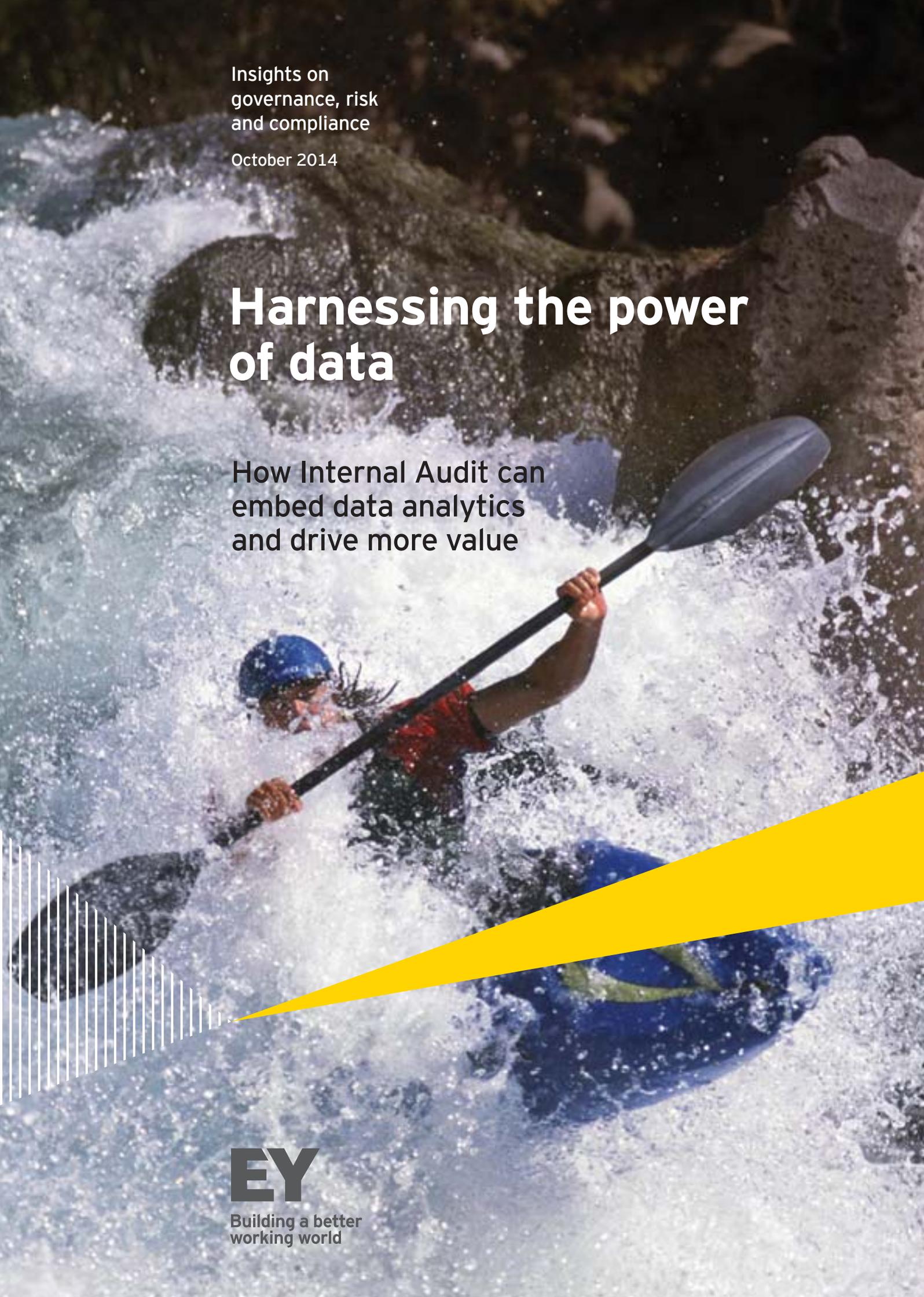


Insights on
governance, risk
and compliance

October 2014

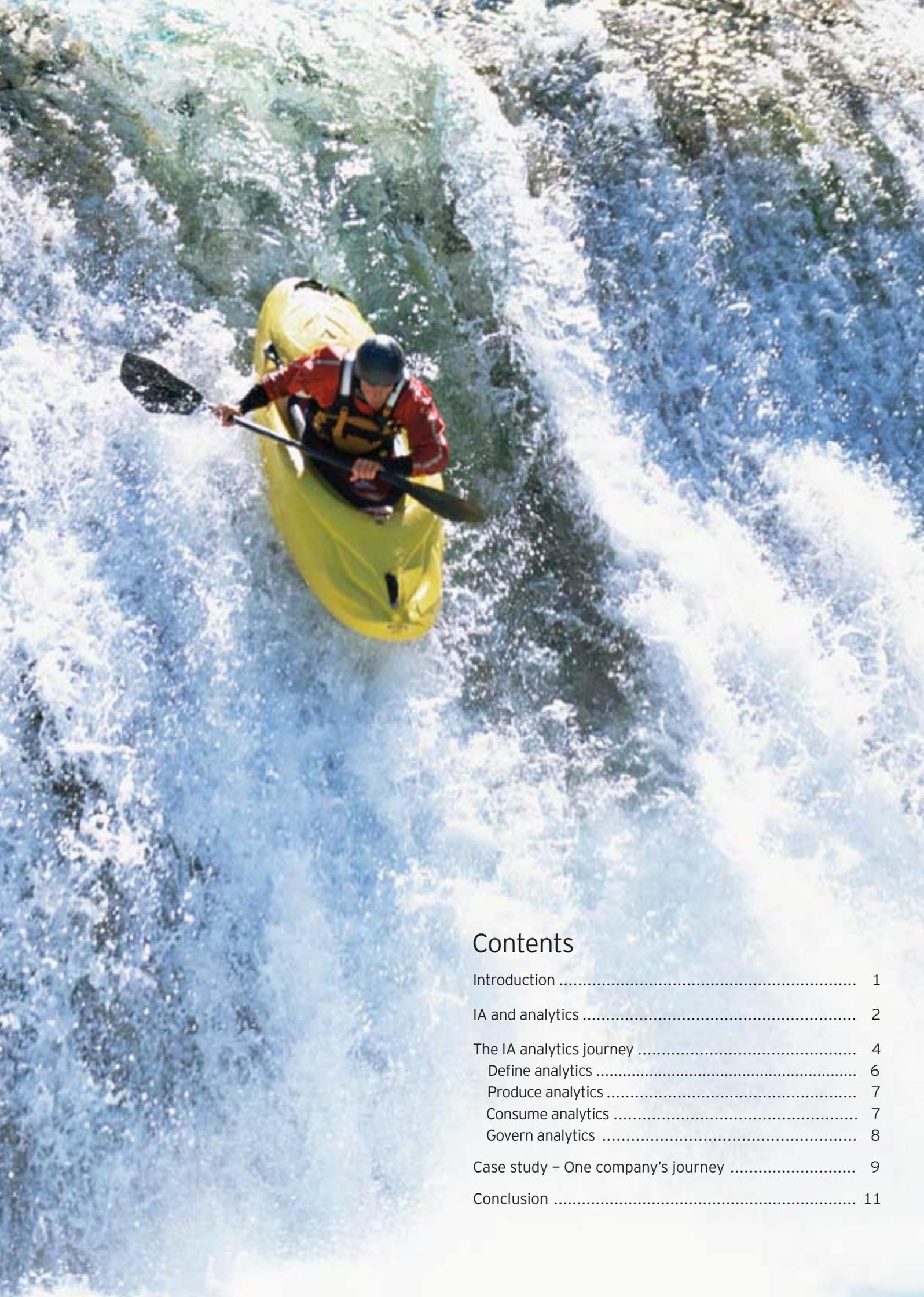
Harnessing the power of data

How Internal Audit can
embed data analytics
and drive more value



EY

Building a better
working world



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Introduction

Big data is fundamentally changing the way the enterprise operates, and Internal Audit (IA) can't afford to be left behind.

