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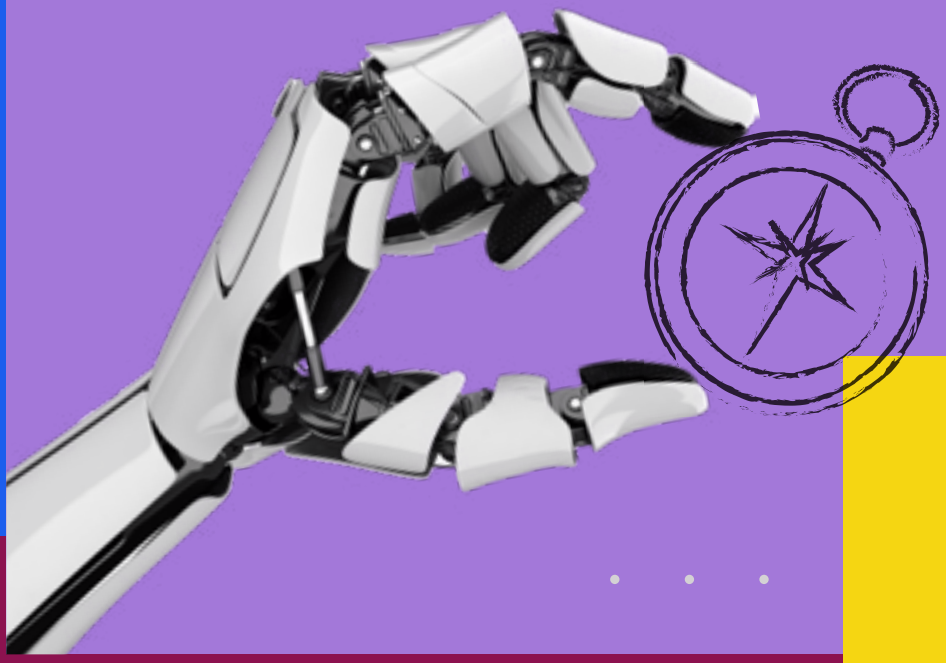

Your Guide to Using Analytics Software in Accounting and Audit

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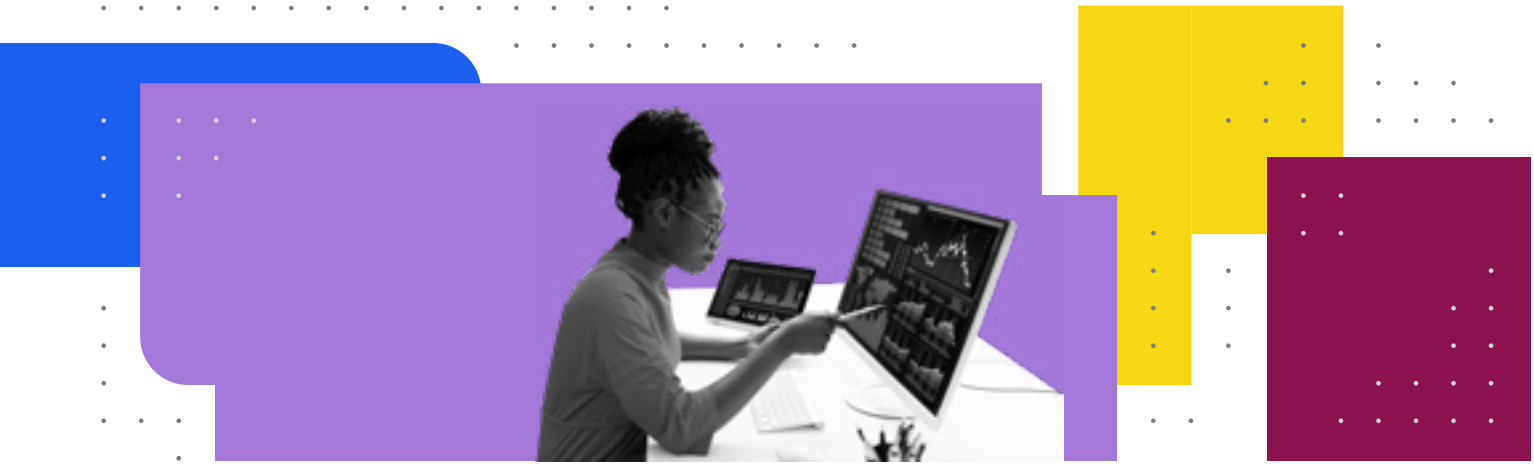


Introduction

Organizations today have access to mountains of data. Connected devices in vehicles, cameras and appliances generate a continuous stream of information. Social media platforms produce posts, likes, photos and videos. Mobile devices provide a wealth of location-based details. And all levels of government have begun offering access to open data, including information on transportation, permits and financials.

