Hear that noise? That’s the buzz of big data vacuuming up 2.5 quintillion bytes of information — the digital details of daily life — structured, unstructured, and semi-structured, rife with opportunity and rampant with risk.

Big data refers to extremely large, complex data sets that exceed the processing capabilities of traditional IT infrastructure due to their size, format diversity, and speed of generation. The lore is already legend: Nate Silver’s detailed and accurate 2012 U.S. presidential election outcome prediction, Target Corp.’s pregnancy prediction model, and Orbitz Worldwide’s differentiated marketing between Mac and PC users.

McKinsey & Co. recently reported that two-thirds of C-suite executives surveyed consider big data to be a top strategic priority. Bank-card issuers are already embracing real-time transaction analysis as a way to detect cybercrime and card fraud. That same McKinsey survey, however, noted a big gap between what organizations want to do with big data and their capabilities to do so, given their existing IT infrastructure and expertise.

Recognizing the need for intelligent discussion on the opportunities and risks surrounding this issue, The Institute of Internal Auditors (IIA) put big data in its crosshairs. The IIA’s Internal Auditor (Ia) magazine examined the internal audit implications of big data in its February 2013 cover story, aptly titled “Big Data.” In the article, author Russell Jackson points to several risk areas that internal auditors should address when their organization “takes the big data plunge,” including compliance with applicable privacy laws, reputational risks, security considerations, and data destruction policies.

Are You Ready?

Likewise, Anthony Chalker, managing director for Protiviti Inc., spoke about big data at The IIA’s annual International Conference in July. In his presentation, “Are You Ready for Big Data?,” Chalker described the unique complexities of big data, not only in terms of its volume, but also the variety of information available and the speed at which it’s collected.
Unlike traditional enterprise resource planning (ERP) data, which tends to be homogenous, big data draws from a variety of sources, Chalker explained. Whether cloud-based or on-premises, IT infrastructures need to be able to accommodate data in a variety of forms and convert it into a useful, actionable form. Not only that, but companies need to be sure they are capturing the right data and delivering it in real time to the right people.

Chalker challenged company leaders to be mindful of the talent and technology needed to harvest big data, as well as to manage security and privacy concerns. He offered the following six tips:

1. Hire and develop “informed skeptics” with deep analytical skills.
2. Ensure IT leaders and technology specialists acquire and apply tools, techniques, and architectures for analyzing, visualizing, linking, and managing large, complex data sets.
3. Increase collaboration between operations and IT to analyze and manage data.
4. Identify and address the ethical, legal, and reputational risks around aggregating, securing, and analyzing personally identifiable customer data as well as other sensitive intellectual property. (Remember, just because a company can do something doesn’t mean it should.)
5. Carefully consider what information will be collected and what will be done with it.
6. Proactively manage capacity to maximize return on investment.

Chalker also recommends data management association DAMA International’s functional framework, which identifies guiding principles for data management, discusses widely adopted techniques and alternative approaches, and highlights common organizational and cultural issues.

Familiar Territory

Despite all the noise, big data remains, at its core, just plain data. As such, the time-tested governance principles of internal control frameworks, such as the Committee of Sponsoring Organizations of The Treadway Commission’s (COSO’s) Internal Control–Integrated Framework, apply. Likewise, ISACA’s COBIT IT governance framework and the Information Technology Infrastructure Library’s framework may be useful.

The Big Picture

As reported in Ia, big data is not only a risk to be managed, but it also can serve as a powerful new audit tool. Large sets of data can reveal patterns that may not be observed by traditional sampling. This can be crucial in identifying fraud.

Imagine the potential benefit of being able to view adverse events in the context of how they affect the firewall, server activity, and transaction logs collectively. The combined picture can provide a more holistic view of adverse events as well as invaluable information regarding how they manifest throughout the system.

Safe and Successful

With big data on everyone’s hot list, it’s critical that IT and security professionals be knowledgeable about the organization’s big data strategy, security risks, and available protection options. Additionally, they should coordinate with the organization’s internal
auditors, who can play an important role in assuring the safe and successful application of this emerging technology. Internal auditors can provide assurance that the organization has identified privacy and compliance risks and established appropriate controls. Moreover, they can expand their own skill sets to leverage big data analytics for audit purposes.

Executives, audit committee members, and other board members likewise need to be aware of the compliance requirements, reputational risks, and ethical considerations surrounding privacy and manipulation of sensitive personal data for commercial gain. Tone at the top is critical, and internal auditors need to know that they have the support of the audit committee and executive team as they work to ensure that their organization has the right controls in place to manage this enticing, yet risky wave of the future.

Questions Boards Should Ask

■ Does the company have the talent and technological capabilities needed to collect, manage, analyze, and store big data securely and effectively?

■ Does the company have an established policy that addresses the ethical considerations of collecting, analyzing, and using sensitive information? Is the policy well known?

■ Does collecting and using big data subject the company to any additional compliance risks?

■ What is the company’s strategy for using the data it collects?

■ Where is the data stored? Are third parties used? If so, how are the risks collectively managed?

■ Is the chief information officer able to explain effectively — in layman’s terms — what big data is, how it is stored, what the risks are, and how the risks are managed?

New Quick Poll Question

How concerned are you about your organization’s risk exposure related to big data (on a scale of 1 to 5)?

Visit www.theiia.org/goto/quickpoll to answer the question and see how others are responding.
About The IIA

The Institute of Internal Auditors Inc. (IIA) is a global professional association with 180,000 members in 190 countries. The IIA serves as the internal audit profession’s chief advocate, international standard-setter, and principal researcher and educator. www.globaliia.org

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June’s Quick Poll Results

How confident are you in your organization’s approach to talent management?

- 15% = Not at all confident
- 24% = Little confidence
- 35% = Somewhat confident
- 22% = Confident
- 4% = Very confident

*Based on 661 responses. This survey is not a scientific sampling.