose of the ADA?</th>
<th>To identify and assess RMM related to sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific objective(s) of the ADA?</td>
<td>Determine if there were any unusual changes or trends in sales this year.</td>
</tr>
<tr>
<td>o Items/assertions being analyzed?</td>
<td>ADA should provide information relevant to assessing and responding to RMM with regard to the following assertions:</td>
</tr>
<tr>
<td>o Revenue—</td>
<td>✓ Occurrence</td>
</tr>
<tr>
<td>✓ Completeness</td>
<td></td>
</tr>
<tr>
<td>✓ Accuracy</td>
<td></td>
</tr>
<tr>
<td>o Other—</td>
<td>✓ Adequacy of allowance for obsolete stock (ie, inventory valuation)</td>
</tr>
<tr>
<td>✓ Completeness of warranty provisions</td>
<td></td>
</tr>
</tbody>
</table>
2. Access and prepare the data for purposes of the ADA.

3. Consider the relevance and reliability of the data used.

4. Perform the ADA.

Trend Analysis

Are the results consistent with expectations?

Yes; due to the strike, sales for 2015 are less than the prior year and they start to recover by the last quarter of the year.

Graphic Source: AICPA ADA Guide, Exhibit A-1
Trend Analysis

Are the results consistent with expectations?

Yes; there is a significant amount of Type H printer sales to the detriment of other printer types in 2015.

Yes; there are no sales of the Type D printer in the current year since they were discontinued in a prior year.

Graphic Source: AICPA ADA Guide, Exhibit A-2

Trend Analysis

In this alternative graphic it is a little easier to see which printer sales decreased (primarily Printer F) as a result of introducing Printer H in 2014. Printer H may have also affected the sales of Printers A and E but sales for those printers were already on their way down.

Graphic Source: AICPA ADA Guide, Exhibit A-3
### 5. Evaluate the results.

| • Were the purpose and specific objectives of performing the ADA achieved? | • Overall purpose: Achieved  
Specific Objective: Achieved; no unusual trends.  
   ▪ Auditor's original risk assessments regarding revenue:  
     ✓ Occurrence — Confirmed; no change.  
     ✓ Completeness — Confirmed; no change.  
     ✓ Accuracy — Confirmed; no change.  
   ▪ Other:  
     ✓ Adequacy of allowance for obsolete stock — Confirmed expected higher risk; no change.  
     ✓ Completeness of warranty provisions — ADA did not identify a need to modify planned procedures. |
| • If not, plan and perform other procedures to achieve the objectives. |  

### Tests of Controls

While ADAs can be used to test controls, the AICPA's ADA Guide does not cover this topic and the CPA Exam Blueprints also do not mention that such ADAs will be tested.

### Tests of Details

AU-C 330, *Performing Audit Procedures in Response to Assessed Risks and Evaluating the Audit Evidence Obtained*, provides the requirements for substantive procedures. Substantive procedures consist of tests of details and substantive analytical procedures. The suggested steps in applying an ADA for tests of details are essentially the same as those suggested for risk assessment ADAs, so let's just focus on the performance stage to see how the process is a little different:

4. **Perform the ADA.**
   - Does the ADA need to be revised and reperformed?
   - If not, and the ADA has identified items that need further investigation, plan and perform additional procedures on those items that are consistent with the purpose and specific objectives of the ADA.
     - When a test of details ADA produces a large number of notable items, grouping/filtering the results by the following categories will help sort out the issues that need further investigation versus those that do not:
       - Items with common characteristics (e.g., size, nature, or circumstances)
       - False positives
       - Possible misstatements
       - Inconsequential items
       - Possible misstatements that are NOT clearly inconsequential—This category needs further investigation.
     - AU-C 450, *Evaluation of Misstatements Identified During the Audit*, requires the auditor to determine whether uncorrected misstatements are material, individually or in the aggregate. To decide, the auditor should consider the size and nature of the misstatements in relation to particular classes of
transactions, account balances, or disclosure and the financial statements as a whole, as well as the particular circumstances of their occurrence.

- When misstatements are found, the auditor should determine if such misstatements were a result of a deficiency in internal control. If it is determined that a material misstatement would not have been detected by the entity's internal control, such deficiency is generally an indication of a material weakness.

If you are an auditor of a medium-sized manufacturer of furniture and you need to test for evidence of occurrence and accuracy of sales, how might you design an ADA to achieve this objective?

Additional information:
- The client generally has about 60,000 sales transactions per year.
- Revenue is recognized when goods are shipped to the customer on an FOB basis.
- There are two main product lines: residential furniture sold to retailers and commercial furniture sold to companies for their own use.
- There are about 80 different types of products that fall into seven groups of products (e.g., couches, chairs, desks, etc.)
- There are thousands of product variations based on fabric, color, material, etc.
- Each product style has its own stock keeping unit (SKU) number and a different price.
- There are six premium customers who receive a price discount due to high purchase order volumes. Sales representatives are authorized to give a discount up to 15% off of the prices in the master price list to these customers. Deeper discounts must be approved by the VP of Sales.
- Evidence has also been obtained from tests of controls and other audit procedures, such as confirmation of accounts receivable and verification of cash.
- As required by AU-C 240, procedures have been performed to respond to the presumption that risks of fraud exist in revenue recognition.

