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# Meeting The Data Challenge: Insights from IT Leaders in Four Sectors

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BY JIM LOVE

**W**hen 30 of Canada's top CIOs connected at the 2018 CanadianCIO Summit to discuss the obstacles and opportunities they expect to face in the coming year, one of their key concerns was deriving the full value from disparate sources of data. The session concluded with a list of the top challenges that businesses must address in order to mine, manipulate and ultimately leverage their data.

- The business case for data — moving from platitudes to practicality. What is the most effective way to communicate the business case to executives?
- How can CIOs use data to advance their organizations corporate strategy? How does data inform strategy or does strategy inform data?
- How to move from unstructured data to structured data? If structuring data is as much an art as a science, how can we understand that art?
- There are now more sensors than people on the planet. How do businesses identify their "data" crown jewels of data and separate them from information that might not need sorting?
- How do changing privacy and security expectations alter the way businesses harvest, save and use data?
- How do you build effective data governance structures and processes?

"We hear so many platitudes about data," says Jim Love, ITWC CIO and Chief Digital Officer. "Some say it's the new oil. Or the currency of the new business landscape. Others describe it as the fuel of the digital economy. But we don't need platitudes — we need real ways to extract the value from our data. Following the summit, we pulled together a team of experts from four different sectors — transportation, financial services, housing, and mining. We presented them with the challenges and questions raised at the summit.

Here is what they had to say in six easily digestible sections that can be read individually or as a group.

**Total read time:** 22 minutes.

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# THE IMPORTANCE OF DATA

**A**lthough businesses are at many different stages in unlocking the power of data, they share a common conviction that it can make or break an enterprise.

"Data is driving every decision made today," says Corey Cox, Vice-President of Information Systems for Tandet Group, a diversified investment company with a focus on the transportation sector. "Once we have the data we need, we have to coalesce it into meaningful output that can enhance business decision making."

For Pascal Racine, IT Director for Croesus, a leading Canadian fintech, data defines the business strategy. "We are a software manufacturer with clients in wealth management, so data is at the centre of everything we do," he says. "Every night we receive tons of data from customers — every transaction they made that day. When advisors arrive the next morning, they must have all the figures from the day before in order to do their jobs, so data is paramount for both my company and our customers."

**Almost 30% of those surveyed in the 2018 CanadianCIO Census prioritized making data actionable as a top concern, up from 17% in 2017. Turning data into a competitive advantage and balancing security were perceived as the two greatest challenges**

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# MAKING THE BUSINESS CASE FOR DATA

**Number of Words:** 375**Read Time:** 2 minutes

## THE CHALLENGE:

The business case for data — moving from platitudes to practicality. What is an effective way to communicate the business case to our executive?

Despite the almost universal acknowledgement that data has tremendous potential value, CIOs still struggle with making the business case — or as Corey Cox puts it, convincing executive management that data has as much value as any other asset normally recognized on the balance sheet. "We see data as a great idea but we struggle with monetizing it," he says.

Ted Maulucci, President of SmartONE Solutions Inc., thinks that part of the problem comes from the way we talk about the value of data. "We're the converted," he says. "We see the value in data. The battle is getting executive teams to see it our way."

For Maulucci, the challenge is how to prove something that hasn't been done before? His answer: Stop talking about what data can do and

start showing people. "As soon as you do this, people start asking questions, and once they start asking questions, you're on the way."

Joe AbiDaoud, Vice President of Information Technology for Yamana Gold, a Canadian mining company, shares Maulucci's practical view. "The problem is that you may not understand the value of what you can unlock until you unlock it," he says.

## We see data as a great idea but we struggle with monetizing it.

Corey Cox, Vice-President of Information Systems, Tandet Group

AbiDaoud advocates taking a business process-centric view of data. "Go back to processes, take the tools available, spend time understanding and mapping your data assets." The key, he says, is to identify use cases that will drive your business forward. "Whether you are recovering gold, managing plant operations, or refining logistics, it's important to look for opportunities to either enhance the process or make better decisions around it," he says.

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As an example of this process-oriented approach, AbiDaoud describes his interactions with a mine in Chile. “We showed senior management a map of their data architecture and the type of reports they were currently generating,” he explains. “Then we asked them to imagine how proactive they could be if they could bring the maturity of certain processes to all the other areas of their business.”

