Advanced Data and Analytics: What Do Leading Organizations Do?

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Initiatives: Data and Analytics Leaders

Many organizations want to be more data-driven and improve their data and analytics practices. Data and analytics leaders can learn from organizations that are already advanced in how they organize, retain and enhance skills, set up delivery models and create business value.

Additional Perspectives


Overview

Key Challenges

- Developing data-driven decision-making demands an underlying understanding of how humans work, interact, influence each other and embrace change.

- Different parts of the organization are at varying stages of readiness (to shift to data-driven decision making) thus, the needs and approach to each of the constituencies has different journeys.

- Analytical skills continue to be scarce. Developing such skills in-house takes time, dedication and funding, and there is a risk that trained people will be headhunted by other companies.

- Advanced data and analytics requires seeing “AND opportunities,” rejecting having to make choices or trade-offs between opposite requirements, and finding ways of achieving both.

Recommendations

As a data and analytics leader seeking to transform an organization into a more data-driven one, you should embrace opposites:

- Maintain a relentless focus on business value while at the same time experiment with new techniques that are aligned with practical and concrete use cases.

- Design your organization as if you were an insider and an outsider at the same time. Be close to the business in delivering insights, but create your own (physical) space in which to innovate.
and keep a fresh perspective.

- Retain specialist skills in your organization by providing both focus and a variety of challenges. Allow specialists to focus on a business domain, while at the same time supporting activities in other business domains. Rotate regularly.

- Empower the organization's delivery model to contribute to data and analytics, while at the same time keeping control over models in production. Invest in automated testing and deployment.

## Introduction

“How do we become a more data-driven decision-making organization?” This is a very common inquiry we get from clients. Some organizations have progressed more than others. What is it that organizations that lead in data and analytics do that others can learn from?

Gartner has focused on addressing these FAQs by selecting eight organizations to interview and capture their journeys. This was the starting point of a set of interviews, across a range of geographies and industries (see the Evidence Section for an overview).

These organizations were selected based on recommendations of Gartner analysts and Gartner Executive Partners that have worked with these organizations and were impressed. We also found some organizations that self-identified as more advanced when asked during Gartner Data & Analytics Summits.

The interviews were exploratory in nature and the questions were open-ended, and did not focus on specific topics, to allow the topics that distinguished these organizations the most to emerge (see Table 1).

*Spoiler alert: Technology did not come up very prominently in the interviews.*

### Avoid “Either/Or” thinking. Instead, find “And” opportunities.

One theme that kept coming up during the interviews was recognition of the importance of what we like to call “And” opportunities.

Business is often about making clear choices:

- Centralization or decentralization?

- Optimization or transformation?
Our leading organizations have found ways to defy those choices. To do both opposites they encounter at the same time. They see the opportunity of the “And,” instead of the dilemma of the “Either/Or.”

**Table 1: Four Topics for “And” Opportunities**

| We have a relentless focus on creating business value, and have found ways to experiment with new techniques and technologies at the same time. | We have figured out that, in order to be successful, we need to create a place in the organization in which we can be close to the business, but maintain a healthy distance at the same time as keeping a fresh perspective. | We have found ways to recruit and retain critical specialist skills in our organization by providing a variety of challenges. We allow our people to focus on a business area, while also leveraging our specialist skills enterprisewide. | We know how to encourage every part of the organization to contribute to data and analytics, but at the same keep control over everything that is taken into production. |

This research aims to provide some inspiration, based on what you can learn from leading organizations. However, it doesn’t mean you have to implement everything this research discusses. Go through the best practices in this note, and pick just a few things that resonate most with you, and focus on that. Becoming a leading light in data and analytics must be done one step at a time.

**Analysis**

**Maintain Focus on Business Value AND Experiment With New Techniques**

Something all our interviewed data and analytics leaders have in common is a relentless focus on creating quantifiable business value. They realize that if they want their organizations to be more data-driven, that this starts with their own function being data-driven.

The State of Arkansas sets a good example. Its approach is to focus on a specific business problem, find the root cause, keep searching for improvement, and measure the results in terms of business KPIs. It is heavily influenced by the experience the organization has built with Six Sigma DMAIC data-drive improvement cycle.
Discipline Is a Key Characteristic

The interviewed data and analytics leaders have a bias for action. Most of the companies point out that they start with the analytics, they jump into new fields and focus on delivering business value first. Data management and data governance comes later. This requires discipline, to not create a chaotic portfolio of opportunistic projects.

Creativity and discipline are not mutually exclusive. A data and analytics leader at a large aerospace organization looks for innovation in very different areas, for example through following academic publications, and then applying that innovation to a relevant business problem, achieving real results. They found that algorithms used to analyze X-rays for breast cancer can also be used to analyze other materials and structures.