1. Plan the ADA.

<table>
<thead>
<tr>
<th>Overall purpose of the ADA?</th>
<th>Test of Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific objective(s) of the ADA?</td>
<td>To provide evidence regarding occurrence and accuracy of sales transactions (Revenue)</td>
</tr>
<tr>
<td>o Items/assertions being analyzed?</td>
<td></td>
</tr>
<tr>
<td>Data population to be used?</td>
<td>Customer orders</td>
</tr>
<tr>
<td>o Shipping documents</td>
<td>Sales invoices</td>
</tr>
<tr>
<td>o Master Price List</td>
<td>Files regarding the contract process</td>
</tr>
<tr>
<td>o Data from company's database, including:</td>
<td></td>
</tr>
<tr>
<td>o Customer account identification</td>
<td></td>
</tr>
<tr>
<td>o Sales order identification, product identification, quantity, and unit price</td>
<td></td>
</tr>
<tr>
<td>o Shipment identification, product identification, quantity, unit of measure and unit price</td>
<td></td>
</tr>
</tbody>
</table>

---

4 AU-C 240, Consideration of Fraud in a Financial Statement Audit, requires the auditor to address the RMM due to fraud in revenue recognition based on the presumption that risks of fraud exist in revenue recognition.
2. Access and prepare the data for purposes of the ADA.

3. Consider the relevance and reliability of the data used.

4. Perform the ADA.

Matching

This grouped chart shows that there are no mismatches between the different data sources.

Note that a graphic summarizing only mismatches would be more appropriate for a large number of invoices.

Graphic Source: AICPA ADA Guide, Exhibit C-3
Does the ADA need to be revised and reperformed? ✓ Yes; ADA redesigned to test whether any customer, other than a premium customer, received a discount and whether any premium customer received a discount larger than 15%.

If not, and the ADA has identified items that need further investigation, plan and perform additional procedures on those items that are consistent with the purpose and specific objectives of the ADA. ✓ No further items to investigate.

5. Evaluate the results.

Were the purpose and specific objectives of performing the ADA achieved? ✓ Achieved; the client's invoicing process regarding quantities and pricing is consistent with customer orders, providing evidence of the occurrence and accuracy of sales transactions for the year.

If not, plan and perform other procedures to achieve the objectives.

Substantive Analytical Procedures

While AU-C 330, Performing Audit Procedures in Response to Assessed Risks and Evaluating the Audit Evidence Obtained, provides the requirements for substantive procedures in general, AU-C 520, Analytical Procedures, builds on that to provide requirements specific to substantive analytical procedures. AU-C 520 states that the auditor should:

- **Determine** the suitability of such procedures for given assertions, considering the assessed RMM and any tests of details applied.
• **Evaluate** the **reliability of data** from which the auditor's expectations of amounts are to be developed, considering the source, comparability, nature and relevance as well as the controls over its preparation.

• **Develop** an **expectation** of recorded amounts/ratios and evaluate whether the expectation is sufficiently precise to identify a misstatement that, individually or when aggregated with other misstatements, may cause the financial statements to be materially misstated.

• **Determine** the **difference** of recorded amounts from expected values that is **acceptable** without further investigation and **compare** the recorded amounts (or ratios) with expectations.

You might notice that these requirements make ADAs used for substantive analytical procedures more involved and detailed than ADAs used for assessing risks or forming overall conclusions near the end of the audit. Typically, *ratio analysis, trend analysis, nonstatistical predictive modeling*, and *regression analysis* are used for these purposes. Let's take a look at the general 5-step process again to see the extra steps that go into using an ADA as a substantive analytical procedure.

1. **Plan the ADA.**
   - **Overall purpose of the ADA?**
     - What assessed RMM does the procedure intend to address?
     - What is the desired level of assurance?
       - The level of assurance is the degree to which the procedure reduces audit risk.
   - **Specific objective(s) of the ADA?**
     - *Items/assertions being analyzed?*
   - What is the nature of the auditor's expectation?
     - Independent variables (ie, predictors)?
     - Sources of data for those variables?
     - Level of data disaggregation (eg, annual data broken down by month)?
   - What is the desired precision of the auditor's expectation?
     - Higher level of assurance = more precision.
   - What amount of difference from the expectation is acceptable without further investigation?
     - Acceptable difference is influenced by materiality and desired level of assurance.
     - Acceptable difference must decrease as the desired level of persuasive evidence increases due to the assessed level of risk.
   - **ADA techniques, tools, visualizations, etc. to be used?**

2. **Access and prepare the data for purposes of the ADA.**

3. **Consider the relevance and reliability of the data used.**

4. **Perform the ADA.**
   - Based on the data collected, what is the auditor's **expectation** of the recorded amount or ratio?
   - Is the expectation sufficiently **precise**? If not, what can be done to increase the precision?
     - Precision is affected by the type of expectation, the reliability/characteristics of the data, and the nature of the account/assertion (ie, its *predictability*). For example, interest income would be easy to predict as it is pretty objective compared to an account that is subjective in nature. Also, income statement accounts/relationships are generally easier to predict than balance sheet accounts/relationships.
because they occur over a period of time as opposed to a point in time. Other factors that may affect predictability include the stability of the economic environment in which the entity operates and management’s discretion in making estimates or other judgments.

