

Using data to dominate

While the rest of the world makes loud noises about the promise of big data, a few leading companies are getting serious about turning that promise into something tangible.

And for good reason. But it isn't easy turning data into competitive advantage. It takes a massive amount of cohesion, talent, and hard work to get there. Add to that the scale and complexity of big data, and the stakes are even higher.

This can't be some flash-in-the-pan effort that only serves some parts of the business, sometimes. The goal must be an enterprise-wide operation to leverage big data that is strategically valuable, repeatable, and sustainable.

To succeed in this endeavor, leading companies are mobilizing their resources and creating the foundations for a more strategic approach to data. They've resolved to build a whole new department.

We call it the data-ready organization.

The data-ready organization creates a framework of talent, technologies, and processes designed to extract value from data.

Here, we define 'value' as the insights or information that represents proprietary advantage to the enterprise that owns it. This might be through greater operational efficiency, a more complete view of customers, or more effective financial forecasting.

So this new data organization isn't just another cost center. It exists to treat data as a strategic business asset, and to approach the management and analysis of data as a strategic business discipline.

Because, as research¹ has shown, having a clear data strategy — and an organization that's aligned to support it — typically results in some form of competitive advantage.

But it isn't easy building out a new department either. From defining a cogent roadmap to building out new teams, the new data organization brings with it a host of non-trivial challenges. Challenges that most enterprises have never met before.

For this to be a strategic, sustainable, and scalable venture, the leaders of new data organizations will need to learn from the mistakes as well as the successes of fellow first-movers.

So we reached out and interviewed a range of Informatica customers who have built a new data organization to find out what they've learned.

This eBook distills those lessons into seven key principles for building an organization capable of sustainably and effectively supporting your data-ready enterprise.

¹ [The Role of Chief Data Officer in the 21st Century](#), Cutter Consortium

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Principle 1

Define explicitly how data will differentiate your business

“What are we going to do to differentiate ourselves?’ is a big driver for us. Our competitors have been at this business for years. We aren’t hiring two hundred people like they are. So we’re differentiating ourselves by personalizing the services we offer.” — the head of enterprise data management and analytics for a global investment management firm

In the retirement plan business, it’s all about customization. The trouble is, it’s expensive to tailor plans for each and every one of your customers — and yet each customer must get the plan that makes the most sense for their circumstances.

For the head of enterprise data management and analytics quoted here, the challenge is about personalizing the offering. That means understanding each customer and every offer a lot better. It also means keeping massive records ready for analysis while finding smart ways to reduce the cost of this operation.

It’s the kind of use case the new data organization should be built for. Because it directly serves the business goals of the enterprise, and a successful operation has the potential to dominate slower-moving competitors.

But most important, the goals are clearly defined and objectively measurable.

The new data organization runs the risk of losing direction without very specific goals to chase after. Instead of a vague ‘boil-the-ocean’ experiment, the new data organization must look to consistently deliver answers to questions that matter to the business. You have to be clear about what those questions are.

Tapping into your company’s values

“We’ve historically been known as a customer service company. Anything and everything the customer needed, we would do for them. So we brought in people who actually thought that way — but who also knew that you could use data much more strategically and effectively.”

The new data organization will face a great deal of operational and political friction in its formative years. So if you’re going to attempt to differentiate the business, start by identifying the knowledge gaps that a data organization can fill.

And then align your efforts with the values that already differentiate the business. For instance, in the case of the retirement plan business we just discussed, they identified a need for better customer data — and then mapped it to a core brand value: giving customers personally specific advice.

Other business units need to be able to trust that you’re there to help differentiate the business and that you’re on the same side of the same mission. And importantly, this common mission needs to guide your new data organization.

So remember: the new data organization’s fundamental objective must be to build out the data management capabilities and processes needed to align with corporate initiatives and differentiate the business. Be clear and specific about how data can help you do this.

Principle 2

Punctuate your roadmap with quick wins



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“We need to reframe our tactics in the context of a ‘bowling pin’ strategy, where one targets a given segment not just because one can ‘knock it over’ but because, in doing so, it will help knock over the next target segment.”

— Geoffrey Moore in *Crossing the Chasm*

In his groundbreaking book *Crossing the Chasm*, Geoffrey Moore describes a strategy for young, high-tech companies looking to win the business of risk-averse customers who like the old way of doing things.