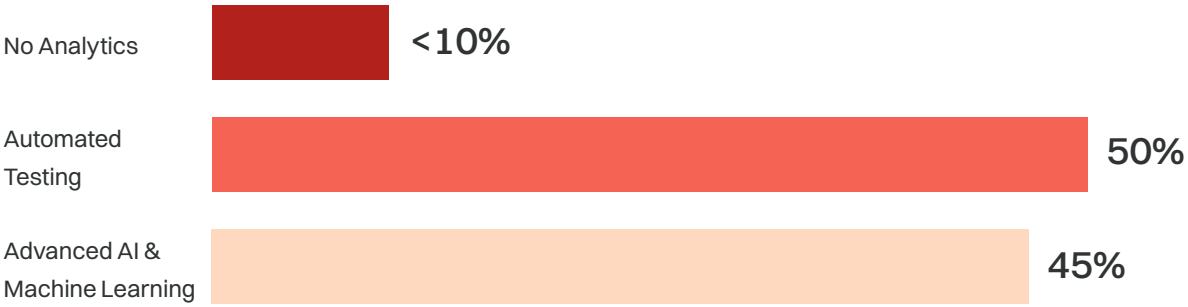
This growing volume of information from diverse sources, known as big data, is too large and complex to be managed by traditional data processing systems. But many big data and analytics solutions have recently become available, designed to give businesses and governments new and deeper insights into their financials, processes and customers. Research firm IDC projected worldwide spending on big data and analytics solutions to reach $215.7 billion by the end of 2021, with a compound annual growth rate of 12.8 percent until 2025.

Organizations are using data analytics to generate new business insights that drive efficiencies and automate repetitive manual processes across a wide range of industries:

- Banks are turning to data analytics to detect fraud, predict customer revenue, tailor customer experiences and automate their business operations.
- Logistics firms are leveraging analytics systems and GPS data to determine optimal shipping routes, discover the best delivery times, and figure out the most cost-effective transportation type.
- Healthcare organizations are using analytics to track patient treatment, check on the usage of equipment, and deliver more efficient, effective services.

In accounting, data analytics gives accountants and auditors a more complete picture of organizations by allowing them to process all transactions, rather than just a sample set, and quickly discover exceptions.

Firms Using Analytics



A recent survey from the Institute of Internal Auditors, an international advocacy association for internal auditors, asked respondents how they would spend an unexpected budget increase. The second-highest result, after adding more staff, was technology. Of those respondents who selected technology, 68 percent said they would spend their extra budget on data analytics software.

Similarly, Caseware's 2022 State of Accounting Firms Trends Report found less than 10 percent of respondents said they were using no analytics in their practice. Just under 50 percent said they were using analytics for automated testing, while nearly 46 percent were using analytics for advanced artificial intelligence (AI) and machine learning.

This white paper will explore the types of analytics available to accountants and auditors and how they can be employed to improve efficiency and quality. We will also investigate the steps organizations should take when planning their initial deployments of analytics solutions.

Analytics defined

Analytics is the study of raw data to draw conclusions based on that information. In accounting, there are four basic types of analytics that accountants and auditors may encounter:

Descriptive analytics: This is the analytics type used most commonly in accounting and auditing. It describes *what is happening* and involves the categorization and classification of information. For example, accountants commonly report on the flow of money through their organizations, looking at revenue and expenses, inventory accounts and sales tax collected. A descriptive analysis might examine year-over-year revenue growth, inventory-on-hand increases or decreases, or monthly sales figures. Descriptive analytics are important for accountants because compiling and verifying large amounts of data is key to accurate financial reporting.

