CHAPTER 5

WHAT ARE THE KEYS TO ANALYTICAL SUCCESS?

The analytical leaders profiled in this book describe many keys to success. This chapter summarizes their keys to running an effective analytics program, while subsequent chapters dive into greater detail on the themes and subjects highlighted here.

Ironically, the analytical leaders spend as much time discussing how to manage people, projects, and processes as they do technology and architectures, which they view as enablers. Specifically, Tim Leonard emphasizes the need to understand the business and talk its language, while Dan Ingle focuses on building applications quickly through agile development approaches. Others, including Darren Taylor and Amy O'Connor, underscore the importance of obtaining strong executive sponsorship, while Kurt Thearling and others emphasize the need of getting a quick win to establish credibility and momentum for an analytics program. And every analytical leader emphasizes the importance of curating data and moving beyond insights to action.

Change management. Analytics requires both strong analytical leaders and executives who are willing to make a long-term

commitment to its success. Analytics is not a one-time project; it's a program—or as some say, a journey that requires a long-term investment of time, money, and expertise. It requires organizations to treat data as a corporate asset and invest in building an analytical infrastructure. Moreover, it requires workers to change the way they view and manage data, and frame and make decisions. This involves changing core processes as well as modifying individual and group habits, which is hard to do. Ultimately, as Amy O'Connor emphasizes, analytics is an exercise in change management.

STEPS TO SUCCESS

To succeed with analytics, organizations need the right culture, people, organization, architecture, and data. (See Figure 5-1.) This is a tall order. Putting these pieces in place involves more than just technical expertise; it requires an organizational overhaul that has to start at the top and ripple through the rest of the organization. There is as much "soft" stuff involved in succeeding with analytics as "hard" stuff. That's why most of the analytical leaders profiled in this book spend much time discussing selling, marketing, and teamwork as they spend talking about technology and tools.

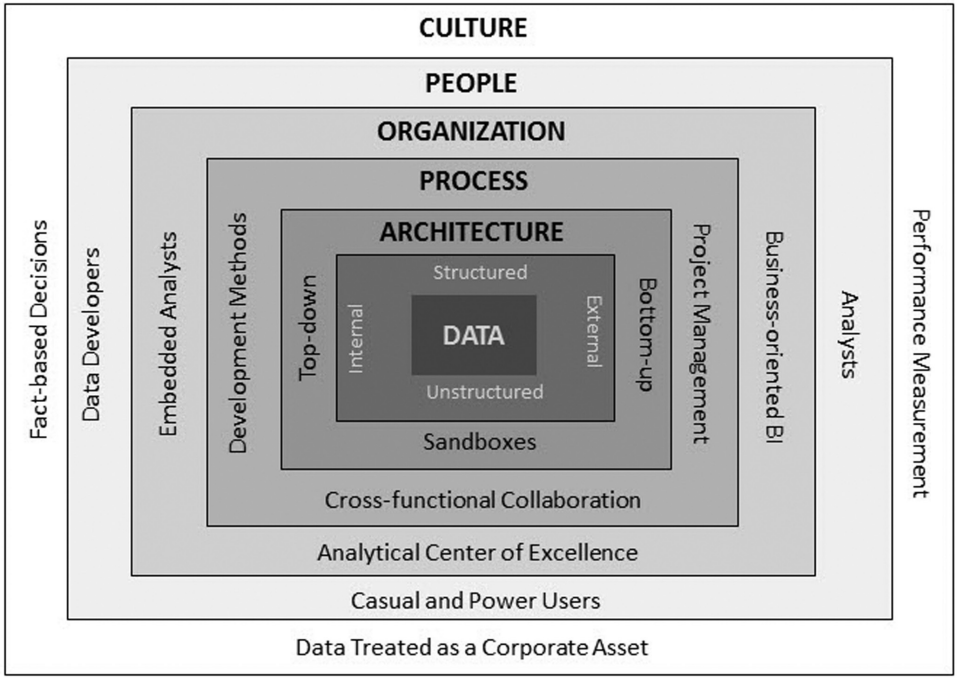
The Right Culture. Culture refers to the rules—both written and unwritten—for how things get done in an organization. These rules emanate primarily from the words and actions of top executives. Business executives must have a vision for analytics and the willingness to invest in the people, processes, and technologies for the long haul to ensure a successful outcome (See Chapter 6). Technical executives must be able to talk the language of business and recruit business people to work on their teams. They also need to manage all components of the analytics program, from data warehousing to business intelligence to advanced analytics.