Corey Cox also shared his idea of how to get senior leaders to imagine the value of data by urging them to considering who is knocking at the door and what are asking for.

He asks executive teams how many times in the recent past they have been asked questions beginning with ‘can you do’, ‘can you provide’, and ‘do you know’.

“This phrasing signals a need for answers, and those answers come from data,” he says. “At this stage, the

## LESSONS LEARNED:

- Stop talking about the value of data. Get some small projects started that show the value of data.
- Link data to business processes to show how it is used and how valuable it can be.
- Develop use cases with business leaders in the field.
- Unlocking the idea of business value is not about having all the answers – it’s about raising the questions that data can answer.

people asking these questions are just talking about business problems. They have not yet formulated a need, but it seems they are either willing to spend money or looking for a way to save it. Either way, that’s a value proposition and an opportunity to monetize the data they have.”



### ADVICE:

Extensive collaboration and pulling your business stakeholders into the conversation early in the process is paramount. They need to be part of a business process conversation. When you’re speaking about technology, do it in the context of helping your partners and stakeholders understand the capabilities.

**JOE ABIDAUD**, Vice President of Information Technology, Yamana Gold

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# USING DATA TO ADVANCE CORPORATE STRATEGY

**Number of Words:** 375

**Read Time:** 2 minutes

## THE CHALLENGE:

How can CIOs use data to advance corporate strategy? Does data inform strategy or does strategy inform data?

"Using data to advance corporate strategy is more of an art than a science," says AbiDaoud, "and mastering that art is of critical importance. Advanced data analytics affect our ability to explore and compete. They tell us what our customers want and how we can best meet their needs. They also deliver a competitive advantage. There is a new norm of volatility as AIs execute trades in a way that's faster and better than humans could hope to accomplish."

Data is also critical to strategy in the transportation sector, where it drives everything from the number of assets purchased to decisions about whether to maintain or expand human resources. "Advancing corporate strategy requires the exchange of intelligence," says Cox.

**Using data to advance corporate strategy is more of an art than a science, and mastering that art is of critical importance. Advanced data analytics affect our ability to explore and compete.**

Joe AbiDaoud, Vice President of Information Technology, Yamana Gold

Once again, Cox showed the value in rolling up your sleeves and diving into day-to-day challenges with dogged determination and creative thinking. "We had a customer who complained he was spending an inordinate amount on the repair and maintenance of one particular piece of equipment," says Cox. "A direct expense scenario suggested there was nothing out of line, but we trusted the business owner's instincts. Rather than tell him that the data didn't support his perception, we asked why someone with his experience would be so certain there was a problem."

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As staff dug deeper, they discovered that although the equipment in question had the same number of breakdowns, it took four to five times longer to repair than other equipment. By putting a dollar value to that lost productivity, Tandet was able to get direct compensation and change the supplier's procedures when it came to parts, availability and training.

Cox's story shows that the real value in data is not when it confirms your assumptions, but when it challenges them. You have to be open to new information and prepared to dig deeper, always questioning and never assuming.



### **ADVICE:**

People need to understand the implications of not having data in the same way they understand what it's like not to have money.

**COREY COX**, Vice-President of Information Systems, Tandet Group

### **LESSONS LEARNED:**

- Advancing corporate strategy requires a two-way exchange between the business leaders and the analytics team.
- The real value in data may be when it challenges our assumptions.
- Instead of disproving business instincts, dive deep to understand the root cause of those perceptions.

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# THE DILEMMA OF UNSTRUCTURED DATA: FINDING A BALANCE BETWEEN TOO MUCH AND NOT ENOUGH

**Number of Words:** 700

**Read Time:** 3-4 minutes

## THE CHALLENGE:

How to move from unstructured data to structured data? If structuring data is as much an art as a science, how can we understand that art?

Our 30 CIOs agreed that tagging is one of those issues that stand out in any discussion of data analytics. Tagging is essential. It's auditable and it makes people accountable. The question — which relates to governance — is how to make consistent tagging a reality?

"It's easy to get lost in meta tagging," says Cox, "but it's fundamental to using unstructured data. Until an AI comes along that is able to tag, it will continue to be done by humans. The key to managing it is to find a balance somewhere between too much tagging and not enough. Try to do too much and people will get bored and won't do it well. Don't do enough and you won't be able to find anything. Our approach is to understand the essential tags and ask what's really important."