And it’s advice that practitioners within the new data organization should heed. Because while you won’t necessarily be selling a product to new customers, the stakeholders across your business units will definitely need to be convinced of the benefits of new people, with new approaches, and new processes.

Winning over the business

“There’s tension when business units have to forego control of their own data and their own way of using tools. Even if there’s buy-in with the long term strategy, there’s friction with the short-term implications.” — the SVP of enterprise data and analytics strategy at a global bank

In the case of the global bank this SVP was describing, the data governance framework they’re developing will roll out over a two-year period. That’s a lot of time and a lot of pressure on the long-term vision.

So even though everyone was in ‘violent agreement that things needed to change’ when the plan was announced, it was only natural for them to have questions once things started to change.

The success of your new data organization hinges on its ability to deliver proven results that the business can get excited about.

Picking the first bowling pin

The trouble with big, boil-the-ocean projects is that they leave the people outside the project with very little insight into what’s going on. By developing a roadmap that starts with important, achievable, tactically selected projects and builds on their success, you give business units a reason to believe.

In the case of the global investment firm we described in the previous section, that meant conducting data experiments that answered important questions.

For instance, in one experiment, they measured and tracked the impact on the opportunity pipeline when salespeople took portfolio managers (subject matter experts) to meet prospects. Were sales results better, worse, or the same when they took these high-value employees along?

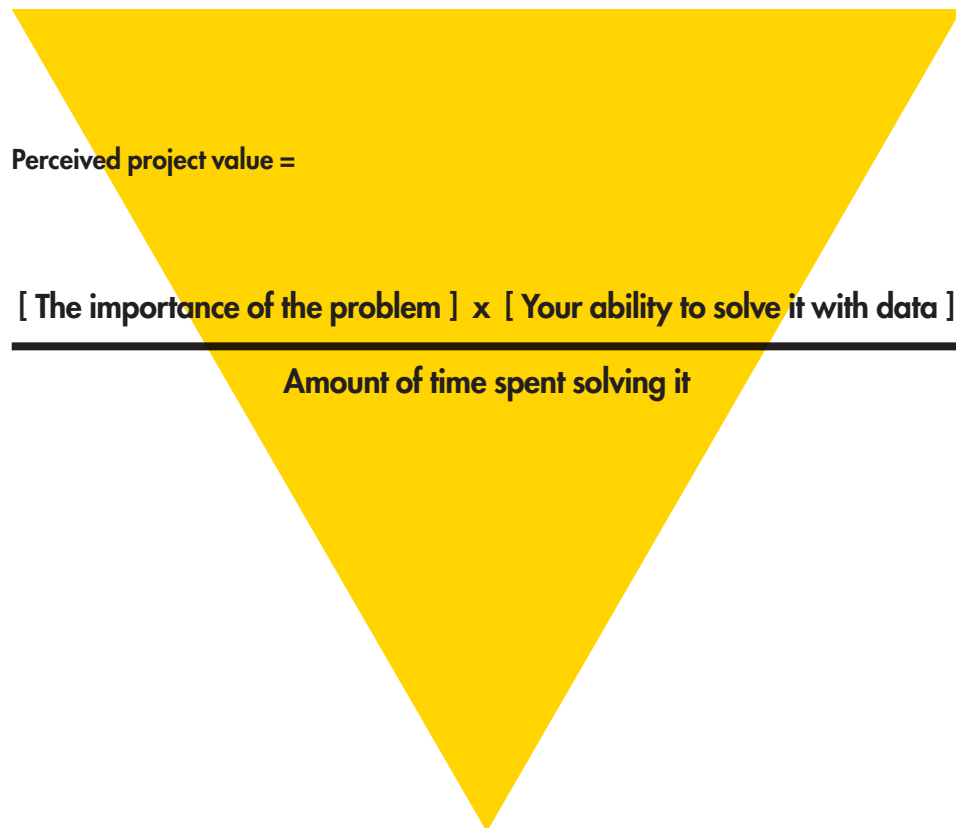
After measuring these results over a large data sample, the salespeople got insight into how their strategy was working, and the data organization developed core analytical capabilities. Early wins.

By conducting initial experiments like these and giving key stakeholders data-driven answers to important questions, you prove the worth of your growing organization and win the right to change the way things are done. So the next checkpoint on your roadmap will be received with the enthusiasm it deserves.