The Right People. It's impossible to do analytics without data developers and analysts. Data developers build and maintain the data structures (e.g., data warehouse, data marts, master data management, BI semantic layers) and create complex reports and dashboards. Analysts, on the other hand, explore the data and generate reports and dashboards to answer ad hoc questions asked by the business. Hiring

and retaining the right people is not easy. Both data developers and analysts require a passion for data, along with a blend of people skills, technical expertise, and business knowledge (See Chapter 8).

The Right Organization. Every company needs to cultivate a federated organizational model to succeed with analytics. Centrally, it needs a center of excellence that establishes and inculcates best practices for building analytical applications and provides a forum for team members to share ideas and techniques. Departmentally, it needs embedded data developers who can quickly build data-driven solutions as well as embedded analysts who can quickly address ad hoc questions. Sometimes, these are one and the same person, but not always. In addition, a federated organization needs to manage shared data as an enterprise resource while empowering departments to build their own reports, dashboards, and analytical models. This dual focus requires some tricky organizational choreography that most companies have yet to master. (See Chapter 9.)

FIGURE 5-1. ANALYTICAL FRAMEWORK



This framework highlights the major areas required to run a successful analytics program.

The Right Process. A hallmark of an outstanding analytical program is that it has standard processes and procedures for doing things, such as managing projects, developing software, gathering requirements, communicating across business functions, deploying analytical models, handling job errors, designing and changing data models, evaluating and selecting new tools and technologies, and ingesting external data, among other things. However, analytical managers must be careful not to overburden their teams with too many processes and standards that impede agility and undermine flexibility, as Eric Colson cautions later in this chapter. Part II of this book deals with various analytical processes: managing people (Chapter 10), developing software (Chapter 11), delivering insights and action (Chapter 12), and developing analytical models (Chapter 13).

The Right Architecture. Every analytical organization needs tools and technologies to do its work. The ideal architecture creates a data assembly line in which data flows from sources to targets to applications, each tailored to different departments and types of users. It extends existing data warehousing environments with new database processing platforms and complements top-down monitoring with bottom-up ad hoc exploration. It also provides the right tools to the right people so they can generate or consume data-driven insights. (See Chapter 17). Finally, it implements agile processes that accelerate software development while maintaining data consistency and models across business units—a sizable challenge that few organizations have yet to master. (See Chapters 11 and 15.)

The Right Data. Analytics also requires data that is in the proper shape and condition. It must be complete, accurate, timely, relevant, and consistent or business people won't trust it and stop using it, even if their organization has invested millions of dollars in data-centric tools and technologies. Organizations also need to invest in the right kinds of data—internal and external, structured and unstructured—that business people need to answer critical questions. They also need to treat data as a corporate asset that is as precious as cash or people (Chapter 14).

COMMENTARY FROM ANALYTICAL LEADERS

RUDIN: You succeed with analytics when you stay focused on the end goal. It isn't enough to find patterns in the data and highlight trends and outliers in fancy charts, or deliver insights that can potentially drive business value. Your analysts must actually *create* business value. If nothing changes because of their insights, then they haven't added any value to the business. They have to strive to get the business to implement their insights so that they ensure a positive business impact. That means they have to talk with business people and brainstorm ways to turn their insights into business value. The insights can impact the business in many ways. They can change product designs, pricing, or processes, among other things.

Just like a salesperson takes ownership of an account and doesn't get paid commission unless he makes a sale, it doesn't make sense to reward analysts for delivering insights that aren't implemented; you should reward them for delivering value. And you measure value just like everything else. The key is to focus on impacts not insights.

ASK THE RIGHT QUESTIONS. I also think it's more important to ask the right questions than to get the right answers. It's easy to get answers. We know how to do that, and we have a ton of technology to help in this area. What's hard is asking the right questions which are going to drive business impact. A lot of this is about surfacing and testing assumptions about what people think drives behavior or business metrics. For example, game design is very creative but is based on a lot of assumptions, like "We can make the game more enjoyable and get people to play longer if we add this feature or change how hard it is to get to the next level in the game." If you pose these assumptions as questions and test them, then you can prove them right or wrong. That's key to gaining understanding.