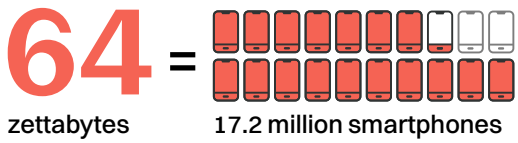
Diagnostic analytics: These analytics answer the question of *why something happened*. Diagnostic analytics monitor changes in data. For example, if their company reported higher-than-expected quarterly sales, accountants could examine the sales data closely to discover if the increase was driven by specific products, services or customers. Diagnostic analytics are a key component of building accurate forecasts based on historical data.

Predictive analytics: This analytics type allows accountants and auditors to determine *what is going to happen*. From a budgeting and planning perspective, predictive analytics are critical. Accountants need them to build accurate forecasts, which allow them to act as trusted advisors to CEOs and boards. For instance, predictive analytics could be used to assess where a company's resources could be used most productively, helping the firm increase profit margins.

Prescriptive analytics: These analytics help organizations determine *what should happen*. They allow accountants and auditors to discover the best options available to achieve a desired outcome. For example, a company might want to lower the collection periods for its accounts receivables. Prescriptive analytics could be used to look at historical data and identify strategies the company could implement to get customers to pay faster.

Why organizations are turning to analytics

The main driver behind the increased adoption of analytics solutions is the growth in the amount of data organizations produce. In a 2020 study, research firm IDC estimated that individuals and businesses worldwide generated more than 64 zettabytes of data. To put that in perspective, one zettabyte of data is equal to the storage capacity of approximately 17.2 billion smartphones, each holding 64 gigabytes of data.



Traditionally, accountants and auditors have relied on sampling and spreadsheets to analyze data sets. Sampling allows accountants to draw conclusions based on partial data sets and detect errors or fraud. Because sampling deals with partial, rather than complete, data sets, it saves time.

However, sampling isn't ideal because it only looks at some of the available data. Auditors and accountants may reach incorrect conclusions because they haven't examined all the data, or they may miss some exceptions because the transactions weren't included in the sample.

Analytics solutions can automate processes and examine complete data sets in significantly less time than it would take an auditor or accountant to examine the data manually. This allows organizations to look at all their data from multiple sources and every transaction, painting a complete financial picture that results in more accurate predictions and catches every anomaly.

The artificial intelligence (AI) and machine learning (ML) capabilities included in data analytics solutions can tailor data analyses to offer granular results and flag areas of concern that require further examination.

Data analytics applications in audit

Auditors have been among the leaders in using data analytics solutions to examine big data, allowing them to analyze millions of transactions and improve the quality of their audits. Caseware's 2022 State of Internal Audit Trends Report found 60 percent of auditors believe analytics software is a key part of their strategy to fight fraud and 32 percent planned to deploy the software in the future. Just six percent had no plans to use analytics.

A 2019 report from the Chartered Professional Accountants of Canada (CPA Canada) discovered the primary goal for auditors using analytics was to improve the quality of audit evidence obtained to support the auditor's opinion. Some of the most common tasks where auditors employed analytics included:

- Journal entry analysis to identify unusual attributes
- Process mapping using transaction logs to identify, for example, missing steps or out-of-order processes
- Two- and three-way matches of aspects of transaction streams. These streams could include payroll, purchases, payables and/or payments
- General ledger account balance analysis
- Scanning data populations for various attributes (looking for large, unexpected items or duplicates)
- Aging analysis (examining the length of time accounts receivable, accounts payable, loans receivable, etc., have been outstanding)
- Churn analysis (e.g. changes in customers and amounts owed; changes in inventory items)

As the CPA Canada report showed, there are many practical applications for analytics solutions in audit. A few of these include:

Accounts payable: Auditors can use analytics software to examine a wide range of functions to ensure liabilities are not being understated. For example, they can test for duplicate payments or invoices, identify the unit price variances of particular products over time, or select different types of accounts and compare turnover ratios.

Accounts receivable: As with accounts payable, analytics solutions can examine a host of accounts receivable information. These include: profiling debtors to look for large debts and checking the proportional value of large items; reporting gaps in the sequences of invoices; flagging accounts with no recent activity that might be good targets for sales rep follow-ups; and profiling customer purchase cycles to boost profitability.