Principle 2

Punctuate your roadmap with quick wins

As a rough formula it works like this:



Building on your wins

By delivering a succession of quick, important wins, you don't just gain credibility with the business units who are affected by the change you're bringing. You build a foundation of capabilities upon which your entire roadmap depends.

From a technological standpoint, most of our customers start their big data journeys with data warehouse optimization. This is the offloading of some of the data and processing from their existing data warehouse infrastructure onto less expensive storage and processing (usually Hadoop).

That way, they reduce the cost and burden of big data analyses at the most foundational level.

But from an organizational standpoint, it's crucial that your big data journey start with a series of visible, noteworthy results.

So remember: deliver quick, visible wins all along your roadmap and you'll earn the right to develop more capabilities — and make your company more data-ready.

Principle 3

Confront IT/business politics head-on



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Since data isn't technology, managing it shouldn't be left to the IT organization. And since it isn't like anything the business units are used to managing, it shouldn't be left to them either. (While some business units might be experienced at analyzing data, managing its collection, cleansing, security, and integration is a whole other ball game.)

This means your data organization will occupy a space between IT and other business units — and will have characteristics of both.

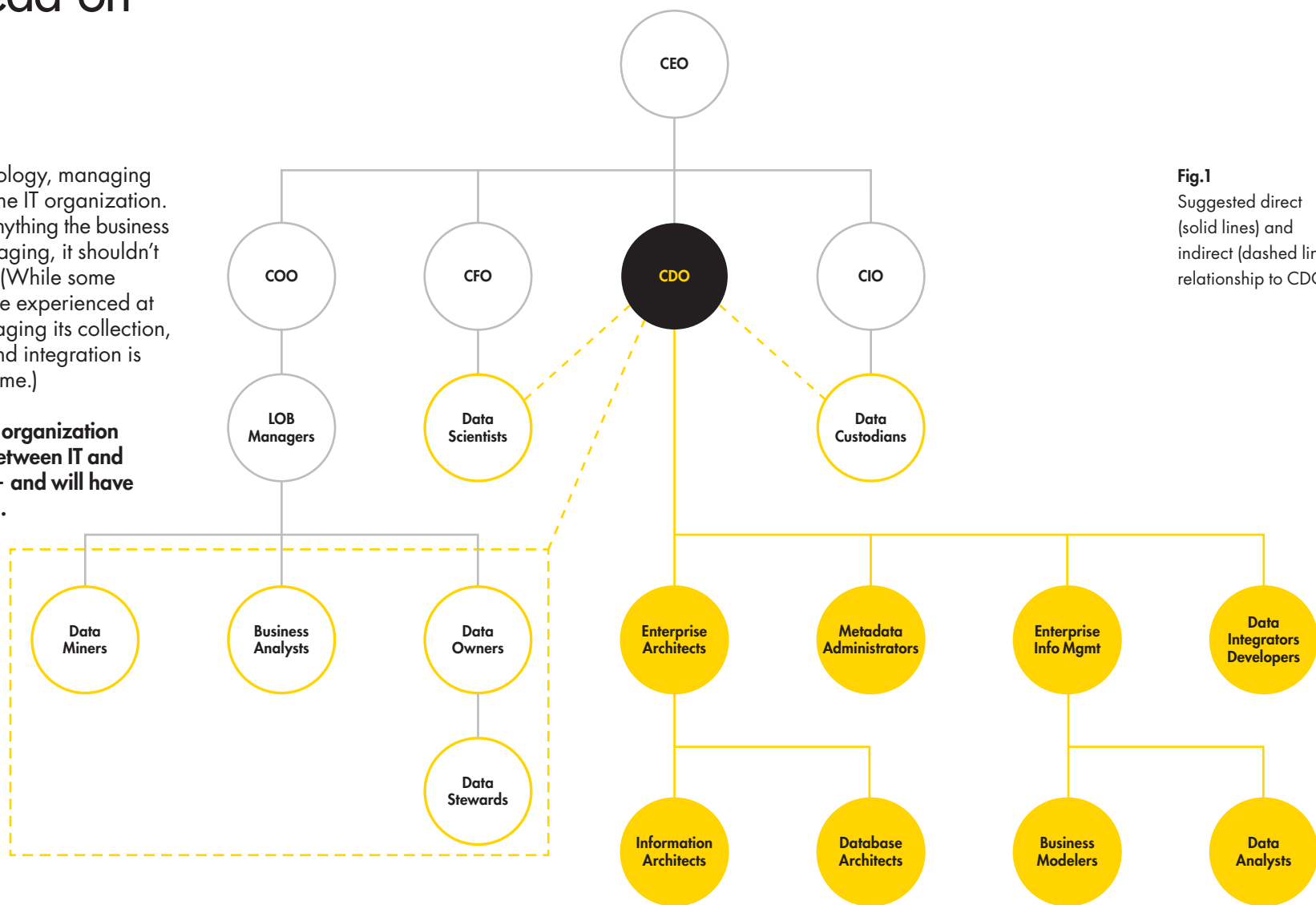


Fig.1
Suggested direct (solid lines) and indirect (dashed lines) relationship to CDO

Principle 3

Confront IT/business politics head-on

“Our CDO reports to the COO and aims to be the bridge between the business and tech.”
— the SVP for Enterprise Data and Analytics at a global bank

Since the concept of a data organization is still in its infancy, different companies approach the organizational structure in different ways. Some define the leader as a Chief Data Officer, some as a Chief Analytics Officer. Some have CDOs who report to the CSO (Chief Strategy Officer), some report to the CFO, some report to the CEO, and some to the COO.

Each data organization reflects the organizational structure of the company and the people assuming these roles. However you structure your organization, it will have to bridge some critical gaps between IT and the business:

- It will have to tap into the domain expertise within business units and leverage subject matter experts to guide analysis and planning.
- It will have to communicate current data inadequacies — a politically treacherous task.
- It will have to choose which data assets get managed first and communicate to the business units why data management takes as much time as it does.

Playing this bridging role calls for deft diplomacy — but it’s vital that the architects, managers, scientists, and stewards confront these longstanding issues head-on. And the only way to do it is by instilling processes that allow for constant communication with every relevant business unit — including IT.

“In each line of business, we have a technical director who oversees data architects, chief engineers, and domain experts. They’re directly accountable to the profit and loss owners and provide us with a direct connection to senior roles in every line of business.”