Maulucci agrees that tagging is a labyrinth. "I've heard it described as 95% perspiration. You spend all that time getting data into a usable form, and then you discover that it doesn't give you what you need. Unfortunately, you really don't know what's required until you try to use it."

In Maulucci's field, not tagging may be the answer to dealing with unstructured data. "We have more and more tools that connect data and far greater compute capacity," he says. "Technological advances are allowing our researchers to look at something as innocuous as an electrical panel and use patterns of usage to be able to understand human behaviour and make life better for people who need attendant care."

Corey Cox looks to creative ways to use metadata to meet the challenges of unstructured data. He gave the example of standard surveys that conference goers and webinar participants are asked to complete. Rather than try to deal with large amounts of unstructured text and algorithms to try to detect sentiment, Cox provides participants with emoticons they can activate during the event. By combining the data gained from the symbols with variables such as the distance people travelled

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to attend, the number of questions they asked, and how long they lingered after the event, Tandet gets incredibly intuitive information from highly structured metadata.

This technique, according to Cox, has an additional benefit. It reduces the amount of data input, a time saver for both the analyst and the participant. "The truth is that we don't need as much data as we think we do in order to make inferences," he says. "It's possible to extrapolate conclusions from a much smaller set than we have come to expect is sufficient."

Pascal Racine also looks for ways to help his firm's clients centralize data to make better investment decisions by creating APIs and user level tools.

"Our clients pull data to their own portals for use with their own tools," he says. As the industry continues to develop solutions to merge data from disparate sources, and put it in new formats, investors can monitor their own data through online accounts.



**ADVICE:**

Stay up to date on innovations and make sure your system evolves. Today's requirements are bound to change and you need to follow your clients.

**PASCAL RACINE**, IT Director, Croesus

**LESSONS LEARNED:**

- Meta tagging is essential to leveraging unstructured data, but it can become an all-consuming process. Strive for a balance between tagging and other creative approaches.
- Don't assume that the only answer is in raw computational power or complex algorithms. Look to see where you can build analytics into the process of data collection in ways that simplify and enhance the user experience.
- You may not need as much data as you think in order to make inferences.

Accessibility is the way of the future for the financial services sector, he says. Whether chequing accounts, investments, or mortgage accounts, there will be one access point for all information around client data and our clients will be able to customize solutions to merge data from external and internal sources. Ultimately, a "single 360° view" will benefit financial advisors and their clients.

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# DIVING FOR THE CROWN JEWELS IN A SEA OF SENSOR DATA

**Number of Words:** 672

**Read Time:** 3-4 minutes

## THE CHALLENGE:

There are now more sensors than people on the planet. How do businesses identify their “data” crown jewels of data and separate them from information that might not need sorting? (Our four panelists varied widely in addressing this issue, with some suggesting that the solution to too much data might actually be more data.)

"It's tempting to think that the more data you have, the more knowledge you have, but the challenge is harnessing it," says Joe AbiDaoud. "Anyone can collect data. Just cast a net and you can collect terabytes, but it won't amount to anything if you don't know how to use it."

AbiDaoud credits sensors and IoT with increasing the speed of data analysis and making it possible to measure an exponential number of things. "In the past, we would have 10 or 15 data points that we would measure, whereas now, we can gather a tremendous amount of data — and not just data that's internally generated. There's also external data

that you can bring in from your vendor and there are lots of platforms that companies can standardize on to facilitate the sharing of data." For AbiDaoud, it's key to have the right architecture to allow you to work with your external data partners as well as your internal sources.

**It's tempting to think that the more data you have, the more knowledge you have, but the challenge is harnessing it.**

Joe AbiDaoud, Vice President of Information Technology, Yamana Gold

A second key point is to focus not on the data, but on the questions you are trying to answer. "Data is one of those initiatives that can consume an organization. While new algorithms can sift through the waste, it's better to know what you want from the data before you begin retrieving it." When embarking on any data program, you need to know what you want the data to tell you. "Companies that do this best have a real question they want their data to answer. That's the secret. Start with one genuine question and build on that."

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Corey Cox has a similar approach to separating the wheat from the chaff when it comes to sensor data. "Trucks these days are really computers on wheels. They provide far more data than we could ever manage. Rather than looking at all the data we have, we determine what's essential and look for ways to make it actionable." Best practice, says Cox, is merging different sets of data to gain insights that would not otherwise be available. However, this can lead to massive amounts of data with a challenge of how to find the real insights.

