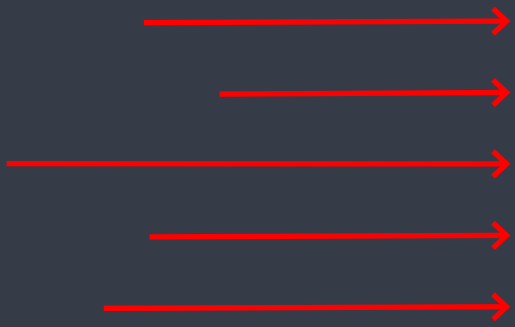

The Data Strategy Playbook

A CIO's practical guide to driving change

By **John Gallant**
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commissioned
by Informatica®

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Foreword

This is, without doubt, a very exciting time to be a CIO.

My own IT career has spanned some massive changes; client-server, the PC era, the Big Apps (ERP and CRM), the Internet, the cloud. But as profound and impactful as they all were, they now feel like mere building blocks, laying the foundation for the current revolution: the data revolution.

Enterprises of all sizes are seeing what it really means to harness the disruptive power of data. And the potential is virtually infinite. For driving inefficiency out of every business process; for minimizing and mitigating risk; and for the biggest wins of all: inventing new business models, new customer experiences, and entirely new markets. Leveraging your data no longer just supports the business—it's the future of the business.

But data's ubiquity and versatility create a challenge: No enterprise can do everything at once. To effectively harness the power of data, every enterprise needs an outcome-driven data strategy. And for that, you need the CIO.

CIOs spend their careers looking across processes and systems, thinking holistically across enterprise boundaries while simultaneously understanding the new technologies and systems needed to empower people to make better, faster decisions.

But a CIO can't just sit down and create a data strategy—something that has to cross every functional, organizational, and operational boundary and resolve conflicting business goals.

After 25 years of helping customers leverage their data, we understand the value of data strategy. So we commissioned this playbook to help CIOs build data strategies that drive change.

The authors talked to 10 CIOs and enterprise data experts to get their views on the shifting landscape, critical challenges, and emerging opportunities. The result is a powerful, practical guide to one of the most important topics facing every CIO today.

I'd like to thank the CIOs who shared their experiences and knowledge and who continue to contribute to the wider conversation around data strategy.

This is an exciting time.
And, as CIOs, this is *our* time.

Graeme Thompson
SVP and CIO, Informatica

About the authors

John Gallant is a seasoned journalist and analyst with more than 30 years of involvement in the technology industry. Most recently, John was senior vice president and chief content officer of IDG US Media. In this role, he worked with the editorial leaders of IDG's CIO, CSO, Computerworld, Greenbot, InfoWorld, JavaWorld, Macworld, Network World, PCWorld, and TechHive titles. One of Network World's founders, John was formerly CEO and editorial director for that company. He also co-chairs the executive committee of the 1,000+ member Boston College Technology and Entrepreneurship Council (East) and serves as vice president on the board of Dream Big!, a nonprofit that helps underprivileged girls build confidence through athletics. (www.dream-big.org)

Kevin Fleet is vice president of Informatica's professional services organization, responsible for global delivery of customer adoption services. Prior to joining Informatica, Kevin was executive director of Global Data Management at Pfizer. As the global lead for data management, he also chaired the Pfizer Data Governance Council, and was the de facto chief data officer, responsible for driving data strategy across the Pfizer organization. Kevin's technology career spans over 20 years working in both business and technical capacities across various industries, including manufacturing, technology services, life sciences, and healthcare.

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What is a data strategy
and why do you need one now?

You don't need us to tell you that data-driven transformation is the new imperative for every CIO:

- **There's never been so much data to work with.**
  And the volume, variety, and velocity just keep increasing.

- **There have never been more users and consumers of data.**
  In every department, managers and (often non-technical) decision-makers are hungry for trusted, actionable data.

- **There have never been more examples of data-driven disruption.**
  Virtually every market has been shaken to its roots by new players who deploy and harness data in new ways.

Clearly, the ability to unleash the power of data is a strategic success factor for every enterprise today. And that begs the question:

If data is so strategic, why do so few large enterprises have a data strategy?

The answer is probably a simple one: Very few people know what a data strategy *is*, much less how to develop one. That shouldn't be surprising. Most enterprises have struggled simply to keep up with the explosion of corporate information—not to mention external data like social media—and are only beginning to explore how mining this asset can change their businesses and deliver great outcomes.

As Jim Swanson, CIO of Monsanto, says, "We have to educate our business partners about the data they have, the gaps in that data, and the relationship to the decisions they're making based on it."

Companies with data-centric business models—like Airbnb and Tesla—have grown up with data strategy embedded in their business strategy. But more traditional companies don't have that advantage and are now looking to address data as a more central component of how they do business.

The most critical of critical success factors

Over the last decade, we've seen hundreds of companies grapple with their fragmented data assets. And we're now more convinced than ever that the missing piece is a data strategy.

We're also convinced that CIOs, and (for more and more companies) chief data officers, are the natural leaders of this essential initiative.

This playbook is intended to help CIOs, CDOs, enterprise architects, and IT strategists understand data strategy—what it is, why you need one, how to build one, and how to align the organization around it.

We'll also explore how to choose the right first projects so you can find quick wins and build on these early successes.

The advice to follow doesn't just come from our own front-line experiences. It also comes from interviews with CIOs who've shared their hard-won lessons about creating and implementing a data strategy.

We hope you get value from the work.

Data drives digital transformation

All the most important digital transformations happening today can be boiled down to leveraging data to overcome challenges and create new opportunities, including:

- Customer centricity
- Business model innovation
- Big data and analytics
- Cloud migration
- Security
- Compliance
- Risk management

Similarly, the technologies showing the most promise today —from artificial intelligence to predictive analytics to the Internet of Things—are essentially new ways to collect and process data, then deploy the resulting insights.

These active fronts all reflect an underlying trend that's disrupting every industry (music, transportation, hospitality ...): the shift from physical to digital assets. To data.

What is a data strategy?

We've seen a lot of documents with the words "Data Strategy" on the top. Only a few have actually reflected this simple definition:

A data strategy defines how an organization achieves specific business goals through the strategic use of its data assets.

A data strategy sits between the overall business strategy and the data management or data governance strategy. It's about how your organization will maximize its data leverage to generate the greatest business impact.

Informatica CIO Graeme Thompson sums it up: "The best data strategies aren't really data strategies. They're business-problem strategies."