General ledger: Running analytics software on general ledger entries can not only help prove closing balances, but it can also be useful in auditing other areas, such as branch performance or profitability by product. Some examples of general ledger tests auditors can run with analytics software include: providing the totals of entries generated by different sources to show the value and volume (such as sales ledger, or journal vouchers); perform faster account reconciliations and adjustment transactions to speed up closing; compare balances with previous periods to highlight variances.

Continuous auditing: With analytics software, auditors can establish a continuous auditing process that checks for errors and verifies data in real time. Using scripts, which can be pre-existing or customized, organizations can immediately flag items such as duplicate payments, journal entries posted at unusual times, or payments made to vendors that are no longer active. In a business environment where risks and compliance requirements are rising, continuous auditing can play an important role.

Payroll: Analytics solutions are ideal for helping auditors check payroll validity by looking for such items as duplicate employees, duplicate bank account details, and calculating gross pay, net pay and deductions. They are also useful for matching master payroll file information with an organization's personnel file to find out if there are "ghost" employees on the payroll.

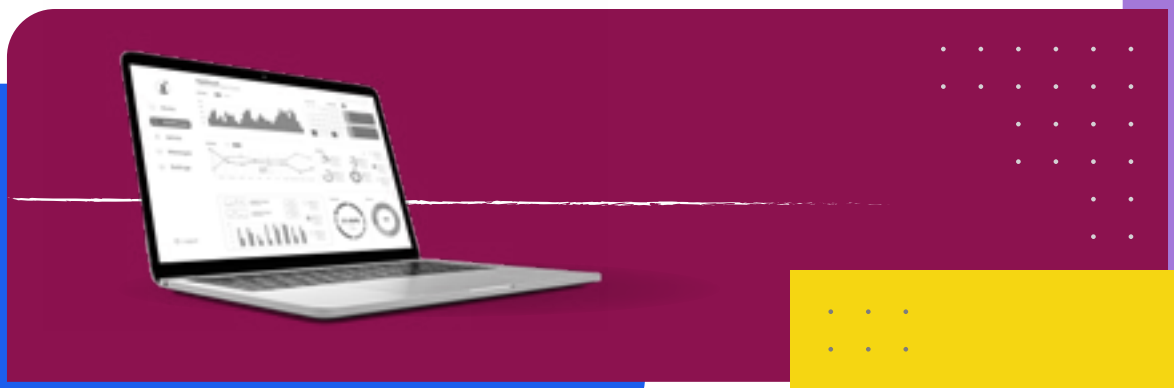
Information Technology (IT) security: As more organizations increase their commitment to their digital operations, auditors are being asked to assess risks associated with IT operations. Analytics software can be set up to collect such information as system logs, access permissions and folder structures, and carry out tests to ensure IT systems and policies are secure.

Uncovering instances of fraud is one of the best-known use cases for data analytics software. Auditors can set a wide range of thresholds and run different automated tests against millions of transactions to find exceptions and anomalies.

A helpful mathematical law is frequently applied to analytics software to help detect instances of fraud. Known as Benford's Law, it identifies abnormal distribution of numbers across large data sets. It stipulates that the leading digit in a genuine data set will most often be '1'. When other digits from '2' through '9' appear as the leading figure more often than they are expected to, it's a signal that the data may have been manipulated.

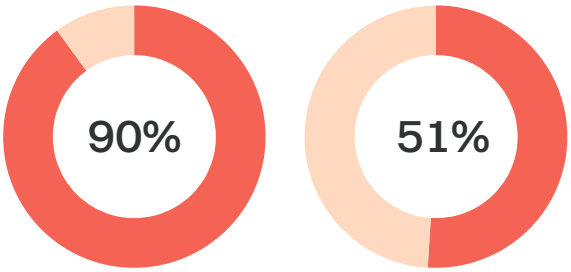
In one case, an auditing firm applied Benford's Law in their analytics software to uncover fraud taking place at a client who ran a call center. Operators at the facility could issue refunds of under $50 to customers without their manager's approval. Forensic accountants ran the Benford's Law test and discovered a large spike in the number 4. After further investigation, it turned out several operators had been issuing refunds to friends, family and themselves worth hundreds of thousands of dollars, but the fraud was only uncovered after running the automated Benford's Law test.