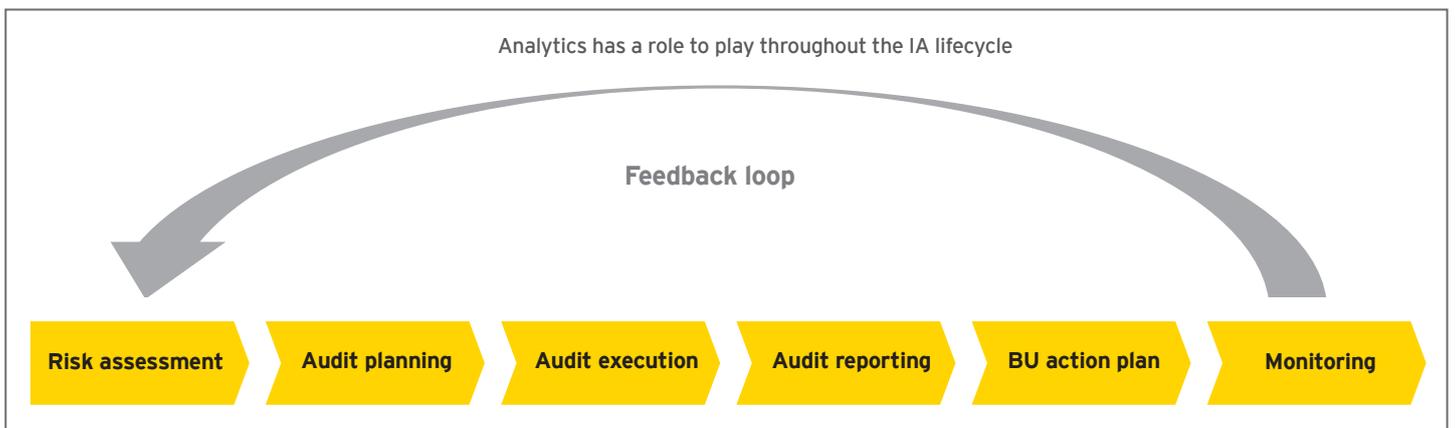
Companies everywhere are developing the technical capacity to analyze the vast amounts of information they have captured, and they're using the insights generated from that data to build stronger customer relationships, reach new customers and improve the bottom line.

The IA function must embrace analytics to keep pace with or outpace the business; it must become a natural part of the thought process. This will involve not only the adoption of new tools and techniques but also a change in mindset. However, the results will be worth the effort: IA's use of data analytics can help the business improve its processes and deliver even better products and services.

It will take time and effort to weave sustainable analytics into the internal audit fabric. The process will be intensive and ongoing. The journey begins with a simple realization: IA must accept that it plays a leading role in turning data into insight.

IA and analytics

In the context of IA, analytics is the analysis of a large population of data to obtain insights and improve business performance, reduce risk and maximize business value.



Traditionally, an audit focuses on what could go wrong. Auditors attempt to understand the population and build a representative sample that can be extrapolated. The sample might not be properly representative, and the resulting audit might miss critical areas and fail to identify all relevant issues.

Using analytics, IA can examine an entire population of data using various techniques (e.g., descriptive, predictive, prescriptive) and focus on potential issues. By looking through unprecedented amounts of data from internal and external sources – for instance, individual items at the transaction level – IA can identify and focus on attributes that previously were out of reach, and discern relationships and correlations that were never before visible.



The challenges

Experience has taught us that the best way to view the challenge of integrating analytics into the audit is through a model comprising three components: “define” analytics, “produce” analytics and “consume” analytics: supported by “governance” analytics. IA is responsible for defining the analytics, supervising their production by analytics professionals, and developing and delivering the resulting insights.

The first challenge is the most obvious: how to make sense of the mountains of available data. Auditors need to know what they are looking for. They need to understand the business processes, risks and control objectives in order to identify the appropriate data for the question at hand, and then access the data – often a very difficult task. In short, they need to **define** the information they need and what they plan to do with that information once they get it.

The “define” component requires considerable diligence in planning, because it’s vitally important for the auditing team to know what answers it expects its queries to generate. To get the right answers, auditors must ask the right questions.

Asking those questions in the right way requires collaboration with the professionals who will **produce** the analytics. Finding the right balance of skills and talent needed to produce the analytics is not an easy task. Both the auditors and the analytics professionals must bring the appropriate skill sets to the table.