This table, with greatly simplified strategic statements, demonstrates how data strategy translates business strategy into specific actions, initiatives, and infrastructure decisions:

> **Mapping strategies**
> *In connecting business strategies to the data strategy, it's important to look at the processes affected and the elements of the data strategy that will drive the business outcome.*

Business strategy	Processes affected	Data strategy components
Make our products easier to try and buy	Opportunity to quote Order to cash	Integrate free trial and order systems Build model to better predict conversion
Increase decision-making speed and accuracy	Supply chain Product returns	Build 'single view of the customer' capability Abstract data from applications Develop predictive models for key variables and metrics

Improve customer satisfaction and customer retention	Customer acquisition Customer service Customer support	Create customer-centric business processes Build a 360° view of the customer Mine social data for customer sentiment
Increase profitability and reduce cost of sales/support	Opportunity to quote Order to cash	Create an integrated view of sales, marketing, and support activities
Differentiate our product offering	Product development Portfolio and brand management	Create a competitive market analytics platform
Improve regulatory compliance	Corporate governance Financial management	Establish a data inventory and enterprise data governance

The benefits of a data strategy

Board members are excited about how data can drive company value. They look at companies like Google, Amazon, and Facebook and realize those digital giants have become so highly valued because of the data they have and their ability to leverage that data.

As Keith Sturgill, CIO of Eastman Chemical, puts it, "We need to drive a step change improvement in the speed and quality of the decisions we make every day to operate the company."

Companies that are serious about managing and leveraging data—treating it as an actual asset—deliver more value to shareholders. For these companies, data strategy is a means toward many ends, including these:

→ **Accelerate all digital transformations.**
Making faster, better decisions that execute business strategy.

→ **Improve business agility.**
Allowing the business to pivot fast in response to change.

- **Become a customer-centric company.** Using data to better understand customers.
- **Seize new opportunities.** Deploying disruptive business models and exploiting new technologies.
- **Focus resources on value creation.** Streamlining and automating processes to free up talent.
- **Earn continued commitment from business partners.** Promoting the endgame while showing value every step of the way.

Any one of these would make the case for a clear, sound data strategy. Taken together, the value is indisputable.

The CIO in transition

IT has changed from focusing on improving the productivity of a long list of internal business functions to partnering with line-of-business peers to use technology to transform the business.

This is a fork in the road for CIOs: Lead this major strategic change and become the driving force of your enterprise's most strategic initiatives, or stick to the old model: providing IT services to business stakeholders.

No one is better placed to help seize the data opportunity. A CIO sees the enterprise as a connected system of processes and applications, and understands the technologies available to unleash the power of data. No one else in the enterprise combines these perspectives.

The rise of the CDO

As data moves up the corporate agenda, a new role is emerging: the chief data officer. The role of the CDO varies widely across companies, but a common theme is the responsibility for driving alignment across the organization and finding the most valuable ways to leverage data for the business. Many IT professionals aspire to be CDOs—an ambition that clearly demands close alignment to the business.

The first CDOs tended to be confined to a risk-averse, compliance-focused role. Increasingly, with just over half of all large enterprises having created the role, CDOs are taking ownership of data strategies and data governance programs that are far more ambitious and proactive.

Whether reporting in to CIOs or directly to CEOs or elsewhere, these new CDOs will play an increasingly important role in enterprise transformation.

"The CIO is the ideal catalyst for the movement. They're in the perfect position because they know how to host and manage all this data, and they're also at the forefront of the business, looking to take more advantage of that information."

Juan Tello
Principal, Deloitte Consulting LLP

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Starting the data strategy discussion

A collaborative approach

Great data strategies start with great conversations.

Because data strategy ultimately touches everyone in the company, you can't sit in a room and write one on your own. It's far too important and complex to be approached as an IT initiative.

A new kind of collaboration

Traditionally, the CIO served the different business functions by going around to department heads, taking their requests, and going back to prioritize the list of technology requirements.

When creating a data strategy, the collaboration between business and IT has to be about solving problems together, from the very beginning and throughout the journey.

→ **Business stakeholders bring domain expertise.**
They own the targets and they understand the business processes that combine to deliver those targets. Business stakeholders know their customers. And they know the most important questions that need answering; the critical decisions they need to make more quickly; the critical processes that need to be optimized; and the real business problems that need solving immediately.

→ **IT owns the enabling technology stack.**
You understand the existing processes and systems today, as well as the potential for new technologies to enable new processes. You can determine how to apply these technologies to get those answers, accelerate decision making, and optimize those processes.

→ **Together, you can map the data.**
A data strategy must start with outcomes: What do you want to achieve? Then you work out where the relevant data resides, who has access to it, and how it flows through the processes and the organization.

If there's one unbreakable rule of data strategy, it's this: Successful data strategies are *always* an ongoing, iterative collaboration between IT and at least one business stakeholder. "Our success has come from partnering with the business to bring together information architecture, governance and security, and advanced analytics/AI," says Chris Clark, CIO of Levi Strauss & Co.

Beyond swim-lane optimization

While partnering with business leaders, CIOs still need to keep in mind the wider perspective.

Each stakeholder will have his or her own agenda. But the chances that all of these individual agendas add up to an optimized program to deliver the CEO's business strategy are close to zero. "It's important to engage each stakeholder in the process," says Monsanto CIO Jim Swanson. "Help them to think beyond their silo and to look horizontally as well."

While solving specific problems with key stakeholders, the CIO and CDO must fit these projects into the wider business picture, integrating and aligning otherwise siloed programs into a more cohesive fabric.

An enterprise data strategy is all about looking beyond "swim-lane optimization" to the most important business goals and the widest definition of business value. In this way, data strategy must balance short-term goals and quick wins with longer-term success and progress toward the most strategic business goals.

"Every company wants to extract maximum value from their data," says Informatica's Graeme Thompson. "But most are trying to do it without disrupting the structure of the company. They want to avoid the political or structural challenges that come with

breaking down silos, sharing data, and thinking about processes end-to-end. But that disruption is critical to extracting maximum value from data."

Bottom-up *and* top-down

Data strategy applies both to any single project, such as better predicting customer conversion, and to enterprise-wide challenges, like becoming a more customer-centric organization. Some of the most successful data-driven companies approach it from both ends.

"The value comes from grassroots efforts, but also from a top-down approach," says Keith Sturgill, CIO of Eastman Chemical. "We're harnessing data science as we redefine our operating business model. But we're also solving immediate business problems."

The idea is to apply sound data strategy principles to granular problems, while also building toward a wider data strategy and governance program that spreads across the enterprise.

"We couldn't just advertise, 'We're going to put a data strategy together, invest in it, and talk to me in three years when I get it built,'" says Monsanto CIO Jim Swanson. "We had to show value near-term and piggyback it against some projects. But once we were able to do that in a few places, we could start to talk more holistically around a data strategy. To show that we needed to invest in these assets in a different way."

Where you start depends on the leaders in your company. If you've got a transformation-driving CEO or CFO, you could start with that person and get broad support to work with other groups to advance key corporate goals. If the CEO and CFO aren't yet data advocates, find the right partner in another department, get wins, and gain broader support as people realize what success you're having.

Either way, the key is to make sure the project-level initiatives all contribute to the bigger vision instead of pulling against it.