There are many more potential use cases for data analytics in auditing. It's important to note that none of them remove the need for auditors. Instead, they allow auditors to spend less time gathering and formatting information, and more time analyzing the data to generate more accurate forecasts and predictions, helping auditors show their value to C-suite executives.



Data analytics applications in accounting

Accountants can take advantage of analytics to create better, more detailed forecasts, plan more accurate budgets or invest company resources more efficiently. Caseware's 2022 State of Accounting Firms Trends Report found 90 percent of survey respondents were using some form of analytics and 51 percent were regularly using software automation tools.



Using some form of analytics

Regularly using sofware automation tools

Some of the ways accountants can leverage analytics include:

Business forecasting: Accountants can use data analytics software to examine millions of transactions from multiple sources to build a complete picture of how a business is performing.

For example, a company might have plans to add four new locations within five years. An accountant could pull in sales, revenue and profit data to discover whether the expansion would make sense financially and operationally. Or a business might want a more accurate sales forecast. Analytics software can look at more data from more sources to paint a more complete picture.

Building better budgets: Analytics solutions allow accountants to look at millions of pieces of data from multiple sources, such as databases, accounting programs and Enterprise Resource Planning (ERP) systems. This lets them create better budgets based on all current and historical data — not just a sample.

Some analytics packages are able to mine data from engagements to create benchmarks, allowing accountants to see how a company compares against its peers.

For instance, an accounting practice could comb through years of engagement data to create

benchmarks for sales, revenue, margins and churn for transportation services businesses. The practice could then approach transportation services clients and offer them detailed advice on how to improve their operations by comparing the clients' numbers to the benchmarks.

Having these kinds of analytics available gives accounting practices a value-added service that sets them apart from competitors and helps them retain clients and attract new business.

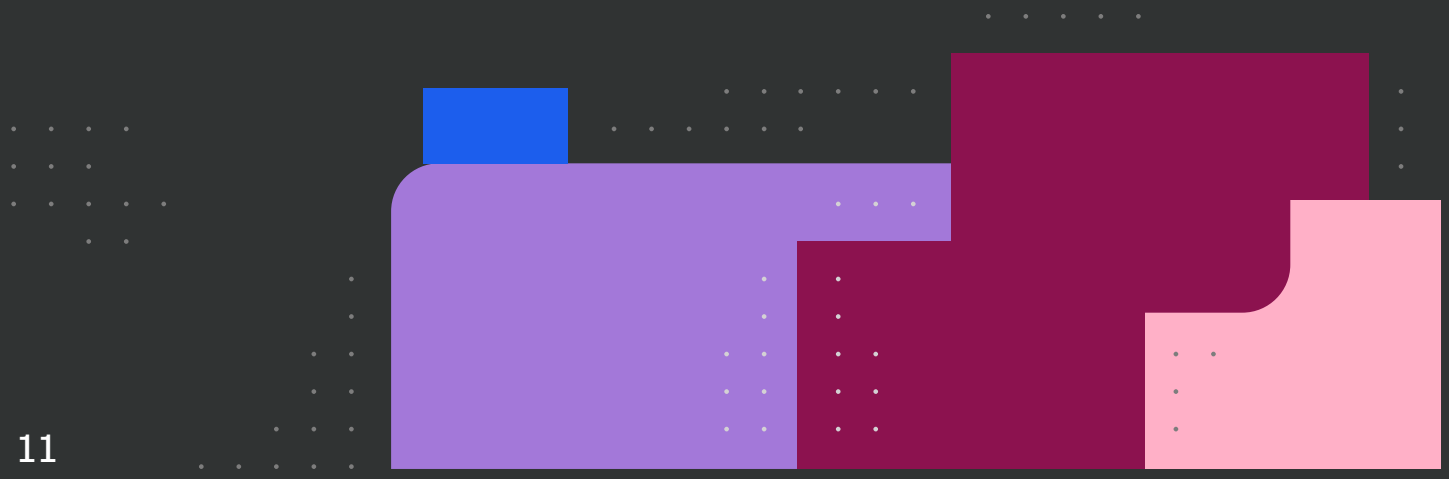
Identifying tax savings: Accountants can use analytics to examine complex tax scenarios to discover potential savings. For example, a company could look at several investment scenarios, modeling each with analytics software, to find out which is the most beneficial from both investment and tax perspectives.

