



Ascend

How power & utilities chief audit executives and chief risk officers can move up to the executive table

April 2016





Acknowledgements

Chief Audit Executives (CAEs) and Chief Risk Officers (CROs) representing more than 20 power and utility companies across North America came together in the fall of 2015 for a two-day roundtable discussion in Washington, D.C. During this annual meeting, the Power & Utilities Risk and Assurance Roundtable, leaders reviewed trends and insights discovered through PwC’s annual Power & Utilities risk survey, and discussed the impact of cyber threats, increased customer expectations, the use of data analytics for better business decisions and more. In this paper, we share those insights with you.

We would like to thank the companies listed here for their participation:

AGL Resources Inc.	CenterPoint Energy, Inc.	Exelon Corporation	PSEG
Alliant Energy	Columbia Pipeline Group	FortisBC Group of Companies	Puget Sound Energy
AltaLink	Con Edison Company of New York	Great Plains Energy, Inc.	Southwest Gas Corporation
American Electric Power	Dominion Resources	Iberdrola Renewables	Salt River Project
American Transmission Company	DTE Energy	Lower Colorado River Authority	The AES Corp.
American Water	Energy Future Holdings Corp.	Pepco Holdings, Inc.	The Williams Companies, Inc.
Calpine Corp	Eversource Energy	Pinnacle West/APS	Washington Gas
Capital Power			WEC Energy Group

If you’re a CAE or CRO in the Power & Utilities industry, we’d love for you to join us for our next survey and roundtable. Please email us at: US_PowerUtilities@pwc.com

A special thanks

More than 10 years ago, one insightful leader had an idea – to bring together industry executives for a roundtable discussion where they can share ideas and learn from each other. Jim Hanlon, PwC’s Power & Utilities Internal Audit Leader, has poured his heart and soul into the program ever since. And now, he’s passing the torch and retiring after more than 31 years at PwC – first in external audit and then internal audit where he helped to build the utilities-focused practice we have today. Thank you for your service, Jim. Enjoy going “off the grid,” so to speak.



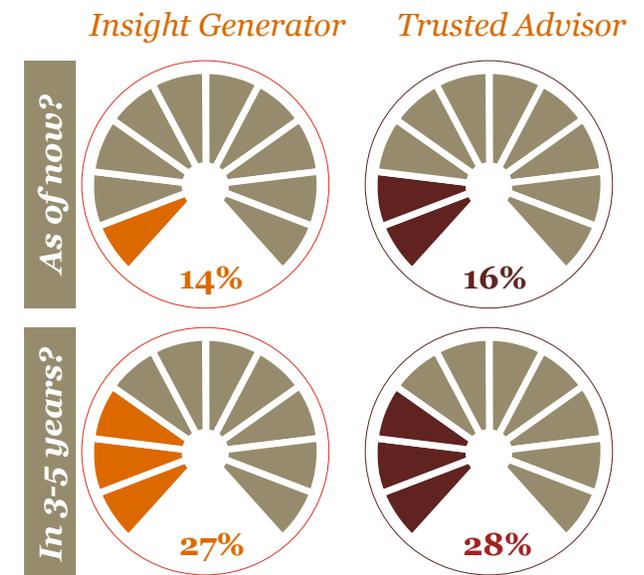
Overview

The Power & Utilities industry is undergoing rapid change driven by many factors, including new regulations, the threat of cyber-attacks, increasing availability of data, evolving business models to accommodate distributed generation and renewables as well as growing customer expectations. These forces are combining to reshape the risk universe surrounding companies in this sector. Growth, productivity and compliance initiatives are causing companies to pursue new business opportunities using technology. In fact, for the first time in our annual survey, “leveraging technology effectively” rose to the top area in which power and utility internal audit organizations planned to improve the most in the next 12 to 36 months¹. However, in this new world where technology’s role is pervasive, an imperfect understanding of the visible and “invisible” risks can create far reaching liabilities for power and utility companies.

That’s why, now, more than ever, conditions are ripe for Chief Audit Executives (CAE) and Chief Risk Officers (CRO) to earn a seat at the executive table. While regularly attending Board or Audit Committee meetings is standard protocol for most; in our 2015 survey, far less than half of CAEs said they are at the table for other key meetings or strategic discussions with senior leaders¹.

Some CAEs and CROs are starting to make progress toward redefining their role as a key strategic advisor. In fact, most hope to see themselves closer to that role within the next few years – shifting from assurance and reactive problem solver to insight generator and trusted adviser.