Think big, start small

1. Don't try to sell a big, holistic data strategy from the start.
While an enterprise-wide data strategy is an important part of the endgame, you can't start there. It's too big a task; it's far harder to get business partners to engage with you; and you haven't yet built confidence in your organization's ability to deliver value through data strategy.

"If you try to go the traditional route of building consensus across the whole company, you'll never get there," says Keith Sturgill, CIO of Eastman Chemical. "Find a way to fund it within your organizational structure, build that bonfire, then take it forward."

2. Focus on critical business opportunities or risks.
Start with the most important business challenges that can best be addressed through more effective use of data. By definition, these will be best aligned with the strategic goals of the company. But some of these challenges are better starting places than others.

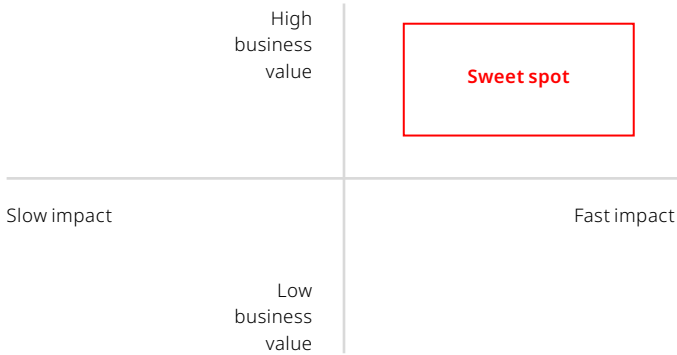
"Start with customers," says Tom Davenport, a professor at Babson College and a fellow of the MIT Initiative on the Digital Economy. "Ask, 'What do we need to do with data in order to serve customers better?'"

3. Look for quick wins.
Nothing gets people on board faster than some quick, clear data strategy wins. Better prediction of customer churn. Reducing product returns. Accelerating the supply chain. Improving regulatory compliance. These are the kinds of wins that get attention and earn support for more investment in data strategy.

"Pick one area that's really important to the success of the company, and deliver value quickly," says Davenport. "People don't have a lot of patience for this stuff if it isn't delivering short-term value."

Graeme Thompson agrees. "There isn't time for six months of theorizing before you start. You have to actually start somewhere and show success."

But starting small doesn't mean forgetting your bigger vision. Ideally, you want to find quick wins that move you toward your overarching enterprise data strategy. Consciously use these important early projects as building blocks for your bigger play.



4. Keep everyone's eyes on the prize.
Data-driven digital transformation is hard. You're asking people to change the way they work and the processes they understand. To make it through, you need to evangelize a clear vision of the end goal.

You want your business partners to understand your long-term roadmap—but the roadmap can't be just phases of a big, vague project. To succeed, your roadmap needs to be a series of incremental business-value successes, each building on the one before. Lay out your vision as "wins," not just "steps."

The key stakeholders

For top-down, enterprise-wide data strategy, you need the support of the only stakeholders who see across the entire business: the CEO and CFO.

But even if you're starting with smaller, bottom-up initiatives, you want these two key leaders on your side, understanding where you're going and where you plan to start. Let's look at each:

The CEO

Because your data strategy will be a critical driver of any successful execution of business strategy, it's essential to get the buy-in and backing of the CEO.

To do that, you need to connect your data strategy directly to stated corporate objectives. "Tying your data strategy to the top priorities of the company is the way to get the support," says Dion Hinchcliffe, VP and senior analyst at Constellation Research.

A CEO Buy-in Checklist

- ☐ Start with his or her stated priorities.
- ☐ Show how accessible, trusted, fit-for-purpose data drives each one.
- ☐ Show the common ground: How a data strategy will be the foundation for all.
- ☐ Outline what your data strategy will look like.
- ☐ Discuss your recommended first projects.
- ☐ Establish the metrics of success and how you'll report them.
- ☐ Outline what you need from the CEO's office.

The CFO

Just as important as the CEO is the CFO. Alignment here will smooth out many potential bumps in the road.

Like you, CFOs have a broad enterprise perspective, so they will want to see that you're thinking beyond individual projects (and far beyond IT) as you develop your data strategy. The first part of the conversation should be about how so much of your company's value is tied up in information assets that aren't on the balance sheet.

As you work with business partners to rethink processes and data flows, many of your initiatives will touch the core financial systems and processes. The current systems have been built for the current state of business. To reach the target state, you'll need to make changes.

For example, many systems are not set up to support a subscription business model, but across industries the subscription economy is requiring many businesses to offer subscription services or risk being disrupted by competitors. Today, GE has wrapped industrial technologies, like jet engines, with data and digital solutions to create as-a-service packages. Similarly, many software companies are migrating

from license sales to subscription-based services. Your CFO would be on the front line to determine how to support this, and would need your help.

"We found opportunities to get our best data science folks in front of leadership teams, like our CFO leadership forum," says Eastman Chemical's Keith Sturgill. "Then let them tell the story about how we're making better decisions that translate directly into business results."

Line-of-business heads

For your early, bottom-up data strategy programs, you'll be working with the heads of different business functions. Your strategy will vary for each, as you align to their most pressing challenges.

Since they generate the company's revenue, Sales and Marketing are often great places to start your data strategy journey. Show them how data can be better used to increase revenue, then deliver on that promise.

CIOs we spoke with shared success stories in working with research and development, sales, marketing, supply chain—virtually every corporate function. The trick is identifying line-of-business leaders who are receptive to new ways of looking at difficult problems or attacking new opportunities, and quickly helping stack up some data-driven successes.

"80% of line-of-business respondents see CIOs as strategic advisors and consultants."

State of the CIO 2018
IDG

This isn't about data.

Remember, none of these stakeholders are in the market for a data strategy. They have their own agendas, challenges, problems, and opportunities. Like you, they ultimately want to make the business successful. You'll succeed to the degree you can align your efforts, and measures of success, with theirs.

Evangelizing a strategic approach to data is about change management—and that starts with understanding your stakeholders before selling the need for a data strategy. "This isn't about a monolithic program or initiative. It's about identifying existing business strategies and objectives and showing how data can achieve greater outcomes," says Deloitte Consulting LLP's Juan Tello.