It also requires effective, ongoing communication with IT. For that to happen, IA must have or develop an understanding of analytics and what it can do. Auditors’ knowledge should include a basic understanding of key systems and methodologies and the ability to understand the degree of difficulty posed by a particular question. IA also must keep in mind that testing carries significant costs. It takes time to develop the right analytics; to make the most effective use of that time, auditors must provide the producers explicit and clear instructions on what they’re trying to achieve.

The best way to build and maintain the communications channel is by building a strong relationship between IA and IT, with the goal of forming a new, more enduring partnership. The endurance is necessary because persistence is the key to developing robust, effective analytics.

At first, analytics is likely to prove of relatively limited use, and cost-efficiency in the short term is often elusive. It takes time to develop effective, targeted queries; several iterations are often necessary. The improvement will come over time as auditors and analytics professionals follow up and follow through. In short, be patient: The world won’t change overnight.

Once the analytics have been produced, it falls to auditors to **consume** them: to draw conclusions from the information gathered and turn data into insights that can be delivered to the Board and the C-suite.

The IA analytics journey

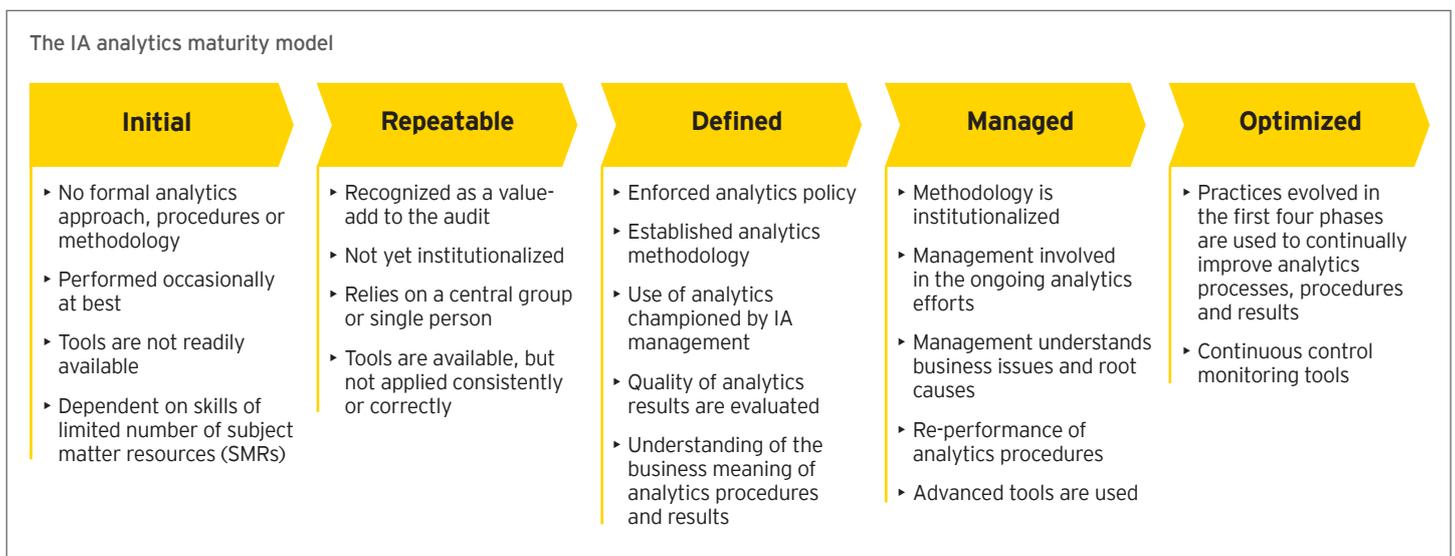
Building leading analytics capabilities into the IA function is a journey that will take significant time and effort.

There are three stages of analytics, with the mathematical complexity growing with each step:

- ▶ **Descriptive** analytics is the first stage. The idea is to report, visualize and understand what has already happened, either in real time or after the fact.
- ▶ **Predictive** analytics help develop an understanding of the underlying relationship between input and outputs to understand why something happened or to predict what will happen in a given scenario or set of scenarios.
- ▶ **Prescriptive** analytics are designed to determine which decision or action will produce the most effective result.