Cox's approach is a mixture of creativity, curiosity and reducing volume down to symbols that communicate meaning. For example, Tandet takes the data for speed, adds sensors that detect g-force (in this case, the force of acceleration) and combines that with camera images taken before and after g-force occurs. That information is reduced to three colours on truck dashboard — green, yellow, and red. Drivers instantly see when something goes wrong and have the opportunity to modify their behavior in real time. "It's not about catching someone making a mistake," says Cox. "It's about recognizing unsafe practices and changing behaviour."

**LESSONS LEARNED:**

- Embrace contradictions – the answer to too much data may be more data.
- The key is to focus not on the volume of data from any single source, but how the correlation of several data sources could answer your questions.
- Emphasize how you can exploit correlations to reduce output in ways that influence behavior in real time.
- Focus on behavioural change rather than using metrics to police or punish.

Combining different types of data is also part of Ted Maulucci's strategy for cutting through sensor data. "Using a (seniors) fall sensor on its own results in so many false positives that it almost becomes useless," he says. Maulucci combines multiple sensor streams to find unseen correlations — again driven by key questions and use cases. "You need a lot of data and you need to cross-reference it," he says. "By using a fall sensor in conjunction with motion sensors, the results are far more dependable."

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# THE GOVERNANCE DILEMMA

**Number of Words:** 363

**Read Time:** 2 minutes

## THE CHALLENGE:

How do we build effective data governance structures and processes?

Many companies struggle with building effective governance around their data programs. All too often governance falls short of the mark. Each of our four contributors acknowledged that effective governance was difficult. While no one claimed to have all the answers, we did get some observations that simplify the process.

Ted Maulucci saw the challenge in terms of three different layers:

- Fundamentals
- Predictive Analytics
- Innovation

The fundamentals layer is the basics and includes things like monthly reporting. This area lends itself to routine, structure and controls. But the second and third layers are truly exploratory. Maulucci notes that the second layer — predictive analytics — is "the place where most members of

the executive team start to feel uncomfortable." In real estate, this might translate to skepticism at the thought of using analytics to predict where to buy the next piece of property or how much to charge for condos on different floors and with different views.

**We have data scientists working on data analytics and AI to observe behaviour in human beings and help seniors age in their homes. The things they do are right out of Star Trek**

Ted Maulucci, President of SmartONE Solutions Inc.

The third layer, he says, is where you get real product innovation using analytics. This is where the exploration leads the corporate structures and becomes even more exploratory. "We have data scientists working on data analytics and AI to observe behaviour in human beings and help seniors age in their homes," says Maulucci. "The things they do are right out of Star Trek."

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While the first layer might lend itself to structured governance, layers two and three, by nature, progressively challenge the status quo and existing structures. In fact, Maulucci notes that expertise and structures from within the business may actually impede the analytics process. "I work with a researcher who makes his biggest breakthroughs when he delves into areas where he has little or no knowledge," says Maulucci. "As soon as he knows too much about an area, things slow down. The creativity comes when he's faced with something new."



### ADVICE:

The most exciting thing about data is how it's being used to improve the human living experience. Innovations in smart devices will allow seniors to stay in their homes for a longer period of time. The key to connecting homes on a smart home platform is to combine the data from a variety of sources, such as smartphones, panic buttons, motion sensors and alarms to ensure reliable information.

**TED MAULUCCI**, President of SmartONE Solutions Inc

### LESSONS LEARNED:

- Data and analytics programs are not the all the same. There are different layers involved in these programs.
- The first or fundamentals layer may lend itself to traditional governance and oversight, levels two and three may not be managed by traditional governance.

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# COPING WITH CHANGING PRIVACY AND SECURITY EXPECTATIONS

**Number of Words:** 252**Read Time:** Less than 2 minutes

## **THE CHALLENGE:**

**How do changing privacy and security expectations alter the way people harvest, save and use data?**

Related to the challenges of governance, privacy and security are major challenges for any analytics program. Our panel embraced the idea of designing both privacy and security directly into their processes.

Security is of prime importance to Pascal Racine, as protecting data is never more critical than in the financial industry. Racine notes that even though "we work with test data for security, there are times when we need to work with real data." Racine embraces "tokenization" and "anonymization" of data as part of their standard operating processes.