Over these next few pages, we’ll expand upon the key trends that surfaced through our annual Power & Utilities risk survey, plus share insights we learned from our time together with industry leaders during our 2015 roundtable discussion. We hope this report can be used to guide you through planning and discussions you’re having today, and in the years ahead as power and utility companies consider the convergent effects of technological advances, the growth of distributed generation, new forms of competition, evolving customer preferences and regulatory changes. In response, some organizations are creating growth and scale through deal making activities. Others are seeking alliances outside of the sector to gain access to technology and create new services to meet changing customer expectations. These, and other scenarios will likely reshape “risk” as we understand it today – elevating the importance and the contributions of the CAE and CRO. Are you ready to ascend, and rise to these changing expectations?



¹ Power & Utilities CAE Survey 2015, presented at Risk and Assurance Roundtable, Washington, D.C., Sept. 10 - 11, 2015



Winning in a Game of Threats™

While cyber threats against Power & Utilities may not be as high-profile or widely known as incidents in other industries – such as retail, financial services and government – virtually everyone within the industry knows that the threats are real and attacks can happen. In fact, in our recent survey, 26 percent of power and utility companies said they have experienced a significant third-party disruption, breach or incident that had a financial, reputational or customer impact. That's why it comes as no surprise that in our recent study, cybersecurity ranked in the top tier as one of the highest emerging risks for Power & Utilities². While employees remain the most-cited source of cybersecurity incidents, the industry has seen a jump in incidents attributed to foreign nation-states, organized crime and terrorists³.

As those who have experienced an incident have seen firsthand, new threats emerge on a daily basis. Particularly in this evolving and fast-paced environment, early mistakes drastically limit future options, making it increasingly difficult to right your wrongs. That's why PwC created Game of Threats™ (GoT), a role-playing, cyber threat application that helps users experience an incident in real-time and evaluate their ability to react. Using gaming technology, GoT participants are placed on either a threat actor team or an organization under attack, and then they participate in attacking or defending their assigned company.

During our 2015 roundtable, the interactive game challenged CAEs and CROs to make quick, high-impact decisions with minimal information to assess their readiness to respond. The experience taught users about what they can do to better prepare, respond and remediate a cyber-attack. It also demonstrated the width and depth of the team necessary to plan for, detect and respond. Players walked away with a better understanding of their state of readiness in securing their companies.

In the past 2 years, my company...

"has not had a significant third-party disruption, breach or incident"



*"has had a disruption that had a financial, reputational or customer impact"*²



Roundtable Takeaway

While it may be impossible to prevent every risk, CAEs and CROs can help to position their companies against likely threats and determine the appropriate solution for swift response.

² Power & Utilities CAE Survey 2015, presented at Risk and Assurance Roundtable, Washington, D.C., Sept. 10 - 11, 2015

³ The Global State of Information Security® Survey 2016 – Power and Utilities Summary, PwC



Winning in a Game of Threats™

As we've heard through our roundtable discussion, the Power & Utilities industry is making headway, to varying degrees, in protecting their infrastructure and striving to meet reliability compliance standards, such as the North American Electric Reliability Corporation's Critical Infrastructure Protection standards (NERC CIP Version 5). While meeting these requirements is certainly essential, taking a "compliance approach" to security (i.e., doing the minimum to comply with NERC CIP) may not be the most effective use of resources given the potential operational and reputational risks involved with a wider horizon of threats⁴. Most are at a far-earlier stage of preparedness when it comes to protecting their digital assets from cyber threat actors. When surveyed, respondents identified the following as some of the major cybersecurity challenges:

- Keeping up to date with changing technology/risks
- Focusing proper resources on threats and risk beyond NERC CIP
- Security awareness of employees and contractors
- Customer data security and privacy

To confront the challenges, power and utility companies continue to increase their security spending – up 9 percent in 2015, the third consecutive year of increased spending⁵. A staggering 95 percent report implementing a risk-based security framework to help improve security and reduce risk. However, there is need to be more selective and make investments where they can reap the most benefit. In an article published by Public Utilities Fortnightly, PwC offered this guidance: Given the pace and sophistication of threats coming from multiple sources, safety may be better measured by looking at where and how security spending is applied, and by examining the relative return "in safety" received. If one perceives that cyber preparedness is not keeping pace with the rising level of risks, this could point to a larger issue around planning and appropriating the right level of support for operations and maintenance to drive cybersecurity⁴.