The maturity model (below) provides a useful way to measure an organization's progress along the analytics journey. Companies that have no formal approach and no readily available analytics tools are in the "initial" phase. In the next phase, the analytics are repeatable but not formalized; they are not applied consistently or correctly. Companies tend to move smoothly from the first phase to the second; the third, "defined", presents a more significant hurdle.

Companies in the "defined" phase have an established analytics methodology, and they enforce their analytics policy. IA management champions analytics, a key step toward the "managed" phase, where the analytics methodology is institutionalized and management understands the business issues and root causes. The final phase is "optimized", where the IA function is locked into continuous improvement and continual monitoring.





Analytics in action

One example of such a journey involved a large multinational technology company that was seeking to develop a leading-class IA function. It determined that embedding data analytics across the audit lifecycle was a key element of the journey, and asked us to help IA develop and implement a robust data analytics plan. To illustrate the journey, let's take a look at journal entry analytics.

At first, IA's use of analytics was strictly ad hoc and based on the specific situation at hand. But as the function developed an understanding of IT systems and their owners, it realized that a central analytics database with repeatable scripts would increase efficiency.

But moving from the "initial" to the "repeatable" phase, while an important step, was only the first step. To properly define the data, IA needed to identify significant accounts and relevant assertions; define the right testing strategy; and make sure teams had the information they needed to identify anomalies. To make this happen, IA revised its audit approach and enforced an analytics policy.

For some organizations, the next phase – "managed" – is a barrier that is never hurdled. The IA function met the challenge by setting up service delivery expectations; identifying and investing in the necessary technology, including server space; identifying and allocating resources; and preparing a standard documenting and reporting approach.

At this point, IA had transformed its culture and made analytics an integral part of its audit procedures, improving its risk coverage, increasing its efficiency and improving its audit effectiveness. Analytics now was considered in the early planning stages, and dashboards and other tools allowed auditors to more efficiently address multiple risks. To take the final step - to optimize the use of analytics – IA needed to maximize its ability to continuously monitor key risks through:

- ▶ Timely identification of high-risk journal entries
- ▶ Early identification of potential accounting surprises
- ▶ Continuous targeted auditing of all transactions flowing through the general ledger

The IA function added governance procedures to make sure it continued to refine its test objectives and results.

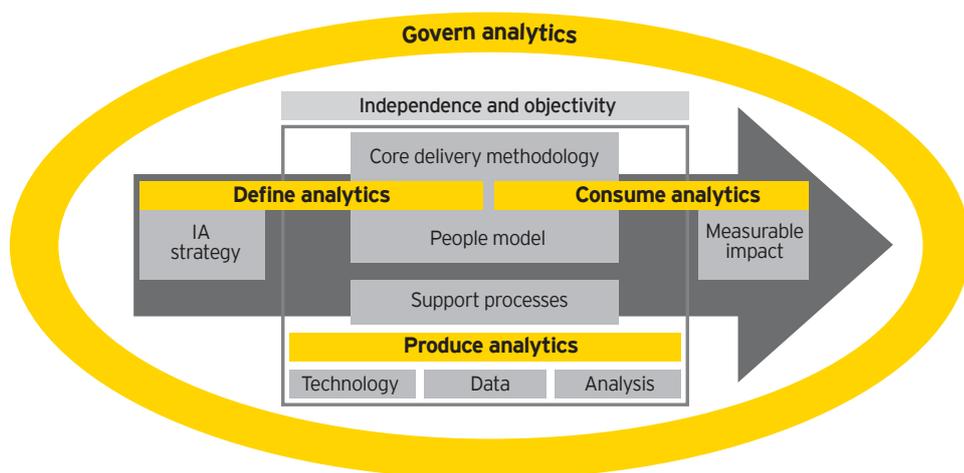
In embedding analytics throughout its audit approach, the IA function has leveraged technology to improve its efficiency, cut the turnaround time for analytics and build a flexible model that can adjust to changes in the business environment.



But how should the IA function approach the journey?

How should it embed analytics?

Here again, the **define-produce-consume** model points the way.



Define analytics

In defining analytics, IA should set the objectives for the audit project, taking into account the scope of the audit, the timing, the team and the audit stakeholders. Once IA has set its objectives, it can build analytics to help achieve those objectives.