Another approach to combining creativity and discipline is to create a mix of initiatives. You can plan for a portfolio that has:

- 70% of work aimed at reaching specific business objectives.
- 20% of work spent on exploration around business objectives.
- 10% of work aimed at long-term bets that may turn out to be tomorrow’s business objectives.

Discipline is also not at odds with risk appetite. The large aerospace organization continues:

“Be clear where you are comfortable with risk. We take no risk in security and IP. But we are comfortable in trying new ideas and technologies.”
— Data and analytics leader at a large aerospace organization

Business Value Is About a Cross-Business View

A focus on business value is not just the sum of all requirements. Data and analytics leaders need to take a portfolio view and negotiate which initiatives contribute the most to an overall vision of what data and analytics should do for the organization. In the interviews we found several examples where data and analytics leaders take a cross-functional view.

The state of New South Wales in Australia launched an initiative called “Their Futures Matter,” looking at all government services that affect children. Instead of an agency-centric approach, the data science team took a cross-agency approach, looking at life events for vulnerable children. This required combining data from multiple agencies, including home care, education and justice. The outcomes sometimes were counterintuitive and controversial. For instance, the analytics
showed that returning children to their families wasn’t always a good solution. These insights would not have been possible by analyzing the data from just a single agency.

“Analytics can show adverse outcomes, or show a system is not working well. This can be hard for people to accept. These sensitivities mean people are also not always willing to share their data.”
— Ian Oppermann, chief data scientist, New South Wales

It requires perseverance and resilience to be successful. In the case of NSW, after a period of pushback, it is now mandatory for agencies to work with the data science team.

See “Tool: A Living Library of Real-World Data and Analytics Use Cases” for a large set of examples on how to link D&A to business outcomes.

Culture and Leadership
How to create business value also depends on organizational culture and personal leadership style.

In the case of DSM, Patrick Attallah believes it works best to just get started with advanced analytics. It pushes the organization out, and creates perspective. Getting results is about breaking established patterns. It is important to be diplomatic, but equally important to move forward and deliver.

Stephanie Lenzner at Froedtert & Medical College of Wisconsin, agrees, but stresses there are boundaries.

“Leading in partnership with those you serve is the only way to advance D&A. You can’t go faster than the organization tolerates. If you build it they will not just come. You must match the pace of your user’s ability to consume the analytics.”
— Stephanie Lenzner, VP, chief data and analytics officer, Froedtert & Medical College of Wisconsin
So, in summary, which “And” opportunities are there in creating business value?

- Experimentation and creativity can be combined with concrete business value. Apply new ideas to real-world use cases.

- Don’t be just risk-averse or risk-tolerant. Define where you are willing to take risks, while at the same time guarding the areas where you want to be conversative.

- But most important … Yes, you are supporting the rest of the business with data and analytics, but you are a business peer at the same time. Creating business value is as much about delivering business requirements as it is crafting a portfolio of initiatives that you feel creates the highest return.

Design Your Organization as If You Were an Insider AND an Outsider at the Same Time

One of the most common questions about data and analytics functions is the proper level in the organization to which they should report. Gartner’s fifth CDO Survey found that 24% of respondents report to the CIO, 19% report directly to the CEO, while 9% report to the COO and 7% to the CFO. The survey shows that significantly more high performers in data and analytics report to the CEO.

Stephanie Lenzner points out the importance of having a strong mandate. Without the right executives around you and support at the highest levels of the company, it is very hard to be successful in data and analytics.

So it pays to be close to the business, but creating insights for the business also requires a certain distance from the business.

The office of the CDO of DSM — a global player in nutrition, health and sustainable living — reports to the co-CEO. The analytics team has 10 data scientists in it, and there are another 30 linked to the team indirectly. They are involved in analytics projects across many business domains, including marketing/sales, manufacturing, finance and HR; with a portfolio of 60 use cases in the pipeline. At the same time, DSM also located one analytics team in a separate location — in a building aimed to house startups — in order to develop a multidisciplinary and agile approach, test it, and replicate it to other analytics teams as well.

SM Investments Corporation, that operates a number of businesses in retail, banking and property, has a similar approach. They too are cherishing the startup mentality of their analytics team, and have located it on a separate floor in the building.

The way you are organized is not permanent. Organizational structures change over time. Some organizations start their data and analytics function in a centralized manner, and come to the conclusion over time that it needs more decentralized functions, to dive deeper into the business. Others start with some decentral initiatives, and over time notice that the scarce resources are not
used optimally, and centralize a bit more. In both cases, there is an “And” opportunity. The data and analytics professionals over time are close to the business, and they are close to each other.

KPN, a large Dutch telecommunications and IT services provider, has gone through these phases as well.

“We started with data management in the data and analytics department, but are moving it closer to IT, to really help speed up a solid and reusable data foundation.”