Optimizing investments: Accountants who participate in investment decisions can use analytics to optimize how they invest their money. For instance, they could look at behavioral patterns in consumers, based on sales or even social media data, to uncover new trends and generate better profits.

Practice management: Analytics can help accounting practices and departments boost their efficiency. They allow offices to track their team's workloads, deadlines and tasks at a glance. They can also help track engagements by displaying the status of deliverables and showing whether documents have been reviewed, and by whom. Visualization tools embedded in analytics solutions make it simple to see how a practice is performing and where hours are being spent.

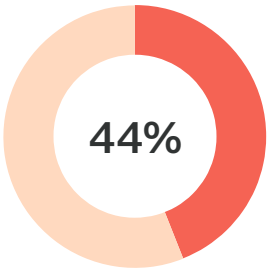
Regulatory and quality management: An analytics solution can actively monitor engagement quality and reduce risk by identifying and flagging potential problems when they occur. It can also suggest opportunities for internal process improvements. This boosts overall engagement quality and client trust, while increasing client retention rates.

For example, an analytics solution can actively monitor engagement quality by making sure all work meets established quality management standards, such as the International Auditing and Assurance Standards Board's (IAASB) ISQM 1 standard on engagements. If the software detects a problem, such as inconsistent process mapping or a failure to lock down the engagement, it can flag it for immediate correction.



Additional benefits of analytics software

Employing analytics reduces the time accounting staff spend on manual, repetitive processes. This allows teams to spend more time on valuable and mentally stimulating work such as strengthening relationships with clients or management. This is important because, according to Caseware's State of Internal Audit survey, proving and articulating internal audit's value was a top challenge for 44 percent of respondents.



Proving and articulating internal audit's value was a top challenge

Organizations can streamline their accounting process by having financial transactions flow directly from departments, such as human resources, IT and finance, into analytics software, eliminating the need to manually enter information. This means accounting staff will no longer need to track down missing transactions or fix data entry errors. Accountants can also pool data from multiple departments and examine it with analytics to generate new insights.

The ability for accountants to present data in an attractive, visual format is important to both clients and senior management. Analytics packages enable accounting teams to generate graphs and charts based on key data points with one mouse click, helping clients visualize key information.

Finally, analytics software creates a clear audit trail that can be analyzed at any time. Auditors and accountants don't need to constantly update their files with additional documents. The information they need is stored digitally and can be updated automatically, allowing them to access a full transaction history at any time.

Beginning your analytics journey

Analytics software adoption doesn't need to happen overnight. Organizations can take a gradual approach to make sure they get the most benefits from their analytics solutions.

The first step is to create a data strategy. This document will outline how a firm will use the data and how the data will help achieve business objectives, such as boosting client retention, or improving decision making.

Organizations should identify a team member who will champion the analytics implementation. The champion should be a member of the executive team or a senior manager who will drum up support for the analytics project. Organizations should also identify all key stakeholders — departments and employees — who will be impacted by the analytics solution and make sure they are kept up to date as the implementation develops. This will help minimize opposition and ensure the project proceeds as smoothly as possible.

A good data strategy should also include:

- technology requirements
- how data will be gathered
- how the data will be used to generate insights
- which employees will create and share the data
- how the data will be shared within and without the organization
- a roadmap detailing the steps and timelines related to implementing the data strategy

Building out a solid data strategy takes time, but it will ensure accounting practices get the most value from their analytics investments.

Data capture will be an important factor for many organizations. Data extracted from ERP solutions and financial accounting systems may not be ready for analysis immediately. It's important to make sure collected data isn't corrupt, incomplete or inaccurate. Accounting and IT teams should work together to understand the data an organization is collecting and evaluate its quality before it undergoes analysis.

Insights derived from incomplete or incorrect data can lead to faulty conclusions, so data quality needs to be a priority. Accountants and auditors should start by cleaning up the data that's most important to achieving an organization's business goals and then adding other data sets over time.