Privacy, openness and transparency are also critical to Corey Cox. "There has to be a sound business purpose to collect personal data," he says. "Whether it's regulatory compliance, personal safety, or a need to drive value, the process must be open and

transparent and employees must know how and why they are being monitored. In our case, they have access to the same data as their employer, so it shouldn't come as a surprise if management says the employee did something dangerous. The whole point is to improve performance, business objectives, and safety."

## **LESSONS LEARNED:**

- Build security and privacy into the core of your analytics
- Be transparent about the uses you are going to make of the data.
- As part of that transparency, allow data subjects access to the data that you collect
- Anonymize and tokenize data as a core part of your security

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# NEW TECHNOLOGIES AND CLOUD ARCHITECTURES

In order to stay competitive in a digital world, data and analytics leaders will need to embrace and capitalize on new technologies, like artificial intelligence (AI) and machine learning. In the fintech sector, for example, data analytics and AI can play a critical role by aggregating and using data to inform decisions that result in a competitive advantage.

Our panel was unanimous in the view that new technologies and data architectures will flip industries — and sink companies that aren't paying attention. Pascal Racine says new technologies allow his firm to look at new ways to make connections and serve customers. "At Croesus, we have built a powerful data analytics tool that our clients leverage to compare data points," he explains. "For instance, our clients can use analytics to compare one financial advisor's performance to another, or identify trends in demographic data to determine the best location for a new branch."

As a way of introducing the capabilities of machine learning into a mining operation, Yamana Gold's head of innovation took some innovation specialists to a mining site in Brazil, sat down with the head of plant maintenance, and showed him examples of machine learning. "We told him how it worked and asked if he could think of ways it might be used to improve operations in the mine," says AbiDaoud. "He came up with 20 different use cases, one of which was to determine the optimal time to shut down operations in order to change the liner in the mill."

The cloud's impact on our approach to data analytics was also an important issue for all four panelists, with the storage of data a key consideration for Ted Maulucci. "In any decision about cloud storage, it's important to evaluate what's really required," he says. "In a smart building, for example, it's sometimes better to go with an on-premises server — especially in locations where the Internet is unreliable. Onsite servers do the heavy lifting, but we use the cloud for things like snapshot backup."

Corey Cox describes a similar mix of local and cloud. "Tandet uses a hyper converged infrastructure technology provided by cloud providers," he says. "We get the peace of mind of on-premises without the need for as much internal expertise."

Cloud storage is a given for Racine. The more pressing issue in the financial sector is where that storage occurs. "Our clients want their data stored in Canada," he says. "Fortunately, that is less of an issue because the major players — AWS, Google and Microsoft Azure — have storage facilities here."

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ABOUT

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According to ITWC's *CanadianCIO* Census, data and data analytics will have an enormous impact in the coming years. New technologies, particularly Artificial Intelligence will only accelerate that. While many data analytics programs are struggling to achieve the value promised, for those who are prepared to focus on the key questions, roll up their sleeves and engage creatively, there are real and measurable benefits to be gained from existing programs.

The real value of analytics is most clearly shown in pilot projects that answer key business questions. The CIO must engage with the executive and the business to find those difficult questions and ask "what if?" While there is a risk in raising expectations, it's possible to use controlled pilot programs to demonstrate value and build partnerships.

While partnerships with the business and executive group are essential, it is important to challenge current ideas and preconceptions. The relentless pursuit of root causes is as essential as challenging

**If your predictive data isn't shaking things up, it isn't doing its job.**

Jim Love, CIO, ITWC

ourselves to be curious and creative in our approaches. "Creating insights is what it's all about," says Jim Love. "If your predictive data isn't shaking things up, it isn't doing its job."

INTRODUCTION

THE IMPORTANCE  
OF DATA

LESSONS  
LEARNED

1

MAKING THE BUSINESS  
CASE FOR DATA

2

USING DATA TO ADVANCE  
CORPORATE STRATEGY

3

THE DILEMMA OF  
UNSTRUCTURED DATA

4

DIVING FOR THE  
CROWN JEWELS

5

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## ABOUT CanadianCIO

*CanadianCIO* is Canada's premier digital publication exploring relevant and emerging technologies and the related business and operational issues facing senior executives. It is the IT professional's source for understanding the technology landscape and the strategies and solutions needed to deliver on business outcomes.

## ABOUT COGECO PEER1

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