Checklist: Holding your first data strategy conversations
A suggested agenda for your first meetings with stakeholders:

- ☐ **Set the context.** Show you're here to deliver business outcomes.
- ☐ **Learn their goals, target state, and key obstacles.** Understand *why* they need to solve these challenges. You can identify these opportunities by asking things like: What's the one question about our customers you wish you could answer? Or, what one problem would you love to solve right now?
- ☐ **Understand their core processes.** Start with a broad view, then drill down in later discussions. An example for Sales and Marketing: Find out how opportunities are created and converted.
- ☐ **Capture their metrics and the language of success.** Design your strategy to move these metrics—and use their language in all your planning.
- ☐ **Define the outcomes and milestones together.** Agree on what *good* looks like and the milestones that will show you're getting there.
- ☐ **Look for the most likely gaps and traps.** You don't need a thorough gap analysis yet, but try to get a sense of the big challenges and where the most work will have to happen. Moving ahead with a data strategy project before determining whether you have the right information in the right condition to support the project can lead to failure.
- ☐ **Encourage a wider perspective.** Show how the capabilities discussed touch other processes, departments, and stakeholders. Discuss why compromise in their domain might contribute to achieving the CEO's goals.
- ☐ **Agree on next steps.** Don't leave without clear actions for both sides. Start thinking about the team you'll need to assemble.
- ☐ **Summarize the meeting in writing.** Capture the entire conversation and the next steps, whether in a meeting report or an informal email. Circle back to see that it accurately reflects the discussion.
- ☐ **Communicate regularly.** After the meeting, work hand-in-hand with your business partner as the data strategy project rolls out. What's working and not working? How should you iterate the project based on early learnings? Make these decisions together.

Q&A

Raising analytical competence for a real-time business

Keith Sturgill
CIO, Eastman Chemical

What does being a data-driven company mean to you?

This is a decision-first mindset. We ask, "What are the decisions that we need to make to win in the marketplace, to better serve our customers, to better manage our supply chain?" Then we define the data, processes, and technologies that support those decisions.

How did you bring data and analytics into play?

We looked across the company to find people with a unique talent: a combination of real business knowledge and deep analytical capabilities. These are pretty rare people.

We started by giving these people a lot of latitude to go out and work with the businesses, with very few constraints on what they worked on. Just go out and help improve our decision-making. The results have been pretty phenomenal.

How did you get buy-in for this approach?

We saw the need coming but recognized, frankly, that making this pitch to invest in this area formally would take too long and the chances of success were low.

So we freed up money with cost-cutting and used it to form the original data science group. We didn't ask permission, we just did it.

We just needed to build the capability and prove the value. It's easy to blow out a match. It's a lot harder to blow out a bonfire.

Any quick wins that built momentum for this approach?

One example: We teamed with the business to come up with a predictive model that would help the sales organization target the right customers for a specific product line. For instance, predicting when a customer would likely be making the decision about this kind of product. We found that we improved the success rate

by greater than 50 percent and generated tremendous sales opportunities. That was huge.

What kind of culture change is needed to really make progress with data strategy?

For us, the CEO and the full executive suite had to become champions of running a business in real time.

The traditional way to run a business is with spreadsheets everywhere, with data that's massaged and interpreted and abstracted as it goes up the line, until there's an executive-level view of that information.

That's just too slow for the current world. Agility trumps process. And agility is fed by running a business with real-time information. So the C suite sees information at exactly the same time as the front-line sales manager sees it.

That's a cultural shift more than a technology shift. The CEO has got to be the advocate for insisting that you run the business in real time. And that's a big shift.

Once that real-time imperative is there, what role does the CIO team play?

We're taking responsibility for raising the *analytical competence* of the company.

The base level of analytical capability has got to rise dramatically in the next five years. So the CIO, working with the CEO and the head of HR, should take ownership of that. I picture a certain level of data science in every business, in every function, working very closely with our center of excellence to raise everyone's analytical competency.

"Agility trumps process. And agility is fed by running a business with real-time information."

Keith Sturgill

Any advice for CIOs embarking on a data-driven digital transformation?

Value agility over certainty. Value agility over process. Value agility over technology. To do this, I'd advocate a people strategy: Define the chief data scientist role and give them a lot of rope. If you've got the right person, or people, give them a lot of rope and be prepared to be amazed at what comes out of it.

03

Scoping your first data strategies to find your first wins

Broadly, there are two ways to structure and scope your first data strategy initiative: by department, and by business capability.

By department
Where the initiative serves a specific department (e.g., Procurement, Finance, Marketing ...) and the processes it owns and controls.

Pros

- Simpler change management
- Fewer stakeholders
- Fewer data sources and users

Cons

- May limit business impact
- May cause unexpected impacts to other processes and teams
- Harder to align to the highest business goals

Informatica's Road Trip: First steps

Informatica is on a major digital transformation journey, from primarily a license-and-maintenance pricing model with on-premises software, to primarily a subscription model with both cloud and on-premises solutions.

That simple-sounding change is actually a complex transformation that touches every department and hundreds of processes across the company. The IT team calls their transformation "Road Trip," and uses this metaphor to help discuss the journey with key stakeholders.

"Road Trip started with the big business objective. We had to quickly translate that into a data strategy and map the first leg of the trip: the first project we'd tackle," says CIO Graeme Thompson. "We started with our opportunity management and forecasting capability—10 different processes—because it was an 82-day win, it involved major impact on a revenue-driving area, and our business partners were totally on-board."

By business capability
Where the initiative focuses on a discrete business capability or process that crosses departments and disciplines, such as "opportunity to order" (crossing Marketing and Sales) or "order to cash" (bridging Sales and Finance).

Pros

→ Targets whole systems

→ Optimizes for outcomes, not silos

→ Aligns naturally with highest business goals

Cons

→ More complexity

→ More data stores to integrate and rationalize

→ More stakeholders to align

The decision about which route to take for your first data strategy projects might come down to things like the state of the data you'll be working with (see chapter 4, on gap analysis) and the commitment of the stakeholders involved.

If these factors are equal, we tend to favor a business capability orientation for the biggest wins, and departmental for the quickest.

Department or capability approach?
In choosing your early data strategy initiatives, ask yourself these questions:

- ☐ What's the right balance between speed of results (which suggests going the departmental route) and size of payoff (indicating the capability approach)?
- ☐ How committed and aligned are the stakeholder partners?
- ☐ What is the state of the data today? How much time must be spent wrangling it into shape?
- ☐ Does the project contribute to your wider data strategy or is it an outlier?
- ☐ Will the tactics, tools, and processes be reusable elsewhere?
- ☐ How visible and quantifiable will the results be?

The plan: Building your data strategy

Translating your chosen business goals into a data strategy will be highly specific, tailored to your situation. But whether for a bottom-up initiative or an enterprise-wide one, a data strategy works like the GPS system in your car. You need to do three things:

1. Establish where you are today.

The first thing your GPS does when you turn it on is contact the satellite and determine your current position. For your data strategy, you need to know the current state of the business and try to capture it in a sentence or two, with a focus on the things that need to change.

Example: "*Today we sell licensed software and maintenance contracts.*"

You then have to thoroughly understand the way things work today. What data drives which processes? How does the data flow? What are the dependencies and integrations? What's the data quality status? How is it maintained?

"We sign contracts, issue license keys, install servers, set up support, etc."
"We use a data warehouse that imports ERP data and exports to CRM ..."

Too often, data strategy documents say nothing about inventory. How do you manage any kind of asset if you have no inventory of it? Companies spend millions tracking all sorts of physical assets but too often leave their data assets undiscovered.

Thomas Redman, author and principal of the Data Quality Solutions consultancy, talks about the importance of exposing the "hidden data factories" that often feed processes (or could feed them if they were made known).