If an organization is deploying analytics for the first time, it will need to invest in specialized staff and/or training for existing accountants and auditors, depending on their role. Businesses will need to know how to source the data they require — whether internally or from external clients — and how to perform an accurate data analysis. Staff will also need to know how to use the insights gained from analytics to perform better decision making.

Once an organization has gained experience in analytics, it can use its in-house analytics experts to train other staff. Employees should also be encouraged to continue upgrading their analytics skills, stay on top of trends and look for new learning opportunities.

Getting started with analytics

The first step organizations should take towards adopting analytics is to get buy-in from stakeholders, including CEOs, board members and clients. The stakeholders will need to know why analytics are important, how they'll benefit the organization and its customers, and what data will be involved. Presenting stakeholders with a roadmap outlining specific goals and timetables, as well as a cost-benefit analysis, can help move the project along.

Once buy-in has been secured, project managers will need to form an understanding of the systems and data they will be analyzing. They'll need to know how the data they plan to use was created and where it came from. And it's important they ensure the data is reliable and complete. Any analytics solution is only as good as the data that's fed into it.

Not all data will be usable in its native format. Data transformation — converting data into a format an analytics system can use — may be necessary. Ideally, organizations should seek out analytics solutions that support traditional ERP and data systems, as well as having a library of scripts that can be adapted to work with different data formats.

As with any new technology project, it's typically best to start small, even if an organization has big analytics dreams. The project lead should have a good understanding of what data sources are available and how applying analytics will be beneficial to each data set. Picking a process with a lot of manual work, such as journals testing, is an ideal starting point because it's easier to show a good return on investment and highlight the benefits analytics delivers.

Once an organization has completed its first analytics project, it should evaluate the results to determine how effective the solution was. Did it deliver accurate results? Did it save time? Are there areas for improvement? If staff determine the project was a success, they can begin adding analytics to other processes and consider automating some procedures.

Having some training is important to the success of any analytics project. Accounting and audit staff should take some basic analytics courses if they haven't already. Courses are available from a wide range of institutions, as well as from accounting organizations such as the American Institute of Certified Public Accountants, the Institute of Internal Auditors and CPA Canada. Staff should be trained in the basics of how to use analytics in accounting and auditing, as well as receiving instruction on the specific analytics tools they will be using. For instance, Caseware and its partners offer training on its Caseware IDEA analytics platform for both new and experienced users.

Examples of analytics solutions

One example of an auditing analytics solution is Caseware IDEA, a powerful audit analytics platform that has been in the market for more than 25 years and allows auditors to look at 100 percent of their data. With IDEA, auditors can import all the data they require and analyze it using more than 100 audit-specific tasks.

IDEA helps auditors conduct more thorough audits and find anomalies, trends and patterns they might not discover through sampling. This allows them to deliver more accurate and timely audits that resonate better with stakeholders.

IDEA is designed to be simple to use. It includes visualization features that allow auditors to either customize or automatically generate a dashboard, including charts and statistics that simplify the task of finding anomalies and trends. Auditors can show these dashboards to clients or internal stakeholders, helping them back up their findings.