This creates an opportunity for the CAE and CRO to evolve, to support a better understanding of the risk, while increasing assurance that the organization's risk appetite is communicated and controls are effectively implemented.

⁴ Do Bigger Investments Yield Greater Returns On Cybersecurity? Directors increasingly view cybersecurity as an enterprise-wide risk issue, PwC's Dave Burg, Alan Conkle and Dennis Curtis, Public Utilities Fortnightly, February 2016

⁵ The Global State of Information Security® Survey 2016 – Power and Utilities Summary, PwC



Winning in a Game of Threats™

How we can help

PwC helps organizations understand and evaluate their security capabilities, develop leading practices to better respond to the dynamic cyber-challenges they are facing today. We focus on the specific threat actors faced by Power & Utilities companies, helping management to develop strong risk management focused programs.

GoT is available to help Power & Utilities companies take a realistic look at their state of readiness and ability to be nimble when faced with a threat. It helps to broaden the circle of advocates and arms CAE and CROs with the information needed to convince board members or others to invest in this area.

For more information

To learn more about cybersecurity or GoTs, please contact:

Matt Wilson

PwC U.S. Power & Utilities Cybersecurity and Privacy Director

matthew.l.wilson@pwc.com

(678) 427-1042

Available resources on pwc.com:

[PwC Global State of Information Security® Survey 2016 – Power and Utilities Summary](#)

[PwC 2015 Global Digital IQ Survey](#)



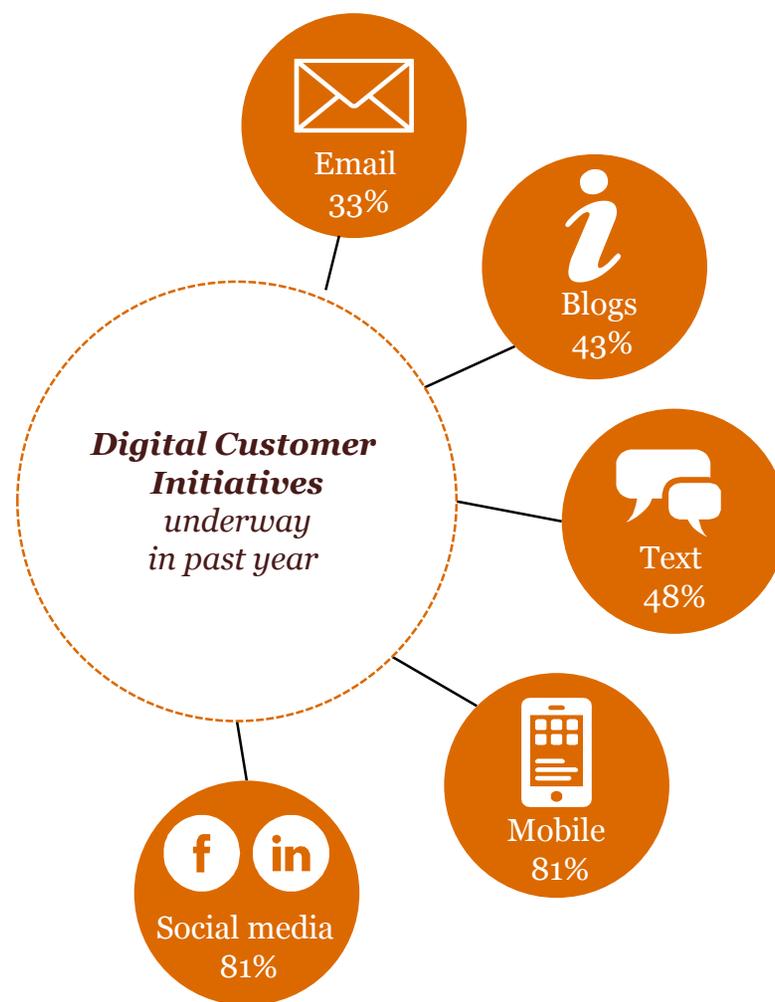
Mitigating the risks created by digital customer

For nearly a century; safety, reliability and affordability have been the lifeblood of Power & Utilities. Now, customer satisfaction is joining the mantra and putting more pressure on business units to deliver on technology projects that enhance the digital customer experience. In the past, one of the only times a utility interacted with its customer was through a bill. Now, there is an explosion of interaction; including transmitting data from smart meters, conducting business through smart devices, communicating through social media and much more. More than 80 percent of the utilities we talked with said they've initiated or expanded a customer engagement initiative in the past year⁶.