Venkatesh Anandaram, senior director of Business Intelligence, Analytics, and Big Data at Levi Strauss & Co., says, "We need to understand where the business is and what it needs to accomplish. What are the KPIs that will be measured? What makes up that KPI? Then we look at the data we already have in place. And that's how we start the map."

2. Decide where you want to go.

After establishing your car's current location, your GPS asks you for a destination. Similarly, once you understand the current state of the business area you're addressing, you need to agree on a clear end state—the business outcomes you want to achieve. Instead of making this a technical target (e.g., "we need to consolidate six CRM instances into one"), it should start with the business imperative.

"We need to determine why customers don't renew their contracts."
"We need to move 70 percent of our transactions online within two years."
"We'd like to reduce product returns."
"We need to predict customer churn earlier and more accurately."

Once a clear goal is agreed upon, you need to understand what processes will have to change to achieve it.

"We'll need to rethink our opportunity-to-order capability to move transactions online and enable the free trial."
"We'll need a single view of all supplier contracts to aggregate spend effectively."

That will also mean determining which systems and processes will be affected.

"We'll have to unify our six CRM systems into one."
"We'll need a central customer data store."
"We'll redesign the order entry system and process for Sales."

Graeme Thompson of Informatica says, "If IT is essentially delivering a capability to the business, we should have a roadmap, just like a product team would."

Automate your data discovery

Discovering and evaluating all the data stores in an organization can be a time-consuming, manual task. Fortunately, tools exist to automate it, using machine-learning-based discovery engines to scan and catalog data assets across the enterprise—including data that lives in the cloud, on-premises, and across big data stores.

3. Map the best route to get there.

Finally, your car's GPS gives you the suggested route. This is where your data strategy gets specific, identifying the things you'll need to do to enable the desired change.

This action list should be specific and actionable:

"We'll re-platform to a new CRM implementation."
"We'll build a customer data lake using Hadoop and feed it from CRM and transaction systems."
"We'll centralize our compliance-sensitive data and track its movements."
"We'll feed three existing and two new data sources into a predictive model to identify customers with high churn risk."

Of course, the specific actions you choose at the start of a data-driven transformation may well change along the way. You may discover new obstacles or generate better ideas. The point is not to lock your team into the program, it's to get aligned on goals and direction.

The simple GPS analogy can guide even the most complex data strategies. Know where you are. Agree on where you want to go. Agree on the steps you'll take to get there.

"A holistic strategy starts with cataloging the data you have," says Graeme Thompson. "Figure out where the data is created, whether it's moved, where it's moved, who has access to it ... then you can start to see the need for an overall framework or platform to address the issues."

Offense and defense

Data-driven digital transformation opportunities can be grouped into two big buckets:

Offense: The upside opportunities such as powering innovative customer experiences or new business models.

Defense: The risk-reducing or money-saving opportunities, such as improved compliance and smarter security.

Determining whether your efforts are offensive or defensive often reflects whether you're reacting or leading. If you're the disruptor, a new customer experience will be an offensive play. If you're catching up to a startup, the same change may be a defensive move to regain parity.

Babson College's Tom Davenport explains, "This offense or defense question can guide your data strategy. For some, the primary priority is to make money with data—like scoring points in a sport. For others, it's about preventing bad things from happening—like preventing the other team from scoring."

Communicating your data strategy

Once your strategy is written, you need to communicate it to the key stakeholders in the business—including the leaders and the front-line users whose areas are being directly affected.

We've seen many different approaches to communicating data strategies, from all-hands meetings and scheduled company webinars to small-team workshops, intranet videos, and internal blog posts or FAQs.

The key is to give the context of the strategy. Lead with why it's needed, what business goals it aligns to and how it will affect the people concerned. Outline the KPIs you'll use to measure the program. And explain the friction that inevitably comes with change and actively enlist everyone's support.

Then communicate your progress at regular intervals. Let people know how things are going, outline any pivots you've had to make, and keep everyone's eyes on the prize: The business benefits that make this journey worthwhile.

An experiment in predictive analytics

A bank in Europe started a major data strategy by running an experiment. Working with only three months of data in a data lake, the bank built a model that was able to predict with 70 percent accuracy which customers were about to switch their mortgages to a new provider. The experiment paved the way for big investment in predictive analytics to prevent customer defection in new ways.

It's a great example of starting small but thinking big, with an initial project of manageable size that's tightly aligned to a bigger, strategic goal.

Q&A

Creating a data-driven culture at Monsanto

Jim Swanson
CIO, Monsanto

Andrew Montgomery
Information Asset and Data Director, Monsanto

What does digital transformation mean at Monsanto?

Jim: One of the big opportunities was to talk about digital as a company objective—how we look at digital and data holistically across the enterprise. When I first joined, I noticed we were doing some pretty unique and novel things with data in our R&D, and you'd expect that from an IP-based science company.

So, we took a look at what we could do not only in R&D but in our supply chain and our commercial and enterprise groups like Finance, HR, and others.

How did you start to drive such wide-ranging change?

Jim: You've got to be thoughtful about how you do it. We had to show value near-term, and we had to piggyback it against some projects.

Once we were able to do that in a few places, we could start to talk more holistically around a data strategy. To show that we needed to invest in these assets in a different way. To start to create a group around it. And also to educate our business partners about how many gaps they have in their data. That's been an iterative journey.

How do you engage your business stakeholders in this transformation?

Jim: With R&D, we already had a set of strong advocates. For them, it was really about getting them thinking beyond their silos and looking horizontally.

In supply chain, we used the R&D examples to open doors. I connected with the new head [of supply chain] really early around transforming supply chain, reducing friction points with our customers, and providing better end-to-end visibility.

We're now trying to consolidate data at an enterprise scale and we've taken a fully agile, iterative approach. Doing it in pieces, giving them minimal viable products so they can see the value, and then scaling those over time.

Andrew: Iterative value realization is core. Going for quick wins and demonstrating the power of data.

When we brought our learnings with R&D to supply chain, we could show how the field insights from R&D could be applied to supply chain problems. Showing quick wins and a clear path created momentum and trust.

> **"We needed to look at our skillsets and make a big shift from being system-driven, data-management-type folks to being more like software engineers."**
>
> Andrew Montgomery

Can you give an example of a data strategy decision you've made?

Jim: We decided to abstract our data from the applications—to make data independent and available. We do that through APIs. So underneath a customer asset, there may be a whole bunch of different databases, but we're exposing customer information through a set of APIs so users don't have to understand the underlying databases and architectures.

We've served over a billion API calls against our data assets today. So the adoption is going in the right direction.

Another is our data science layer. We want to apply models to everything that we do, and to embed those models into our applications and workflows. You have to arm the models with data, so you need data to be accessible across the enterprise. That means building a solid infrastructure, using cloud compute, good networking, and good employee tools.

What kind of skill gaps did you have to address along this journey?