— a VP on his data organization’s approach to maintaining communication with lines of business owners

So remember: your new data organization can’t afford to avoid the politics between IT and the business if it’s going to successfully leverage both the business’ domain expertise and IT’s technical capabilities.

Principle 4

Plan for cultural change management

“We routinely shared success stories to demonstrate the value of what we were doing. But we also shared where we had issues and set up tiger teams as appropriate. The examples we used were predominantly execution-oriented. And then we did a comparison between how it was done and how it’s done today.”

— VP on his experience deploying a change management program at a global defense and security enterprise

As a result of the new people you hire, processes you devise, and policies you enforce, your data organization is going to disrupt business-as-usual. In many ways, that’s the whole point: to draft new policies and standards. To establish better processes. To instill a data-driven culture. And support a data-ready enterprise.

But change is always challenging. Business units used to owning their own data and tools will question whether centralization is in their best interests. New relationships with data stewards might feel unnecessary and pedantic. New processes might not be followed.

A key responsibility for your data organization is to deploy a comprehensive change management plan.

“We put together a robust change management plan that targeted the executive levels of both the business and technical units. We did this to ensure we had a consistent message coming down from both sides.

We even had plans for mid-managers and employees that ran in an integrated fashion so we could maintain constant communication.”

— the same VP on the importance of a far-reaching plan

The aim is for everyone to see and engage with the new strategy. So that if certain business units aren’t getting the resources or attention they want, they can see they’ve gone to more pressing concerns. Without constant communication, you risk alienating crucial stakeholders.

Additionally, business units need to see the tangible benefits of sharing their data with your organization. Showing them the returns and direct impact on the business can go a long way toward convincing even the most skeptical of units.

Principle 4

Plan for cultural change management

Implementing a data-ready culture

Aside from the specifics of your new policies, processes, and tools, there's another important new dimension that comes from building a data-ready organization: a culture that knows what to do with data in the first place.

Ideally, your data organization will aim to instill a new way of working — one that allows people to rely on authoritative data to make decisions, test hypotheses, and investigate issues.

A 2014 survey found that 30 percent of executives still relied on their intuition most when it came to making big decisions. Which means that current expectations of the value of data and analytics tools is so low, nearly one third of major executive decisions are made 'by gut feeling.'²

So aside from training people to use the data products and processes you create, another key cultural challenge here is instilling in employees and executives the confidence that they can leverage their data assets to work more analytically.