Determining the scope of the audit project is the auditor's job. From the outset, audit scoping questions and process walkthroughs should include analytics-specific questions to understand the process, business rules and underlying data elements (e.g., which specific field would indicate a onetime vendor), allowing IA to formulate or customize data requests.

Analytics tends to involve data that goes beyond normal management business information (e.g., amount sold, average price) to lower-level, higher-volume data (e.g., line item detail for purchase orders and invoices). As the volume of available information increases, the appropriate questions change. The best analytics queries are those that have gone through several iterations, with each involving refinements based on questions answered and lessons learned through fieldwork.



Produce analytics

The “produce” component involves the activities most people are thinking of when they think of analytics – specifically, the technical steps involved in the production of the analytical results. The specifics of production are unique to each company and require a significant amount of technical knowledge.

Generally, this component can be broken down into three parts: technology, data and analysis.

- ▶ **Technology** encompasses the hardware and software tools needed to get the job done. It includes server use and the data storage capacity required.
- ▶ **Data** capacity is a key issue because of the sheer amount of data involved: a dive into lower levels of information will bring much more data to the surface. IA is likely to ask questions that bring in 10 times the previous volume of data. As well as the immediate question of how to store and process the data during analysis, there are several other key issues that need to be resolved:
 - ▶ When should the data be extracted?
 - ▶ How should it be reconciled?
 - ▶ Does it need to be archived, and if so for how long?
 - ▶ How long until it can be deleted?
 - ▶ What audit evidence must be stored?
- ▶ **Analysis** involves using the tools to write the query that creates the analytics outputs.

Consume analytics

The “consume” component involves turning data into insights, which is crucial to the final report. During the “define” component, the auditor asked for particular outputs around a given relationship, risk or control, having already determined what the answers should be. Answers that vary significantly represent issues that require further investigation.

Continuous feedback is key to making sure that IA is testing the right things. An output might reveal a certain issue, but the follow-up could reveal a legitimate reason or a workaround. In either case, the test must be revisited. The best way to build feedback into the process is through a formal step where the auditors sit with the analyst who produced the outputs to make the relevant changes or recalibrations.

Part of the feedback loop also involves establishing benchmarks. IA should make sure that recording these previously unknown benchmarks becomes standard operating procedure.

Technology options

The technology your organization will use during the “produce” stage is driven by the “define” requirements for data and analytics. As a result, a toolkit of various technologies like those below could be necessary to have a successful “produce” stage:

- ▶ Big data analytics tools
- ▶ Predictive modeling and simulation tools
- ▶ Forensic, anti-fraud/bribery tools
- ▶ Descriptive, rule-based analytics tools
- ▶ Advanced data visualization tools



Govern analytics

The final element of an effective analytics process is governance. Generating an audit plan that incorporates analytics requires the use and coordination of a wide variety of skill sets. The auditor must define the scope; data architects and analytics modelers must translate the requests generated during the “define” component into valid requests in the “produce” component; the visualization team must take those results and turn them into reports and graphics that can be readily understood by the auditors; and the auditors must be able to take the resulting information and turn it into insights.

Governing analytics is about making sure that the team has the skills it needs, that the right technologies are in place, and that the right policies and roles have been defined. It involves the management of skills and assets to make sure that the insights are delivered to the Board and the C-suite as promised.

Experience is key to an effective process. Leading organizations know that embedding analytics isn't the best time to conduct on-the-job training. It's a very good idea to bring in experience, whether that involves strategic hiring or bringing in knowledgeable third parties. In any case, it's also a good idea to start small and build a sustainable process. Above all, it's important to remember that building an effective, robust analytics process into the IA function will take time. It's better not to stress speed.



Case study

Moving toward sustainable analytics

Recently, a global industrial company began an internal audit transformation driven in part by the establishment of a program designed to integrate analytics into its IA function. The company's journey had an end goal: own a world-class audit organization.

The journey began with focused pilot projects that proved the value of analytics to the audit process. The next step was the construction of a three-year roadmap.