— Winifred Andriessen, director advanced analytics and data science lab, KPN
Chris Molanus, team lead data science lab, KPN

That seems to counter the trend of combining data and analytics, but makes sense as KPN is ahead of the curve. Solid data management not only is needed for analytics, it also drives solid business performance through all the business applications. Data management becomes an enterprise function.

So let’s summarize the “And” opportunities through the lessons learned from the leading organizations:

■ Be both an insider and an outsider.

■ Make sure you have the reporting line that allows you to influence the highest business impact, but cherish a startup mentality.

■ Make sure you have your own distinctive physical space, if you can.

■ Keep shifting your organizational structure.

■ Create a distributed hybrid organization and routinely adjust the equilibrium between centralized and decentralized functions as organizational challenges ask for it. An organizational structure that is stable for years is a sign of ineffectiveness.

Retain Specialist Skills by Providing Focus AND a Variety of Challenges

It is hard to get the right skills onboard, particularly in the data science space. Figure 1 shows how the pool of available talent quickly shrinks, once you add specific requirements.
In the interviews, some of the leading organizations did bring up the topic of skills, but they don’t focus on specific technology skills. Coding skills are important, but not necessarily for specific tools.

The most important skills are fundamental mathematical skills, coding skills and communication skills — and getting the optimal combination can be a challenge.

— AgusSudjianto, EVP and head of corporate model risk, Wells Fargo

Stephanie Lenzner of Froedtert & Medical College of Wisconsin agrees that it is hard to find people with the same level of both analytical and business acumen. Her organization is “buddying” people with strong talent from both sides of the equation.

Source: Gartner
SM Investments prefer to hire physicists and mathematicians. They know how to design hypotheses, run experiments and utilize metrics to prove or disprove marketing promotions. SM Investments deems these qualities more important than knowledge of specific tools.

Gartner routinely hears that data and analytics leaders are finding it hard to retain specialist skills once they are hired. The most important reason that people have to leave is because they are not challenged enough. They are bored, because of being asked to repeatedly do the same thing.

Yet, for advanced organizations, there is a need to hire the best talent around.

“A-Team people produce three times as much, three times as fast.”
— Gregory Domingo, senior advisor at SM Investments

Wells Fargo, the San Francisco headquartered financial services institution, hires 50 PhDs every year and makes a point of regularly rotating its data scientists through its various centers of excellence.

KPN does the same. It hires about one person per 100 resumes, and prefers people with an international profile. At the same time, people with an international profile have international opportunities, and the digital giants sometimes pay more. KPN competes in the market by offering extensive education and giving people high levels of responsibility early on. It rotates data scientists between domains, and within the central team. At the same time, data scientists that sit within a domain still contribute to other projects in others domains, based on their individual expertise.

People generally want to feel appreciated. Gregory Domingo, senior advisor at SM Investments, responsible for the company’s data and analytics program does not have a professional background in data science and took an extraordinary step. Before he took on the role, he took a three-month data science bootcamp. This gives not only credibility to the team, but also toward the rest of the organization.

In summary, what “And” opportunities do the leading companies we interviewed identify when it comes to skills?

- Leadership is about taking care of the big picture for everybody, but also showing appreciation and deep interest for the specific skills of specialists.

- In order to set an example for the rest of the organization, data and analytics teams need to be just as data-driven themselves.
Empower the Organization’s Delivery Model to Contribute to Data and Analytics AND Keep Control of Models in Production

The 2020 Gartner CDO Survey shows there are multiple types of operating models. Some data organizations focus on training and coaching, but 75% have more or somewhat more focus on doing and implementing. This goes certainly for the leading organizations we interviewed.

Standards and Empowerment

Multiple of the leading companies state they value standardization of technologies. A large aerospace organization has specific standards for their platform, but at the same time they allow data scientists their own tools if there is no standard for a specific task. We have also heard from others that recoding isn’t always necessary anymore, data science technologies have become more scalable and performant. KPN has created a model factory platform that allows them to create, test and take a model into production within one week. The platform also allows for monthly “out of sample” testing for each model. DSM has come to the same conclusion:

“Create a reusable approach based on blueprints. First time a use case took us six months, then four months and now three.”
— Patrick Attallah, Global VP Data and Analytics, DSM

SM Investments has invested heavily in automation and self-service of the platform. Manual list management for marketing did cost one or two weeks per campaign. Now they generate selections within 30 minutes. Gregory Domingo does warn about side effects though, saying “Speedy processes should not lead to sloppiness, campaign managers should stay disciplined in how they treat the data.”