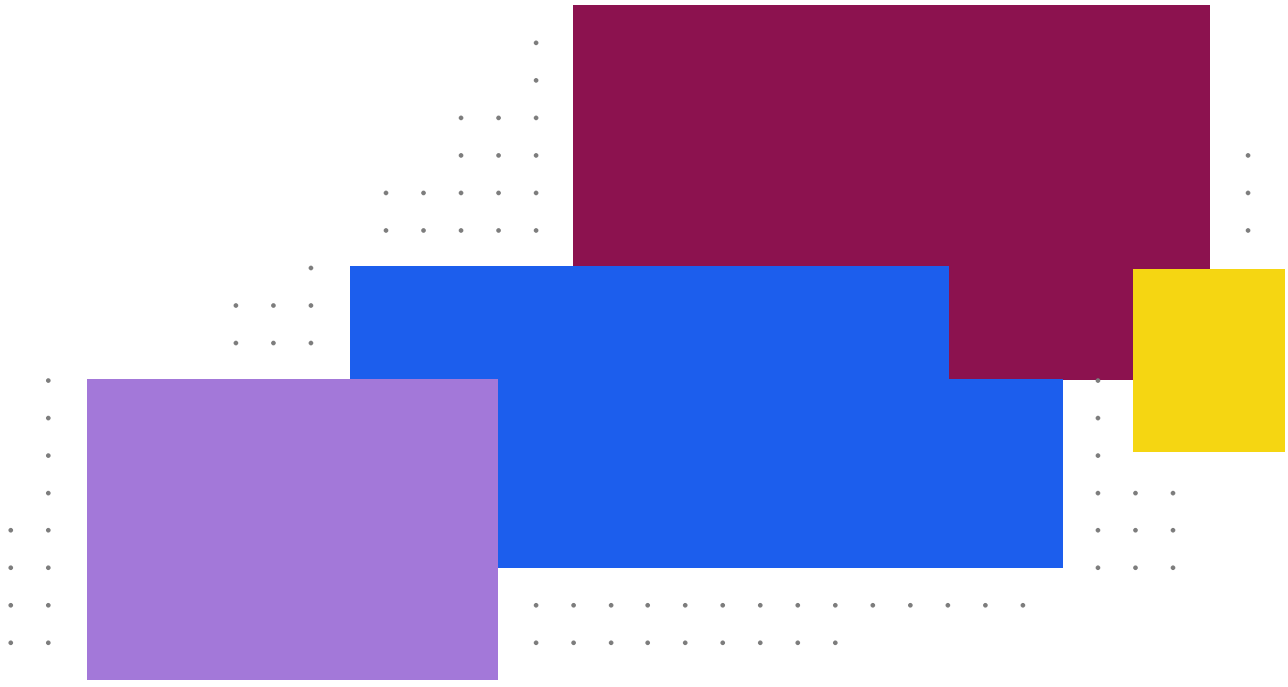
Online integration is becoming an increasingly important feature in accounting and auditing solutions. IDEA has several online features that make it easier for auditors to find anomalies, including access to Google Search, Maps and Translate from directly within the platform. For example, an auditor might want to do additional research on a transaction that was flagged as an exception. From directly within IDEA, they could click on the supplier's address and call up a Google Maps search to make sure the supplier exists and is located where it is supposed to be.

IDEA offers access to a wide range of advanced analytics plugins for specific tasks, such as currency converters, additional testing capabilities and unstructured data analysis. For organizations comfortable with customizing their own tests, IDEA also includes a Python scripting capability.

Another example of an analytics solution is Caseware Sherlock, a cloud-based business intelligence platform that allows organizations and accounting firms to generate new insights from their engagement data. Sherlock automatically gathers and stores all data from current and historic Caseware engagements to deliver insights that can improve business performance, uncover new growth opportunities and drive efficiency.

Sherlock can be used to spot trends and predict future performance using a wide range of metrics, such as expenses, revenue, liabilities and assets. Its engagement-based analytics give accounting teams the data and visualization tools they need to clearly present findings to their intended audiences. This allows accountants to act as true strategic advisors by spotting trends, risks and potential opportunities, giving them an intimate knowledge of their clients' businesses.

Accounting firms could also use Sherlock to comb through their engagement data to build out benchmarks for a specific industry and track how a client is performing against those benchmarks. If the client is trailing its competitors in a particular area, such as expenses or revenue per customer, the team can drill down deeper to find the reasons why and propose a solution.



Conclusion

The accounting and auditing industries are transforming. Manual processes and spreadsheets aren't able to take advantage of all the valuable data that's now available. To deliver better forecasts, conduct more thorough audits and provide meaningful advice to clients and senior executives, accountants and auditors need to turn to analytics solutions capable of examining data in real time.

Having access to real-time information allows accountants and auditors to provide a complete, up-to-date picture of an organization's financial health. And if an anomaly is detected, it can be flagged for resolution immediately. Real-time information also allows accountants to offer more insightful advice to clients and executives, boosting client loyalty and raising the profile of the accounting department.

Switching from spreadsheets and manual processes to analytics solutions and automated AI-based scripts won't happen overnight. It requires an investment in time and resources to build a thorough data plan, train staff in analytics and implement and test the analytics systems. But the payoff can be enormous, giving accounting firms an advantage over their competitors and transforming corporate accounting teams into trusted advisors.

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