- ▶ **Year one** focused on optimizing audit performance through the creation of an analytics function with a clear strategy and the necessary resources, tools and technology. By year's end, the company had reached the repeatable maturity level.
- ▶ **Year two** focused on expanding risk coverage and creating a defined methodology and process for integrating analytics into the audit delivery. At the end of the second year, the function was at a defined maturity level with pockets of greater maturity.

Year three has focused on optimizing risk coverage through embedding analytics in the risk assessment process, industrializing the analytics enablers and tools and further pushing training and awareness throughout the function. In addition, the function instituted a formal analytics governance process.

The results speak for themselves; the company's IA function now deploys advanced analytics in:

- ▶ **The annual risk assessment**
- ▶ **More than 40% of its audits**
- ▶ **4 to 5 special projects each year**

Full-time analytics resources participate in all stages of the audit lifecycle, including fieldwork, and the value of the analytics is tracked on each project. The improved insights, effective audit procedures and efficient delivery of process monitoring analytics have greatly increased the visibility and impact of internal audit.

Key benefits:

- ▶ **Audit intelligence** – Auditors are using interactive dashboards to facilitate analysis
- ▶ **Efficiency** – Previously built analytics and monitors are produced in half to a third of the initial time
- ▶ **Value to the business** – Process monitoring analytics are used across various locations to provide insights into the process and highlight areas of focus for IA and the business



IA must integrate analytics into its audit process

IA must integrate analytics into its audit process to keep pace not only with the business, but also with the organization's competitors. Analytics is not a "nice to have," but a "must have," because IA must build the capability to analyze the vast amounts of data generated by the organization to meet its compliance mandate.

Analytics brings benefits as well: properly developed, it can help IA provide business insights and act as a strategic advisor while holding the line on costs or even reducing them.

When it comes to big data and analytics, the future for internal audit is now.

Where is your IA function on its analytics journey?

Each organization and function will need to tailor the analytics strategy and delivery model to its IA vision, mandate and plan, making key decisions on the strategy, methodology, talent, knowledge and tools along the way. The questions below can help you frame a discussion on your journey and determine the best way forward:

How can you be sure you're fulfilling your IA mandate in an efficient and effective manner?
What role does innovation and continuous improvement play in your IA culture?
How are you aligning your function's capabilities and talent to keep pace with the explosion of data in your organization?
How does your IA methodology incorporate analytics?
What are the objectives and related benefits of analytics in your IA function?
To what extent do you rely on information and analytics from the business to identify risk?
How do you manage the analytical skill set in your IA function, including career paths?
Do you have a defined governance model and strategy in your organization?
To what extent are you managing data throughout the audit lifecycle?
What methods have you developed to measure the business benefit delivered from your use of analytics?
How are the results of analytics embedded in your audit reports? <ul style="list-style-type: none">▸ Do the reports include data-driven findings and visualizations to corroborate the findings?