EMBED ANALYSTS. Finally, it's important to embed analysts inside the business teams they support. They need to sit side-by-side with business people, participate in all their meetings, and contribute their analytical knowledge and perspective. If they're not embedded, they can't possibly master the nuances of the business they're trying to

support. It will take them much longer to perform an analysis and they might miss important details. Also, if they're not embedded, it's harder for them to persuade businesspeople to test their assumptions and act on the output to improve the business.

LEONARD: To succeed with analytics, you need to put as much emphasis on the "business" as on "intelligence." I rose up through the technical ranks and learned the hard way that you can't be perceived as an IT person. You need to be perceived as a business person who uses technology to solve business problems.

So my keys to success are: 1) talk the language of business, 2) let the business do the talking, and 3) get quick wins and build on your success. Ultimately, it's all about sales. It took me some time to check my technical content and language at the door to the executive suite. I discovered that the more I discussed architectures, schemas, and tools, the less business people seemed interested in what I had to say. But if I talked about business concerns, say increasing wafer counts per square foot of factory floor at a semiconductor company, then executives paid attention.

When I join a new company, I spend a lot of time listening to people and learning how the business works. If I open my mouth too soon and expose my business ignorance, I lose credibility. So, I try to master the business quickly. As I gain knowledge and confidence, I ask fewer questions and begin engaging in conversations. At some point, I know almost as much about the business as the business people. You know you've made it when a business person says, "You know a lot about the business for an IT guy!"

I also discovered that in key situations—like when you need executive support for a project—it's best to shut up and let the business people do the talking. While executives appreciate a business-savvy IT person, they would rather hear a business person explain the need for a business intelligence (BI) solution. So, when it's appropriate, I ask business people to deliver the presentations about data proposals, and I sit in the back and talk only if called upon.

To deliver successful projects, it's also critical to follow a clear methodology that involves plenty of dialogue between business and the BI team. Executives need to define objectives, communicate them to everyone involved, define measures of success, and hold someone accountable for the outcome. The development team needs to hire the right people, with appropriate technical and business skills, to develop the infrastructure and applications. The business

needs to assign the right business people to work with the development team to define requirements and provide continual feedback to ensure applications meet their objectives and needs.

COLSON: The key to success starts with getting the right people. I've learned that it's far more important to hire people with the right personal qualities than the right technical skills. You want people who are curious, creative, tenacious, and passionate about what they do. People with those qualities quickly learn the technical skills they need, whether it's a new programming language, like Python, or a new analytical tool. They just do it. To them, technology is a means to an end.

It's important to pay for top talent. In a creative field like analytics, the best people perform ten times better than average people. It's much more effective to hire one "rock star" and pay him or her a big salary than hire several average performers. And, top performers want to work with other top performers, and this creates a virtuous cycle.

CULTURE. The right culture also matters. A data-driven culture that values empiricism keeps politics and opinions in check. People frame their ideas as hypotheses and submit them to testing and experimentation. Although decisions are evaluated scientifically, there is still room for judgment and intuition. This kind of culture values data and analytics immensely, creating a supportive environment in which data developers and analysts thrive. The right culture also minimizes rules and processes to prevent stifling innovation and learning. It continually prunes processes that don't add value and is willing to incur some risk to ensure a fluid, fast-moving environment.

ORGANIZATION. To get the most value from your people and culture, you need the right organizational structure. I prefer a federated organization in which a central team supports the activities of embedded data developers and analysts while giving them ample opportunities to collaborate and share knowledge. Here, data developers sit side by side with the business people they support. As a result, they become immersed in the business and more effective at what they do. In a federated organization, you align first with the business, and then optimize technical functions.

ROLES. In a dynamic business environment, data developers with a diversity of skills trump a collection of specialists. Specialization is a fine thing when you have well-defined requirements. But in a fast-moving company, developers need to *discover* requirements as they go. By developing an entire

solution from requirements to testing, they can respond immediately, iterate rapidly, and deliver optimal solutions more quickly than a team of specialists that require endless meetings to coordinate their activities. The ideal data developer focuses on mastering a business domain rather than a technical specialty.