The State of Arkansas offers shared service data and analytics platforms for business intelligence, enterprise information management, master data management and databases, allowing many agencies to benefit from economies of scale on technology and resources. Still, many agencies have their existing investments. Data sharing is also done in a federated way. For the State of Arkansas, the focus is on standardized master data, which has shown the biggest payoff in the delivery model.
“In 2017, the 91st General Assembly passed Act 912 creating a Data & Transparency Panel with cross-sector public-private leadership to bring increased focus on treating data as a strategic asset and to provide a governance structure for state data; the Panel is chaired by the CDO.”

— Adita Karkera, Deputy State CDO, Arkansas and Robert McGough, Deputy State CDO, Arkansas

Development and Production

Wells Fargo allows every business function to perform data exploration and to do proofs of concept, empowering the whole organization to get more out of the data it has. However, as a financial institution, it operates in a tightly regulated environment. Any work done by individual business functions needs to be taken into production by one of the six centers of excellence (one for each business domain) that Wells Fargo has. Managing model risk and model bias is a key capability of Wells Fargo, and the company is recognized for it by the regulators. Agus Sudjianto of Wells Fargo explains that the bank has one model validator for every three model developers.

In summary, the leading organizations we interviewed identified a number of “And” opportunities in their thinking about delivery models:

■ Advanced analytics is not a “free for all” environment with boundless technology experimentation. There is serious attention to automation of processes and standardization of technology. Leading organizations also recognize that they must constantly learn from each other, and that there are activities where analysts need to try out new technologies.

■ Empowering the organization doesn’t mean losing all control. Citizen analyst work done in specific domains should be verified by a center of excellence and be taken into production. Recoding is decreasingly necessary.

■ Master data management plays a key role in delivery models in distributed environments, allowing the organization to manage data in a distributed manner while still being able to combine it.

Evidence

This research is based on interviews with the following organizations and their data and analytics leaders, in alphabetical order:

DSM (Chemicals, Netherlands)
Royal DSM is a purpose-led global science-based company in nutrition, health and sustainable living.

*Patrick Attallah, Global VP Data and Analytics*

**Froedtert & Medical College of Wisconsin (Healthcare, United States)**

The Froedtert & the Medical College of Wisconsin regional health network is a partnership between Froedtert Health and the Medical College of Wisconsin supporting a shared mission of patient care, innovation, medical research and education.

*Stephanie Lenzner, VP, chief data and analytics officer*

**Large Aerospace Organization (United States)**

Requested that its contribution be anonymous.

**New South Wales (Government, Australia)**

New South Wales is a southeastern Australian state, distinguished by its coastal cities and national parks. Sydney, its capital, is home to iconic structures such as the Sydney Opera House and Harbour Bridge. Inland are the rugged Blue Mountains, rainforests and outback towns where opals are mined.

*ian Oppermann, chief data scientist*

**KPN (Telecommunication, The Netherlands)**

KPN is a Dutch telecommunications and IT service company.

*Winifred Andriessen, director advanced analytics and data science lab*

*Chris Molanus, team lead data science lab*

**SM Investments (Retail, Philippines)**

SM is a leading Philippine company that has investments in market-leading businesses in retail, banking and property. It also invests in ventures that can capture the high growth opportunities in the emerging Philippine economy. It looks for market leaders or those with potential to become leaders in their chosen sectors that offer synergies and attractive returns and cash flows.

*Gregory Domingo, senior advisor*

**State of Arkansas (Government, United States)**

Arkansas is a southern U.S. state bordering the Mississippi River. It's known for its abundant park and wilderness areas, with terrain encompassing mountains, caves, rivers and hot springs. The rugged Ozarks region in its northwest has hiking trails and limestone caves such as Blanchard...
Springs Caverns. Its capital, Little Rock, hosts the Clinton Presidential Center, housing Bill Clinton’s presidential archives.

*Adita Karkera, deputy state CDO*

*Robert McGough, deputy state CDO*

Wells Fargo (Financial Services, United States)

Wells Fargo & Company (NYSE: WFC) is a diversified, community-based financial services company with $1.9 trillion in assets.

*Agus Sudjianto, EVP, head of corporate model risk*

**Recommended by the Authors**

- Continuously Market-Tested Data & Analytics Strategy (UrbanShopping®)
- Case Study: Realizing the Promise of Analytics and BI Platforms (Dow)
- Zen and the Art of Data Quality Improvement
- Survey Analysis: Fifth Annual CDO Survey — Growth Must Continue in Order to Achieve Real Impact
- How to Craft a Modern, Actionable Data and Analytics Strategy That Delivers Business Outcomes IT Score for Data & Analytics

**Recommended For You**

- Achieving the Business Value of Data and Analytics
- Continuously Market-Tested Data & Analytics Strategy (UrbanShopping®)
- Data and Analytics Value Creation: Key Obstacles and How to Overcome Them
- How CDOs Can Get Buy-In and Sell Data and Analytics to Stakeholders
- Why You Need to Rethink Your Data and Analytics Roles Now

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