- Precision of the auditor’s expectation could likely be increased by:
  - Using data on a more disaggregated level (e.g., monthly vs. annual)
  - Considering other information available such as any significant events, accounting changes, business/industry factors, market/economic factors, management incentives, etc.

  o Compare the auditor’s expectation to the recorded amount or ratio.

5. Evaluate the results.

  - Is the difference between the expectation and the recorded amount significant?
  - Investigate significant differences and the possible/probable causes.
    - Inquire of management and obtain appropriate audit evidence.
    - Perform other procedures as necessary.
  - Has a misstatement been identified? If so, how bad is it?
  - Were the purpose and specific objectives of performing the ADA achieved?
  - If not, plan and perform other procedures to achieve the objectives.

Assume you are auditing the financial statements of a small, privately-owned company that owns and manages 10 residential apartment buildings with a total of 1,200 units of varying size. The buildings are located in different parts of the same city. Annual rental revenue from these units have averaged about $14 million per year over the past few years.

Additional information:
- Procedures were performed with respect to the entity’s control environment and they did not indicate any incentives or inclinations of the owners or managers to deliberately misstate rental revenue.
- Procedures with respect to the design and implementation of the company’s controls over rental revenue were performed.
- Other procedures, such as verification of cash receipts from tenants, confirmation requests sent to tenants, and terms of lease agreements, also provide audit evidence both directly and indirectly with regard to rental revenues.

1. Plan the ADA.

<table>
<thead>
<tr>
<th>Overall purpose of the ADA?</th>
<th>Substantive analytical procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>o What assessed RMM does the procedure intend to address?</td>
<td>o To respond to moderate RMM in revenue recognition due to fraud.</td>
</tr>
<tr>
<td>o What is the desired level of assurance?</td>
<td>o Moderate—affected by the results of other procedures performed.</td>
</tr>
</tbody>
</table>

^5 AU-C 240, Consideration of Fraud in a Financial Statement Audit, requires the auditor to address the RMM due to fraud in revenue recognition based on the presumption that risks of fraud exist in revenue recognition.
2. Access and prepare the data for purposes of the ADA.

3. Consider the relevance and reliability of the data used.

4. Perform the ADA.
5. Evaluate the results.

- Is the difference between the expectation and the recorded amount significant?
  - ✓ All differences were considered significant in this case.

- Investigate significant differences and the possible/probable causes.
  - o Inquire of management and obtain appropriate audit evidence.
  - o Perform other procedures as necessary.
  - ✓ The model expected that revenue would dip in July due to the expiration of a large number of leases and the likelihood that it would take at least 2 weeks to replace the tenant; however, management inquiries reveal that certain areas of the city had recently been revitalized. This helped to replace tenants faster and increase the rental rates that could be charged in those areas. New leases can be checked to verify this understanding.

- Has a misstatement been identified? If so, how bad is it?
  - ✓ No
  - ✓ Yes
Audit Completion Procedures
ADAs can be used to meet the requirement in AU-C 520, *Analytical Procedures*, to “design and perform analytical procedures near the end of the audit that assist the auditor when forming an overall conclusion about whether the financial statements are consistent with the auditor’s understanding of the entity.” ADAs for this purpose would be very similar to those performed with regard to risk assessment, except that at the end of the audit the auditor should have a slightly different perspective and may also possess new information that might have changed those earlier risk assessments.

Documenting an ADA
In accordance with AU-C 230, *Audit Documentation*, the auditor’s workpapers should be sufficient to enable an experienced auditor, with no previous connection with the audit, to understand the nature, timing, and extent of the procedures performed; the results of the procedures and the evidence obtained; as well as any significant findings, the conclusions reached, and significant professional judgments made in reaching such conclusions. In satisfying these requirements with respect to ADAs, the auditor might consider including information regarding:

- The ADA, tools, and techniques used.
- The objectives of the ADA and the RMM the ADA intended to address.
- Sources of the data used and the reasoning behind the determination that it is sufficient and appropriate.
- Tables/graphics used and how they were produced.
- How the data was accessed, extracted, and transformed as well as the system from which it was obtained.
- The evaluation of issues identified and actions taken with respect to such issues.
- The specific characteristics of items tested.
- Who performed the work and the date completed.
- Who reviewed the work and the date and extent of the review.

Keep in mind that, if an ADA is used as a substantive analytical procedure, AU-C 520 adds documentation requirements with regard to:

- The auditor's expectation and the factors considered in developing it
- The results of the comparison of expectations with recorded amounts, or ratios developed from recorded amounts
- Additional procedures performed to investigate significant unexpected discrepancies, including the results of such procedures