However, with so many investments in the digital area, it's becoming even more critical to get an accurate pulse on the risks created by these efforts – not to slow the progress customers are expecting, but to facilitate risk reduction along the way. For CAEs and CROs, having an understanding of this bigger customer landscape is key to taking a strategic seat at the table. There are three points where this risk should be assessed:

- Before the project begins
- During implementation
- After, through ongoing monitoring

When audit and risk groups are brought in only after an issue emerges, it's far more complex and expensive. It can also be detrimental to the digital customer experience.



⁶ "Perspective on the Utility Consumer," presentation to 2015 Power & Utilities Risk and Assurance Roundtable, Washington, DC, Sept. 10-11



Mitigating the risks created by digital customer

The reality is – those with the greatest ability to assess the risks, are often not part of the customer conversation from the beginning. Take the smart grid, as an example. It's the conduit of a whole host of customer data, including energy use patterns. Yet, operational groups often don't understand how representatives from risk and audit can and should be involved in strategic discussion involving these technology initiatives.

Another emerging possible threat to customer data protection is the communication that customer-facing groups have over social media, text and chat. These channels of communication create volumes of “unstructured” data, or information that is not easily monitored or tracked in spreadsheets or other standard methodology for working with data. While some of the most evolved groups are using analytic technologies to mine this unstructured data; few utilities have found a way to integrate this new type of data into the structured data that resides in their customer information or enterprise resource planning systems.

While there is a growing need for risk and audit to lend their skills in this area, 47 percent of those we surveyed said Internal Audit functions lack the resources and expertise in place to cover all of a company's current needs and emerging trends – something that will need to change in this new digital customer world. Silos need to come down. Collaboration with peers is essential as CAEs and CROs expand their circle of influence within their companies.

How we can help

There is much to consider when addressing new customer expectations, future needs and risk in this digital world. We can help you find the right answers to the [key questions](#) outlined on the following page.

Roundtable Takeaway

Technology is introducing tremendous benefits for utilities and conveniences for customers. It's also creating a new world of privacy and security risks. Risk and audit groups should be involved from the beginning of these projects, not to serve as a roadblock to progress, but rather as a safeguard against potential future issues.



Mitigating the risks created by digital customer

Customer transformation – key questions for utilities⁷

Changing utility customer



Will be digital, connected and social

Key questions

- Are we prepared for the connected, mobile customer?
- How do we better engage with our smart meter-enabled customer?
- How will we manage and extract insights from an avalanche of data?



Will demand – and receive – greater choice

- What options and choices should we make available?
- What new products and services should we offer, and how do we innovate, manage and build a portfolio of services?



Will be empowered with information

- How will the customer of the future interact with us?
- How do we provide instant access to information that our future customer will expect and demand?
- What tools should we make available to empower our customers?



Will expect a better overall experience

- How do we deliver an experience that is on par with other services our customers enjoy?
- How do we improved brand health as our customers' needs change?
- As customers have more alternatives, how do we drive loyalty?



Will adopt technologies that will impact the energy infrastructure

- As customers adopt new technologies, how do we meet demand and maintain service levels without disruption?
- What is our strategy for smart energy technologies?
- What is our play (if any) “behind the meter?”

To delve into these questions further, contact:

James (Jim) Curtin

Power & Utilities Customer Leader

james.m.curtin@pwc.com

(281) 794-2698

You may also be interested in these resources, available on pwc.com:

[Customer engagement in an era of energy transformation](#)

[Beyond the hype: What is the value of customer satisfaction to a regulated utility?](#)

⁷ Customer engagement in an era of energy transformation, PwC Global Power & Utilities, 2016