Data gives them permission to take more risks and make more assumptions because it empowers them to test every strategy. The data-ready culture introduces a whole new way of testing hypotheses and analyzing tactics.

Even as you deliver self-service data and analytics capabilities to your employees and executives, you also need to show them how working with solid data can augment their 'gut feelings' to make better decisions.

So remember: your data organization isn't just responsible for building new products and treating data assets. It's responsible, too, for the way the rest of the company reacts to the changes it makes.

² Gut and Gigabytes, The Economist

Principle 5

Leverage both technology and process

Even though data isn't technology, it is the by-product of the tools your company uses. So the technology decisions you make are going to play a pivotal role in determining how successful your new data strategy is.

But technology decisions also play a pivotal role in ensuring your data-ready organization stays lean and productive.

Experts estimate that data scientists spend anywhere between 50 and 80 percent of their time doing manual data 'wrangling' work — work that could be automated by available technology.

So if technology choices could help you free more than half the time of your scarce, expensive, experienced architects, scientists, and modelers, it would give them more time to focus on the work for which they were hired.

One data leader explained how their data scientists were able to leverage N-path algorithms from a vendor's big data library to analyze data from multiple sources:

"If I was to write that SQL myself, it would have taken a month. We're going to lean more on tools that are making it easier to get to that type of analytics without having to custom-code everything."

I just don't think we can compete with folks like Google who are going to hire all the \$400,000-a-year experts."

— an SVP on using tools to extend the reach of her data organization

Additionally, if (or when) you do bring in a six-figure recruit, you don't want to force them to spend all their time cleaning and integrating data, let alone having to maintain all their code when it goes into production.

"If you're the one who's going to hand-code and build these scripts to ingest the data directly, you're in the driver's seat from now on. If there are problems, you're the one we're calling. In the middle of the night, when that data feed breaks, you're the guy that gets the phone call."

— a director of big data analytics operations in the automotive industry

The data-ready organization will need new processes in a wide variety of areas within the business just as much as it requires new technologies.

"That's another thing we have to do. Often the data's not available because there's no business process to capture it. Or even if there is one, the data doesn't represent what everyone thinks it does."

— an SVP of enterprise data management

On the surface, this sounds fairly straightforward. But during our interviews we heard from leaders who had to deal with salespeople who didn't enter deal data in their CRM system because they "think it's bad luck."

This particular example highlights the crossover between technology and process. If the salespeople in question had a simpler interface for data entry, training about how to use it, and a process that incentivized them to enter deal data, they would do it.

So remember: the efficiency and effectiveness of your data organization depends on your ability to use both technology and process to change the way data is treated.

Principle 6

Leverage what business units have in common — not what's different



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Leverage what business units have in common — not what's different

"We spent six months rationalizing best practices across data frameworks, identifying common tool repositories, and finding common go-to partners for training and education."

— a VP who oversaw an analytics organization's efforts to centralize its application and data layers

When you're trying to find this fine balance between technology and process and talent and policy, it helps to seek out what's common — rather than what's different — between the business units you're serving.

From a data science standpoint, that means ensuring you aren't building multiple models when various silos need the same one.

But from a process standpoint, it means pushing a common lexicon so you aren't duplicating your data management efforts. When we spoke to one data leader, she found that — in spite of what the different sales divisions claimed — they all defined their opportunities in the same way:

"All their pipelines had five stages. They all had certain activities that were needed to push a deal through. And the probabilities of success could all be predicted with the same set of signals."

So rather than giving each division their own unique approach to pipeline data (as per their claims), she consolidated a common set of processes because "it just made sense."

"That gives the heads of those divisions and our management committee the ability to have full confidence that when they're looking at pipeline data across the firm, they can rely on it."

So remember: siloed business units may not appreciate how much they have in common. It's up to the data organization to first rationalize their data resources, processes, and efforts — and then communicate why it matters.