Andrew: I've been at Monsanto for 12 years, and the kind of work we're doing now is leaps and bounds away from the work we were doing before. We had to look at our IT organization against these new types of challenges.

We're pushing the boundaries. We needed to look at our skillsets and make a big shift from being system-driven, data-management-type folks to being more like software engineers—because the way we provision infrastructure in this new cloud-based, modern, digital infrastructure is very different.

What advice would you give a CIO embarking on data-driven digital transformation programs?

Jim: I have one "do" and one "don't":

Don't sell a data strategy on its own. It's just not going to work. It's got to be coupled with a broader strategy that the data strategy fits into.

And do put the right people around this. People who don't just understand data but really understand how to influence the organization and to engage the business owners of the data. You've got to demonstrate value and you've got to have the right people wrapped around it to be able to evolve that strategy.

Andrew: Mine would be: The data is what the data is. Find new ways to leverage the data you have; it's the one bedrock resource that you have to leverage, and everything is built from it.

And a second one is: Don't be afraid to fail and to pivot. On the way, you may discover something in the data that leads you down a different path.

Jim: You're never going to get perfect data. You have to be able to work in an imperfect world, knowing you're going to curate the data over time.

This is a never-ending journey. It's never perfect. You're always learning and evolving.

Don't sell a data strategy on its own. It's just not going to work. It's got to be coupled with a broader strategy that the data strategy fits into.

Jim Swanson

04

Conducting a gap analysis
to identify action areas

Once you've outlined your initial data strategy projects, you need to determine whether you've got the information and skills needed to answer those key questions and solve those business-critical problems. You need to do some gap analysis work.

Graeme Thompson and the Informatica team identified three main areas to focus on:

1. **Data access gaps**
How accessible is your business-critical data? How ready to use is it? How can you improve the availability and fitness of your data—not just for this project but for all projects? Is there data outside the company that might help drive better decisions?

2. **Data quality gaps**
What shape is your data in? How is it governed? Who are the stewards and how do they administer the data stores? How can you improve the data quality for all users and applications?

3. **Skills gap**
Are analytical skills and capabilities in the right places? How will insights be generated and used? Are data stewards up to speed on best-practice data management and governance? Are data consumers and generators aware of data policies and processes?

Your data strategy should look at all three of these focus areas, making sure you're including specific actions to address all three.

The CEB Gartner Leadership Council report, "Data Investments as a Competitive Advantage," created this chart to summarize the Informatica approach:

Information					
Access		**Quality**		**Analytical capability**	
Issues	**Recommended improvement**	**Issues**	**Recommended improvement**	**Issues**	**Recommended improvement**
Disconnected data sources	Data integration	Poor data governance	Defined data standards	Report formatting	Visualization improvement
Number of data editors	Access management	Lack of data owners	Data stewardship roles	Unfamiliarity with the tool	Analytics training
Number of data sources	Consolidated data across cloud and on-premises systems	Inaccurate data	Data entry procedures	Unfamiliarity with the data	Analytics training

Data Investments as a Competitive Advantage CEB IT Leadership Council

External data gaps

Sometimes the gap in your data can be filled with data from outside the company. Data strategy documents rarely contain any notion of curating external data. There are millions of available public data sources, thousands of data brokers, and all but uncountable numbers of social media data points. But you rarely see a data curator tasked to identify external data sources and make them available internally.

Root causes of gaps

In any data-driven transformation program, it helps to trace the root cause of the gaps that your analysis exposes. Otherwise, you're just treating the symptoms. Some examples:

Data governance issues

Most enterprise data lives in a silo somewhere. And silos lead to inconsistent definitions of core business concepts.

Good data governance—a foundational process for data strategy—solves this fragmentation, aligning the business around core definitions. (See the next chapter, on data governance.)

"You need alignment across all business functions in terms of how you measure the business," says Levi's Venkatesh Anandaram, "so we spent a lot of time up front getting the KPIs defined and agreed upon, across functions."

Data quality issues

The implications of bad data used to be relatively small: an inaccurate report or poor contact center experience, for example. Today, as entire businesses are often run on their underlying data, the stakes have been raised. And if the data is informing self-driving cars or medical prescription systems, the quality and reliability of the data is truly critical.

There are many root causes of data quality issues, ranging from bad data at the point of entry (as customers fill in web forms or salespeople input CRM data) to data decaying over time (as contact data goes out of date as people move) to poor metadata management (as different teams tag data differently).

Train for transformation

As AT&T reinvents itself for the cloud era, it has committed to a major, multiyear program to rapidly retrain current employees while building a culture of perpetual learning. The company has already seen an impact on time to market.

As Scott Smith, AT&T's SVP of human resources operations, put it, "You can go out to the street and hire for the skills, but we all know that the supply of technical talent is limited, and everybody is going after it. Or you can do your best to step up and reskill your existing workforce to fill the gap."

AT&T's Talent Overhaul
Harvard Business Review, October 2016

"Getting in front of data quality means creating the most important data correctly the first time," writes Thomas Redman in his book *Getting In Front on Data*, "People must step up to their responsibilities as data creators and data customers. When both make reasonable efforts to find and eliminate root causes of error, data quality improves rapidly."

Skills issues

New processes and a new data strategy will make new demands on people.

Do they have the right skills in things like data preparation, integration, quality, and security?

Spotting these issues early and addressing them through training, hiring, and policy communication can save a lot of pain.

"Part of our transformation is looking at the skillsets we had," says Jim Swanson of Monsanto. "The way we need to think about the types of databases and the way data systems communicate is fundamentally different. So we had to look at more software-oriented, full-stack engineers who can think of data as a product and an asset."

"35% of CIOs say they're facing skills shortages in business intelligence and data analytics."

State of the CIO 2018
IDG

Data value gaps

Juan Tello of Deloitte Consulting LLP is doing interesting work around calculating the value of data. He suggests identifying the data that adds the biggest value to the business—aligning most directly to business objectives—and trying to actually put a value on that data. You can then compare its value potential to the actual value you're generating from it.

"Not all data is equal," Tello says. "It pays to identify the highest value data and focus on that."

Security issues

Concerns and legislation relating to customer privacy increase every year. So do the number and kinds of attacks. With that in mind, every data strategy project must have a systematic approach to data security built into it.

With new kinds of data stores, including cloud and data lakes, the security dynamics change significantly. It's no longer just about protecting the perimeter of a data center.

"Security is a major concern and it will only get bigger," says Graeme Thompson. "You have to make sure you're controlling for security, identity, and access, and investing in these capabilities—building them into the strategy and design, not just trying to apply them afterward."

Technical issues

Legacy technologies are often the root cause of the gaps that affect data programs. Your data strategy should be relentless about retiring technical debt, streamlining and rationalizing application estates to make holistic data sharing possible.

"Technical debt is not just about legacy ERP applications and silos," Thompson says. "It can be a problem in modern cloud applications, too."