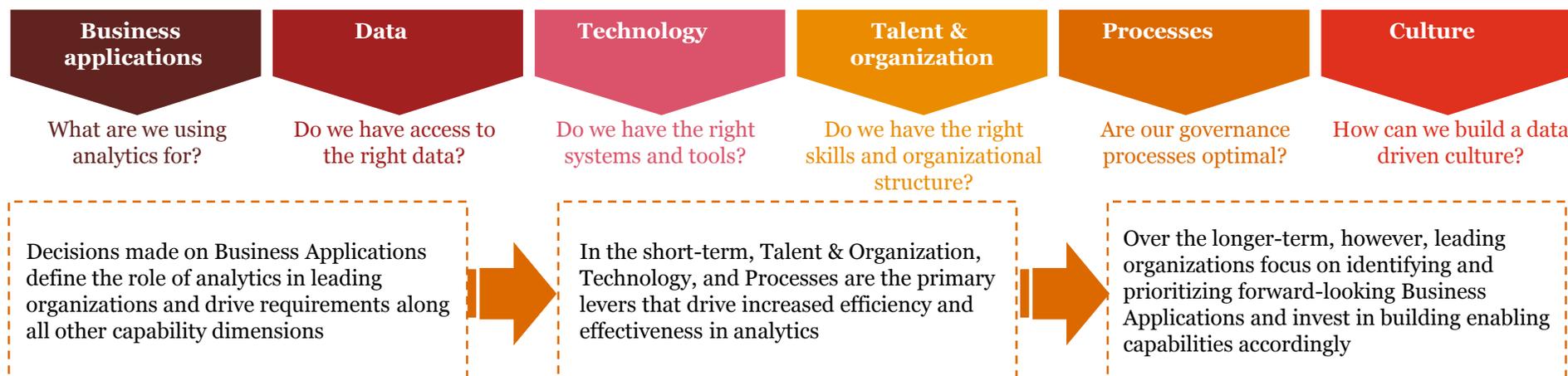


Exploiting an expanding data universe

With the volume of data growing at a rate of 40 percent⁸ year over year for Power & Utilities, the most agile are shifting to more data-driven business models to address evolving risks and capture emerging opportunities. Interest in this area usually begins with the hope of gaining additional insights, curbing costs and/or freeing-up resources. But there's a growing understanding of the possibility to use data to monitor asset health, detect fraud, evaluate supply chain effectiveness and, ultimately, identify ongoing problems or trends.

In our work across industries, business leaders tell us that building capabilities to compete with data and analytics is a top opportunity, but 58 percent said moving from data to insight is a major challenge⁹. This is particularly true for companies in the Power & Utilities sector, where being a “fast follower” can be preferable to being on the leading edge of change. However, that doesn't mean that it's not recognized as being something essential to pursue. While only 26 percent have implemented systems, tools or processes to better utilize data; 66 percent recognize that it's very important¹⁰.

Moving to a data driven organization is not something that can happen overnight. And, often the biggest challenge facing companies is determining where to focus efforts – what's the right place to start and where can they get the most value? The following focus areas can help you prioritize your efforts.



⁸ “Exploiting a Broader Data Universe to Drive Effective Decision Making,” PwC presentation to 2015 Power & Utilities Risk and Assurance Roundtable, Washington, DC, Sept. 10-11

⁹ The Global State of Information Security® Survey 2016 – Power and Utilities Summary, PwC

¹⁰ Power & Utilities CAE Survey 2015, presented at Risk and Assurance Roundtable, Washington, D.C., Sept. 10 - 11, 2015



Exploiting an expanding data universe

This is one of those areas where it's better to find the low-hanging fruit and experience early successes where audit and risk can collaborate and provide even greater value to the organization. Some common areas where we've seen some of the greatest return on investment include:

Cross industry

- Time and Expenses
- Procure-to-Pay
- Inventory Management
- Vendor analysis
- Financial processes
- Disbursements
- Incentive Plan Audits

Utility specific

- Fleet/Fuel Card
- Asset Maintenance Audits
- Measurement Audits
- Contract compliance
- Call Center Audit
- Fraud Analytics
- Third-party vendor risk analytics
- Security incidents and monitoring

Roundtable Takeaway

Think big, but start small. Start where your returns can be greatest. When building your risk or audit plan, consider where would you like to gain more insight? More coverage? More relevance? Working in silos throughout the organization doesn't work. The key is to come together as an organization to prioritize efforts and layout a strategic framework.