Principle 7

Rethink the way you manage talent

Word cloud containing various data-related job titles and roles, including: Data Scientist, Information Architect, Data Change Agent, Junior Data Scientist, Data Analyst, SaaS, Data Scientist, Data Architect, Data Visualization Specialist, Data Warehouse Analyst, Data Analyst, Data Engineer, Data Virtualization Specialist, Data Governance Manager, Data and Infrastructure Manager, Database Administrator, Data and Analytics, Data Warehouse Analyst, Data Visualizer, Data Ecologist, SQL Developer, Business Analyst, Data and Analytics, Data Analyst, Data Warehouse Analyst, Data Visualizer, Database Administrator, Data and Analytics, Consumer Journey Data Scientist, Data Analyst, Data Warehouse Analyst, Data Visualizer, Database Administrator, Data and Analytics, Consumer Journey Data Scientist.



Principle 7

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Data talent is notoriously difficult to find. And even if you do find the data scientists you need, you may not be able to pay them the six-figure salary someone else will.

As we've already discussed, there will be new management initiatives (like the cultural change management plan) and even entirely new ways of working to manage.

So a new data organization calls for a new approach to talent management. Here are some tips you should consider:

1. Leverage the skills you already have

Smart technology choices can help you make the most of the skills you already have. For instance, if most of your data analysts know SQL and most of your ETL developers know how to use a data integration tool, you should put in place the tools that can help them take advantage of new big data technologies while using the skills they already have.

As the executive director of data warehouse engineering at a large global bank put it:

"The big benefit of using standard tools for data integration was that we could leverage over a hundred of our ETL developers to build data pipelines on Hadoop without having to know anything about Hadoop. The savings were huge. Before that we had just two Java developers working on the Hadoop cluster. So the cluster that was hardly being used is now suddenly out of capacity and we're going to have to grow it."

2. Centralize your workforce planning

One VP at an enterprise (with more than 120,000 employees) was keen to highlight the benefits of centralizing their talent management plan:

"We have a workforce planning tool that's used consistently by the enterprise. And then as new projects are projected, we put in requisitions that include the skills requirements associated with the jobs."

Of course, a centralized approach to workforce planning is bound to leave a lot of managers feeling aggrieved if they don't get the staff they require, as the same banking executive outlined.

"So we initiated engagement activities as part of our cultural change management to help them understand that this is the most optimal way to make sure we get the right people for the right jobs at the right time, based on our overall business objectives."

Using a common set of tools and hiring channels, they're able to identify their requirements, see who's available, and then know exactly where to find them.

Principle 7

Rethink the way you manage talent

3. Go to universities to get the data skills you need

As an SVP of enterprise data and analytics strategy at a global bank told us:

“We partner with local universities to find the right people. In fact, we’ve found it better than recruiting people with financial services experience.”

But getting hungry, talented people to work with your organization isn’t as simple as going to their universities and asking them to join you. The competition for graduates is fierce. North Carolina State University revealed the following about its 2012 Masters of Science in Analytics graduates:

“Thirty-eight candidates seeking employment logged a record-breaking 591 initial job interviews with 54 employers during the placement period that started in January — an average of 15 interviews per student.”

A VP leading an analytics organization at a major enterprise explained how they work closely with partner universities to help them understand what companies need:

“It’s a combination of influencing university programs, demonstrating thought leadership, and giving them the industry perspective.”

But they also ensure they communicate the value of working in a data science role at their company. The more specific you can be about the promise of working at your company, the likelier you are to tempt young data scientists.

A cheat sheet for data-ready universities

Here’s a list of eight recommended universities that currently offer programs in data science and big data.

[North Carolina State University](#)
[Stanford University](#)
[Northwestern University](#)
[Syracuse University](#)
[University of California, San Diego](#)
[Stevens Institute of Technology](#)
[Capitol Technology University](#)
[University of Maryland](#)

Also, one of our customers recommended using www.lifejourney.us to find students who want to test-drive a career in data science.

Principle 7

Rethink the way you manage talent

4. Analyze and leverage your own training capabilities

If you can't hire them, grow them. But before you start any training or internal education, it's important you analyze your own training capabilities. As one data leader found:

"We're less equipped to train people technically, but we can do personal coaching and we're happy to put people in new roles."

Depending on the roles you've already filled and the people who'd oversee your training, list out your strengths. Do you have the capacity to train technically? Or could you educate them on the business more effectively?

Either way, it's always worth leveraging the skills you already have to develop the skills you're looking for. So even if you can't train your people internally, it's worth looking into online learning courses like:

Coursera and University of Washington's Data Science Course

A thorough introduction to data science for people with an intermediate grasp of programming. At 10-12 hours of course work a week for eight weeks, it's a manageable crash course that's free and flexible.