A people strategy

Applying a data science mindset to business problems calls for a unique combination of skills. At the top, you need a special kind of people to lead the effort: people who understand data science and analytics but also understand the business.

"We began with a people strategy, not a data strategy," says Keith Sturgill of Eastman Chemical. "We identified really good people with these powerful skillsets, then got them in front of people with business problems."

Clearly, traditional IT/tech skills are no longer enough for the new world.

05

Data governance across the enterprise

The big picture

Data governance plays a major role in every kind of data-driven transformation initiative and should be a big part of any data strategy. It's about treating data as the strategic asset that it is, instead of leaving its stewardship to chance, until data proliferation becomes fragmentation.

Informatica defines holistic data governance as: "A discipline to create repeatable and scalable data management policies, processes, and standards for the effective use of data."

The endgame is clear: trusted, secure, actionable data that's available at the point of need. And to do that, you need to operationalize the core data governance processes of discovery, definition, policy application, measurement, and monitoring.

"If you value your data, you care about the governance around it," Graeme Thompson says.

Avoiding getting bogged down

As important as data governance is, don't allow it to become a black hole for your data strategy, sucking up all available time and delaying business impact.

Instead, we recommend an iterative and collaborative approach to data governance—applying it in projects as needed, then scaling it up to an enterprise-wide program as it makes sense.

Governance platforms can accelerate the process by using machine learning to automatically deduce data domains (e.g., people or products) across databases, then identify and cluster all similar data objects.

"Companies should take a collaborative approach to governance, establishing a committee comprised of a mix of IT and business professionals. This team, increasingly led by a chief data officer, should serve as steward of the policies designed to enforce standards, promote security, and build trust in the data available to everyone across the organization."

Intelligent Analytics Fuels Faster, Smarter Decision Making
CIO.com, June 30, 2017

Aligning around core definitions

Different departments, applications, and data stores are likely to define core business terms differently. One system might call companies that buy from you "customers." Another might use that term for the multiple individual purchasers *within* those buying companies.

These clashing definitions dramatically increase the complexity of integrating and working with data. So a core part of data governance is to align the organization around core definitions.

Aligning lab data at Pfizer

During his time as executive director of Global Data Management at Pfizer, co-author Kevin Fleet led a data governance and analytics initiative that transformed the work of 12,000 research scientists.

Kevin's team took researchers' lab data—recorded on individual desktops and in departmental databases—and integrated it into a single analytics data warehouse. By applying data governance to the integrated data model, they could agree on common terminology and methods of capturing and storing information, thus accelerating the speed of experiment analysis worldwide. This had never been possible before. It enabled drug project teams to work seamlessly around the globe, drastically reducing time to market for many life-changing medicines.

The repeatability principle

Without data governance, the same data problems tend to get solved over and over and over again in many different projects and change programs. A more enlightened view of data governance solves data problems with a view to repeatability and reuse, so the benefits are instantly available and best practice is replicated everywhere.

The proliferation of cloud applications, often driven by the business with no IT involvement, has created new layers of complexity for data strategists. Today, data governance needs to embrace data that's in the cloud and on premises, stored in a highly structured database or in a data lake … a shared approach to governance, wherever data lives.

But this holistic view doesn't mean data governance has to be applied enterprise-wide from the start. Instead, you can deploy "just enough" data governance: applying strong governance principles as you solve business problems, then—as you deliver value and support for the program—leveraging that momentum to create a more holistic program that can deliver a critical mass of policies, processes, and tools.

Data governance at Cleveland Clinic

Cleveland Clinic wanted to forecast all of the post-operative needs of the patients who flow through its 101 operating rooms, such as post-op recovery, medications, physical therapy, rehab, and in-home assistance. All of this needed to be forecasted and optimized so the right resources would be available at the right time to deliver the most effective care.

To pull that off, the clinic started with simple, practical data governance to get agreement on what data meant and how it was used. Today, not only can the clinic predict the demand for operating rooms, it also runs hundreds of predictive models that help doctors serve patients more effectively, every day.

The role of data management

Data management is the sum of the people, processes, and technologies you need to deliver on your data strategy. If the business objective is the why and data strategy is the what, data management is the *how.*

There are well-honed procedures and standards for managing other kinds of assets, like physical assets and financial assets and human capital. All have well-defined asset management principles

and practices. But, as information professionals, we haven't done a great job at emulating these processes for data.

A platform approach

As data challenges increase, traditional approaches to data management, including ad hoc data wrangling and isolated tools, simply don't scale. Informatica recommends a platform approach that can reconcile all data from all sources into a single, shared data management solution.

The pieces of a complete data management platform include:

- **Data integration** to combine data sets, cloud or on-premises
- **Data quality** to make data ready for use
- **Data security** to protect all data assets
- **Master data management** to rationalize data around key domains
- **Data governance** console to monitor and track all governed data

All of these functions work together to manage data wherever it lives. Ideally, discovery and metadata processes will be automated (i.e., through machine learning) to scale up things like data discovery and tagging.

As Tom Davenport says, "People have relied on very labor-intensive processes to create common, integrated data. The good news is that now there are tools that will use things like machine learning with probabilistic matching to put data together without a huge amount of human intervention."

Crucially, the data management platform should be modular, so you can build it a piece at a time instead of investing up-front in the entire, enterprise-wide platform.

Q&A

Turning business goals into actionable projects at Levi's

Chris Clark
SVP, CIO,
Levi Strauss & Co.

Where does data strategy fit in the Levi's organization?

A Data Strategy Task Force has been established with sponsorship by the CEO and worldwide leadership team. The focus is on both offense and defense across information architecture, governance and security, and advanced analytics/AI.

We have cross-functional stakeholders participating from each function and region. The primary focus is to initiate use cases in critical areas of value while developing a target information architecture and roadmap for governance and security.

What are the foundations of your data strategy?

We started our journey over two years ago, after bringing in Venkatesh Anandaram to lead Data and Analytics for IT. The focus has been on bringing our global and regional data sets together in a common environment. In parallel, we have been establishing aligned metrics for key domains globally, with dashboards to allow access for key stakeholders.

"Tie (data strategy) to a big, corporate goal."

Chris Clark

How does data management support these kinds of initiatives?

To win in the marketplace with our consumers and customers, we needed to assess the current state of data across the company. As part of this effort, we are designing and implementing a framework for data policies and process, accountability and ownership, criticality and prioritization, trust and quality, and privacy and security.

How do you drive so much change in such a big organization?

As a company we are focused on collective outcomes. This is aligned behind a shared plan to win while embracing our shifting business model(s). We are also committed to acting in accord with our strategic priorities through our ways of working (e.g., simplification, productivity, data-driven insights, etc.)

What advice would you give a fellow CIO embarking on this kind of journey?

I would say take advantage of a strategic initiative within the company to set the stage for the investment required in data and analytics. Tie it to a big, corporate goal.

For us, initially, that goal was integrated, end-to-end planning. So we showed that you cannot deliver an integrated planning solution unless you have control of the data and analytics about things like product performance and location.