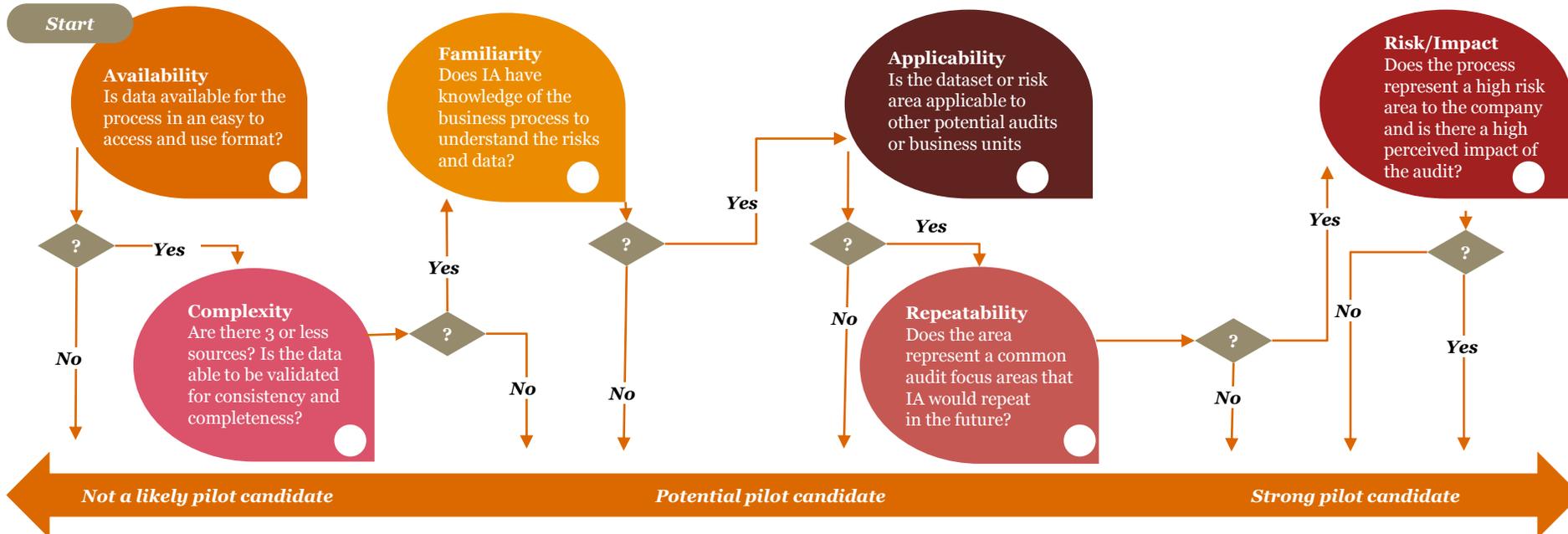
How we can help:

At the beginning of any initiative like this, asking and answering the right questions helps you set a good framework for success. That's where we can help. Getting started often means starting small, perhaps with a pilot. But even pilots have questions you must ask yourself before pursuing. On the following page, view the [Pilot framework for getting started](#) to determine if you have a candidate for a potential data-driven pilot.



Exploiting an expanding data universe

Pilot framework for getting started



We can help CAEs and CROs move their organization to be more informed and proactive with data-driven decision making, reduced reaction time and increased organizational agility. The first challenges include getting to the data and knowing it's right, deciding how and where to deploy an analytics program and developing an effective data governance strategy. Companies that have been most successful have partnered with a third-party to jumpstart the data analytics capability.

For more information:

Matt Labovich

PwC Data Analytics Principal

matthew.labovich@pwc.com

(703) 725-8255

Charlie Sanchez

PwC Data Analytics Managing Director

charlie.sanchez@pwc.com

(713) 356-420

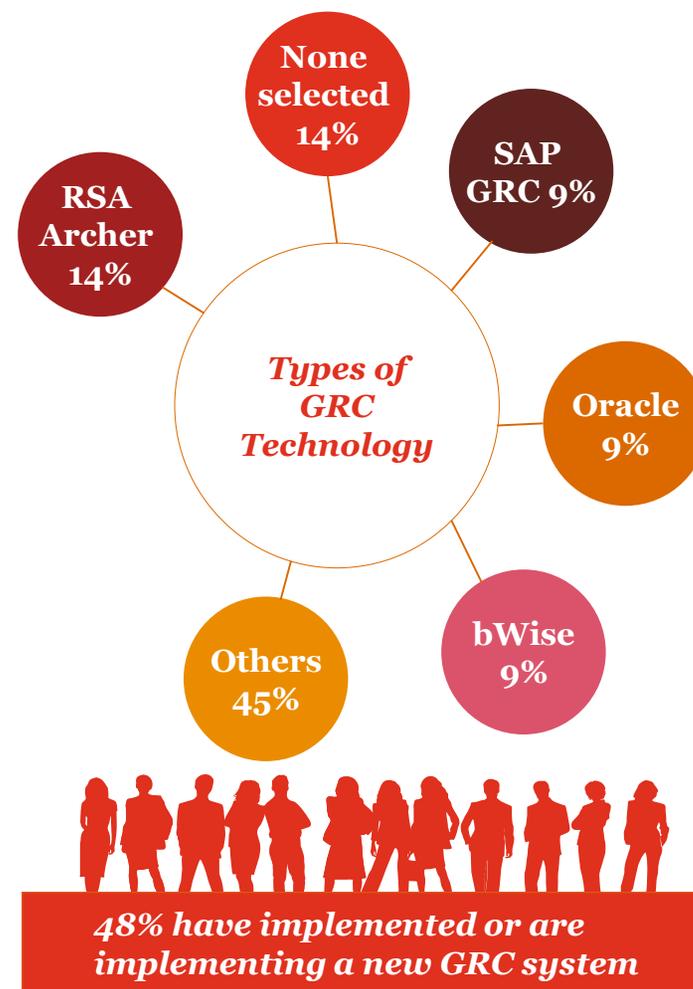


Evolving utility governance, risk and compliance

Power and utility companies are making investments in technology to manage risk. According to our 2015 survey, nearly half of respondents are implementing or have implemented a system to help with Governance, Risk and Compliance (GRC)¹¹

Over the years, several utilities have responded to increasing stakeholder and regulatory pressures by forming multiple GRC processes and systems operating in “silos of excellence” across the organization. While each function is capable of standing on its own, the costs of duplicative processes and systems are avoidable and can present a significant opportunity to cut costs. Case in point, many utilities are implementing controls and testing plans for the first time in response to NERC’s Reliability Assurance Initiative approved by FERC in 2015. On the surface, the underlying activities being performed are highly aligned with frameworks established by other risk assurance providers, yet many companies are reinventing the wheel through duplicative templates and GRC technologies. CAEs and CROs have a unique vantage point to see the forest holistically for the trees and can bring disparate systems and risk assurance providers together. All too often however, we continue to see companies spending a fortune on redundant solutions for their GRC needs¹². Those CAEs and CROs on the cutting edge see that a comprehensive approach can increase efficiency and reduce cost.

Leading CAEs and CROs realize the importance of not just investing in one-off tools, but creating an enterprise-wide view of the audit and risk universe by establishing an over-arching GRC platform. The hallmark of an effective platform is an integrated approach to corporate governance, Enterprise Risk Management (ERM) and compliance; along with a common language, set of processes, controls and organizational structure.



¹¹ Power & Utilities CAE Survey 2015, presented at Risk and Assurance Roundtable, Washington, D.C., Sept. 10 - 11, 2015

¹² PwC video: “A comprehensive approach to business requirements,” PwC YouTube, Jan. 14, 2013



Evolving utility governance, risk and compliance

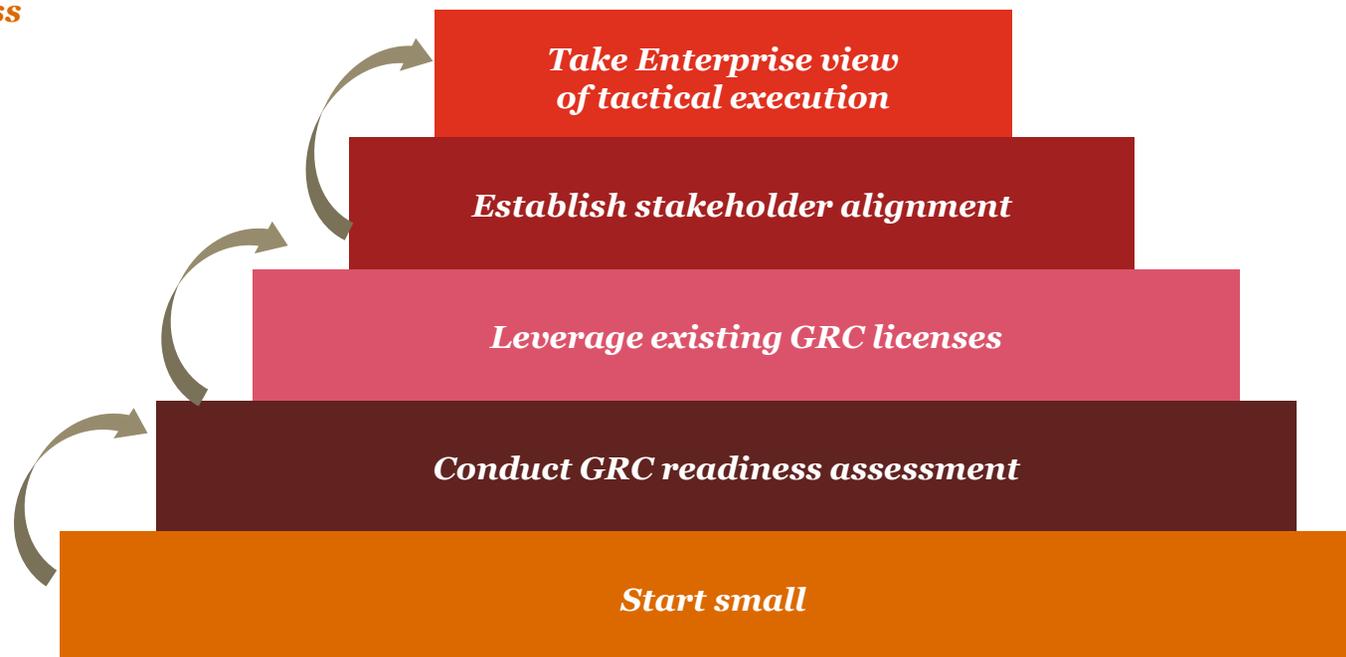
As with any strategic project, investing time at the front end to have all stakeholder groups present at the creation can save a substantial time and money down the line. It's not uncommon to hear about failure of a GRC implementation. In most cases, it's not the tool that failed, but instead a failure to get all stakeholders aligned, on the same platform and speaking the same language. It's also a failure of change management.