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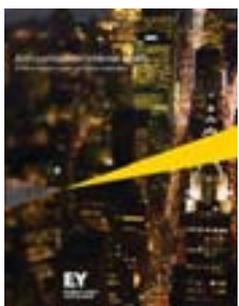
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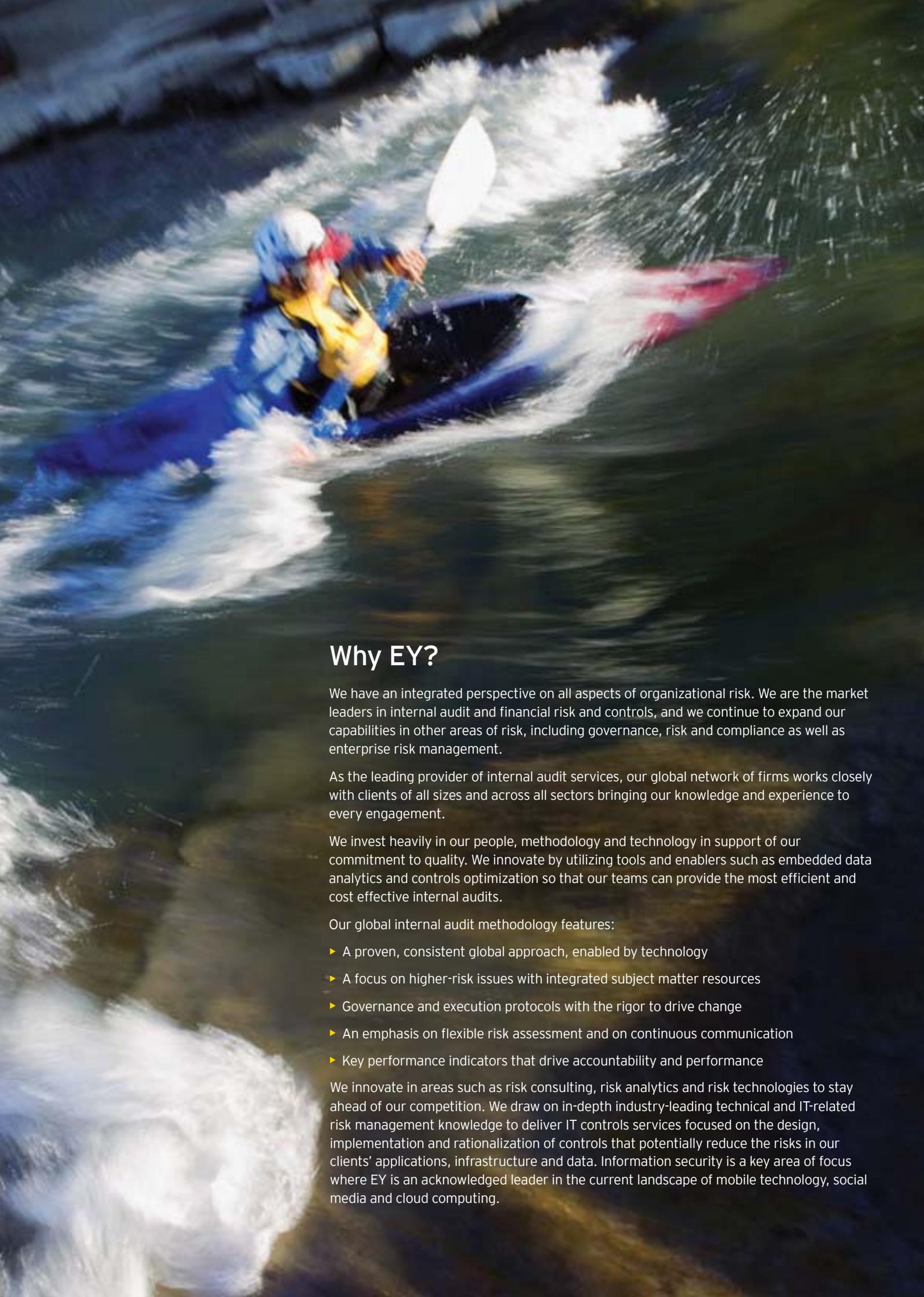
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We have an integrated perspective on all aspects of organizational risk. We are the market leaders in internal audit and financial risk and controls, and we continue to expand our capabilities in other areas of risk, including governance, risk and compliance as well as enterprise risk management.

As the leading provider of internal audit services, our global network of firms works closely with clients of all sizes and across all sectors bringing our knowledge and experience to every engagement.

We invest heavily in our people, methodology and technology in support of our commitment to quality. We innovate by utilizing tools and enablers such as embedded data analytics and controls optimization so that our teams can provide the most efficient and cost effective internal audits.

Our global internal audit methodology features:

- ▶ A proven, consistent global approach, enabled by technology
- ▶ A focus on higher-risk issues with integrated subject matter resources
- ▶ Governance and execution protocols with the rigor to drive change
- ▶ An emphasis on flexible risk assessment and on continuous communication
- ▶ Key performance indicators that drive accountability and performance

We innovate in areas such as risk consulting, risk analytics and risk technologies to stay ahead of our competition. We draw on in-depth industry-leading technical and IT-related risk management knowledge to deliver IT controls services focused on the design, implementation and rationalization of controls that potentially reduce the risks in our clients' applications, infrastructure and data. Information security is a key area of focus where EY is an acknowledged leader in the current landscape of mobile technology, social media and cloud computing.

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To find out more about how our Risk Advisory services could help your organization, speak to your local EY professional or a member of our global team, go to: ey.com/advisory.

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