06

Building on your successes
Keeping the momentum

Once you've had a few wins with data strategy at the departmental level, the demand for it will grow organically—and rapidly.

At some point, it makes sense to tackle data strategy at higher levels instead of one project at a time. The good thing is that you already know how to do it.

Top-down, enterprise-wide (or cross-functional, capability-based) data strategy is still entirely driven by business outcomes, but in this case, they're bigger, more strategic ones.

Marketing your wins

Unlike smaller projects, which can often be funded from existing budgets, an enterprise-wide data strategy will need funding and executive support. To sell it in, you'll want to bring to the table the successes from the front-line initiatives.

Graeme Thompson talks about the importance of marketing successes. After a successful program that, in under 90 days, reengineered the way Informatica uses Salesforce and replatformed to a new instance, he made sure everyone

The Chicago Cubs: Data-driven customer experiences

Andrew McIntyre, VP of Technology for the Chicago Cubs, knows how to turn business strategy into data strategy. When the organization decided to be the best in the league off the field as well as on it, he helped reengineer the entire customer experience around data.

"Customers are giving us data all the time, and they really expect us to use that data to make their experiences easier and better," McIntyre told Informatica last year. "Our focus was to bring all our data together—from ticketing to concessions to retail—into a 360° view of the customer. Then we expanded that to data from outside the stadium, including online, social media, and around the Wrigley Field neighborhood.

"This 360° view is guiding decisions about everything from ticketing and pricing to crowd flow, concession placement, and non-sports entertainment. It also connects booking, check-in, retail, and entertainment so we can deliver great experiences."

understood the value: "We marketed the hell out of that accomplishment, and we did it by celebrating as one team, not just by talking about how good a job the IT people did."

Moving the organization

Anything as large as an enterprise-wide data strategy will demand cross-functional involvement. Every organization is different, but you'll want to bring together leaders from all departments.

"We started with an analytics council that's made up of leaders from across the company, both functional and business leaders," says Keith Sturgill of Eastman Chemical. "The brief is to focus on decision-making processes and the analytics that support them. I also believe in the idea of a center of excellence: a core set of very knowledgeable data scientists who become consultants to the business."

Monsanto predicts seed returns

Every year, growers return to Monsanto the seeds they don't plant, getting a refund. But not being able to predict the seed return levels affects forecasting, financials, sales compensation, and inventory—and can have a material impact on how the year closes.

The old way of predicting seed returns depended on reps calling customers every week to try to get some visibility. Customers didn't like it, and it wasn't very accurate.

Instead, Monsanto created a predictive model, fed by a variety of critical data sources. Seed return predictions were far more accurate, with less customer frustration. And the company keeps iterating on the model, improving it every year. The company was able to shut down six other legacy processes while getting an accurate picture three months before the year closed, instead of at the last minute.

"With three months' lead time, you can do different things to reduce the pain—things you can't do when you have no visibility," says Jim Swanson, Monsanto's CIO. "It's not really a technical issue, it's a big cultural change, and that means change management."

07

Conclusion
Lessons learned

As the CIOs interviewed for this Data Strategy Playbook have made clear, data strategy can never be a "one and done" initiative. Instead, it's a process that continually evolves as your organization's goals and challenges change.

Every organization will need to find its own best path to the right enterprise-wide data strategy. But there are important lessons and critical steps that will help ensure your strategy continues to reflect the needs of your company, and that your capabilities continue to mature in support of your strategy:

→ **Weld your strategy to business objectives.**
Pick an important goal that has stakeholder attention—and show how a data strategy can help achieve it faster and more effectively.

"First and foremost," says Deloitte Consulting LLP's Juan Tello, "anchor on your overall business goals."

→ **Start small.**
Build stakeholder confidence in the power of data and your team's ability to realize value. The best way to boil the ocean is one teapot at a time.

"Show value near-term, then piggy-back that into something bigger," says Monsanto's Jim Swanson.

→ **Focus on rapid iteration.**
Design your journey around ongoing wins, staying focused on business impact. Avoid theoretical end states or "build it and they will come" mega-projects. Stay nimble.

→ **Create a decision-led culture.**
Data strategy depends on new ways of thinking and working. Work with top management and business function leaders to create a culture of analytics-driven decision making.

"Everything we do, we do from a decision-first mindset," says Keith Sturgill of Eastman Chemical.

→ **Don't let IT own this alone.**
Make sure the business ultimately takes ownership for the data strategy. It can't just be an IT project.

→ **Market your wins.**
Show executive leaders what a strategic approach to data can do. And share the limelight with your partners in the business.

→ **Balance your program.**
If you're focusing too much on "defensive" uses of data, you may be missing big opportunities to go on the offensive.

As Tom Davenport of Babson College says, "There should be a mix of offense and defense in every organization's data projects."

→ **Actively manage change.**
People don't want to share or standardize data; they don't want to change how they are making decisions; they don't want to embrace new tools and new ways of doing things. Helping them to embrace change is a key success factor. Your CEO and HR leaders can help with the challenges of change management, as well as developing and acquiring the critical skills your data-savvy company needs for the future.

→ **Stay current.**
Be prepared to take advantage of critical emerging technologies like artificial intelligence and machine learning and the Internet of Things. Getting your data into shape puts you in a great position to seize competitive advantage.

The prize

Driving the kind of change described in this playbook will not be easy. But the rewards are enormous. There can be little doubt: The companies that take control of their data, treating it like a strategic asset, will be the winners in every market.

We hope this playbook has helped you think about and frame your own data strategy and that you find as much success as the CIOs we interviewed.

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Andrew McIntyre
VP of Technology, Chicago Cubs

Andrew Montgomery
Information Asset and Data Director, Monsanto

Keith Sturgill
CIO, Eastman Chemical

Jim Swanson
CIO, Monsanto

Juan Tello
Principal, Deloitte Consulting LLP

Graeme Thompson
SVP and CIO, Informatica

Further Reading (and listening)

The Pivotal CIO: Today's Digital Transformer-in-Chief
A resource center for CIOs.

The CIO's Guide to Developing a Data-Driven Culture
How to root out legacy thinking and effect lasting change.

The Big Pivot Podcast
Graeme Thompson's podcast series for CIOs that explores the business benefits of data-driven transformation.

Informatica Professional Services
Talk to our experts in enterprise data integration and management.
Reach us at **ips@informatica.com**

About Informatica

As the world's leader in Enterprise Cloud Data Management, Informatica recognizes that a generational market disruption in data is underway.

We are entering Data 3.0, where data powers digital transformation, and we're prepared to help you intelligently lead—in any sector, category or niche. Informatica provides you with the foresight to become more agile, realize new growth opportunities, and create new inventions.

With 100 percent focus on everything data, we offer the versatility needed to succeed. We invite you to explore all that Informatica has to offer—and unleash the power of data to drive your next intelligent disruption.

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