Udacity's Intro to Data Science

Another flexible, eight-week course (although this one assumes six hours a week) taught by a data scientist working at AirBnB. There's a 14-day free trial but after that it's an affordable \$200 a month. A bargain considering the skills learned.

The Open Source Data Science Masters

A comprehensive list of just about every free (and cheap) resource out there, structured to cover everything from introductions to data science to data design.

Principle 7

Rethink the way you manage talent

A cautionary tale

One of the data leaders we spoke with found that her marketing department's approach was almost entirely manual. All IT would do was provision the data, and the marketers would mash it together and create their own spreadsheets.

In order to ensure the marketers didn't have to cobble all that data together and then create complex queries, the data organization went in to help.

But they overcorrected. And today, the marketing intelligence organization lacks almost any analytic capabilities. They can't query databases and they can't execute on campaign segmentations.

As the banking executive summarized, "There's definitely a gap. We feel like we have to service all their analytics needs."

Even worse, in a bid to hire marketers with these analytic capabilities, a series of loosely written job descriptions were used to hire new people. The result? A room full of marketers who didn't want to learn analytics tool capabilities.

That same executive pointed out, "The problem is, training only works when people on the other side want to learn."

The lessons

1. Ensure you use highly specific job descriptions that clearly define the need for specific experience (like executing segmentations) and specific tool capabilities.
2. Instead of placing your organization in a position where it ends up doing the actual analysis work on behalf of all the other business units, build out the framework of tools and skills necessary to empower analytic self-service.

Principle 7

Rethink the way you manage talent

5. Hire for experience

Seasoned data professionals will bring with them the hard-earned lessons you'll need to make the most of the skills and capabilities you already have.

Most big data projects fail because they take too long or cost too much. Too often, this is because of manual efforts when available tools would do the job faster and better.

It pays to find people who've been around to see the consequences of these mistakes.

6. Aim for scalability

When you're hiring, you want analysts who'll hypothesize based on business acumen and a deep understanding of the strategy, but also execute. People who get data, but also get the business. As one leader put it:

"Integrated thinking is huge. It's the most important thing that doesn't sound like a skill but is invaluable."

And you want smart people who can interact with the rest of the organization.

"I've worked with two PhDs. But only one of them was good at connecting with both people on the business side and the data science side. The problem is, when they can't do this, the people on the business side will just go around them."

Additionally, because of the nature of analyst work, it's a lot easier if you have individuals owning whole projects.

But it's rare to find the complete package in a single person. As one data leader learned:

"It's cumbersome to divide these jobs into different roles like manager and employee. Because of the nature of the work, you'd like to have one person owning a project. But maybe this isn't scalable. I worry about that sometimes."

One banking company accepted that it may not find this 'perfect analyst' and instead created a team of hard-core statisticians and marketers to mine data, analyze results, and develop campaigns.

And Ofer Mendelévitch, director of data science at Hortonworks, suggests a tactic when you just can't find data scientists with all the skills you need:

"Simply build a Hadoop data science team that combines data engineers and applied scientists, working in tandem to build your data products. Back when I was at Yahoo!, that's exactly the structure we had: applied scientists working together with data engineers to build large-scale computational advertising systems."

So remember: data talent is scarce and expensive. From identifying who you need to finding people to integrating them into teams and then training them, you're going to have to be smart about how you manage your talent.

Conclusion

Dominate your data

From the change management to the technology to the processes to the communications to the talent management to your final roadmap, the data-ready organization brings with it a host of new challenges and opportunities.

That's what makes the data-ready leader one of the most exciting new positions in the modern enterprise. Because only they hold the key to unlocking all these opportunities — as long as they can successfully implement the principles described in this eBook.

Make no mistake: the companies that treat data management as a strategic business discipline are likeliest to turn their troves of information into competitively valuable insight.

This is about mastering the art and science of enterprise-scale data management before your competitors do. And in rapidly evolving markets where even behemoths are at constant risk of sinking in stasis, the ability to turn experience into insight is going to play a crucial part in unearthing new ways to differentiate.

Use what our customers learned to guide your new data organization, and you'll help your company develop a repeatable, reliable, and valued method to uncover insight.

The chasm you're crossing is a wide and challenging one — but it's exactly the leap your company needs you to make right now.