In our view, GRC platforms, whichever you choose, can be the foundation for a strong corporate risk and controls structure. The longevity of the structure depends on having a roof that doesn't leak and walls that can bear weight. Contractors who skimp on materials or cut corners produce a sub-standard building. It is no different with GRC platforms.

Roundtable Takeaway

When developing a GRC platform, the key is to start small and build on success. Seek to use the initial project as a "proof of concept." Based on the success of the initial project, identify other needs and solutions that could drive efficiency and cost reduction while improving the quality, relevance and timeliness of management information.

Steps to success





Evolving utility governance, risk and compliance

How we can help:

CAEs and CROs can play a critical role in ensuring GRC platforms are considered carefully, scoped appropriately and implemented effectively. Technology alone is not the solution. We can help you lead the integration across the business and establish a successful framework. Contact us to learn more:

Jason Plummer

Enterprise Risk Management Director

Jason.d.plummer@pwc.com

(410) 245-4392

Scott Peyton

Managing Director Risk Assurance

scott.peyton@pwc.com

(720) 931-7765



Next steps

In today's dynamic, threat-filled world, Power & Utilities C-suite executives are looking for trusted advisers to help them navigate an ever-changing environment. Similarly, board members don't want to hear multiple opinions pertaining to an organization's state of readiness to react to increasing challenges – they want to hear one view. This is nearly impossible to provide with multiple disparate tools each providing different slices of the pie, or big picture.

CAEs and CROs are well-positioned to be the key ingredient that brings everything together. This isn't something that happens overnight. Like so many things, it's more of an ongoing transformation. Shifting from a tactical, after-the-fact, resource to one that is a vital part of business strategy requires assessing what you don't know and seeking knowledge, guidance and leading practices. Power & Utilities are making headway, and they are a lot more mature in this area than just five years ago.

A first step to growing influence and gaining advocates is discussing with your colleagues the shifting nature and consequence of risks facing your organization. Always look for more ways to be effective, relevant and timely – key factors toward securing a regular seat at the table.

We're here to help you take the next steps:

Alan Conkle

Power & Utilities Risk Assurance Leader
alan.conkle@pwc.com
(312) 298 4461

Amanda Herron

Power & Utilities Internal Audit Director
amanda.herron@pwc.com
(214) 754-7579

Jake Stricker

Power & Utilities Risk Assurance Director
jake.j.stricker@pwc.com
(513) 659-3508

Matt Wilson

PwC U.S. Power & Utilities
Cybersecurity and Privacy Director
matthew.l.wilson@pwc.com
(678) 427-1042

James (Jim) Curtin

PwC Power & Utilities Customer Leader
james.m.curtin@pwc.com
(281) 794-2698

Matt Labovich

PwC Data Analytics Principal
matthew.labovich@pwc.com
(703) 725-8255

Charlie Sanchez

PwC Data Analytics Managing Director
charlie.sanchez@pwc.com
(713) 356-420

Jason Plummer

Enterprise Risk Management Director
Jason.d.plummer@pwc.com
(410) 245-4392

Scott Peyton

Managing Director Risk Assurance
scott.peyton@pwc.com
(720) 931-7765