With the right people, culture, organization, and roles, you can create a high-performance analytical team.

INGLE: My keys to success are pretty straightforward: 1) build things iteratively and incrementally using an agile development process, 2) adapt to circumstances and not be wedded to a particular solution or methodology, and 3) foster teamwork to increase productivity and effectiveness.

AGILE DEVELOPMENT. When I started in this space, I saw quite a few data warehousing projects blow up because they used a traditional development approach with an extended project timeline. To avoid that, I began applying rapid prototyping techniques. I'd quickly gather requirements for a subject area, deliver a working prototype in a few weeks, and make rapid adjustments, if needed. In essence, I was following the tenets of Scrum before the term came into vogue. Since then, I've adopted Scrum in a big way, adapting the methodology to data warehousing and business intelligence solutions. Typically, we use three-week sprints, storyboards, and small self-organizing teams to deliver working code based on user priorities. We also co-locate the developers and business users during the duration of the effort. It works really well and makes logical sense.

OPENNESS. Another key is to adapt your approach to the circumstances. I see a lot of people who are wed to a particular technology, vendor, or methodology because that's what they've known and made them successful. It's also easier and seemingly less risky to use something tried and true, rather than something new.

For instance, when I joined Kelley Blue Book, we were heavily vested in the Microsoft platform. We had many Microsoft products in house and plenty of people with Microsoft expertise. At the time, I couldn't imagine using a database other than Microsoft SQL Server, but we were also looking to scale up our environment to support much larger data volumes. One member of our team had experience with analytic appliances at a prior company, so we decided to evaluate several products. We trusted the findings of our proofs

of concept, and ended up purchasing our first IBM Netezza appliance to power our data warehouse and other environments. That was one of the best decisions we made.

TEAMWORK. Finally, teamwork is essential to our success. We hold classes on teamwork and put our folks through various exercises—some of which are not for the fainthearted. The classes teach people how to communicate, ask questions when they don't understand something and open up to each other. Without a foundation of trust, a team can't work together effectively and its productivity suffers. Our focus on teamwork complements our agile approach to application development.

THEARLING: There are numerous things that organizations overlook when implementing advanced analytics. One is the importance of curating your data—that is, deciding what data to make available for analysis, and organizing that data so it's easy for users to find and access. This is not just data quality, which is also important, but for different reasons. Curating data is something a lot of organizations overlook or undervalue.

Another key success factor revolves around putting analytical models into production. It's critical for organizations to establish robust processes and build an automated infrastructure to manage predictive models in a cost-effective and compliant manner. This is especially true for companies that generate tens of millions of analytical scores a day, and whose models are subject to external regulations. These production-oriented processes are often necessary to comply with various regulations governing the use of consumer information and analytical models. And, when done right, they are also a source of competitive advantage.

TAYLOR: The three keys to creating a successful analytics program are: 1) obtain strong executive understanding and support, 2) deliver quick, meaningful business wins, and 3) make one person and group accountable for the program.

EXECUTIVE SUPPORT. We had great executive support when we built our data warehouse in 2004, and we quickly delivered good results. It took a bit longer to garner the same level of support for our analytical solution in 2010. Although our data warehousing program was alive and well, we distributed the delivery of

analytical applications to individual departments with no single point of accountability. It took us about 12 to 18 months to clarify the difference between data warehousing and analytics to our executive team and gain funding for a new analytical initiative. But once we received executive team support, we quickly implemented the analytical platform and then started reselling analytical services to other health plans.

DELIVER VALUE ALONG THE WAY. It's also important to deliver value along the way. You can't wait two years to produce something. For instance, while we were building our analytical infrastructure, we built two applications for executives to demonstrate the emerging value of the system. One was a financial dashboard for mobile devices that replaced a 76-page PDF document, and the other was an analysis of the federal subsidies that our members might receive under the new Affordable Care Act. These small, but valuable, business wins gave executives confidence that we would execute the analytical vision.

CLEAR AUTHORITY. Finally, it's important that one person heads the analytical initiative and is held accountable for its performance. We tried a matrix approach in which both IT and business departments manage the data warehousing program, but that didn't work. We later pulled the program out of IT and put it directly under the CIO, with the COO as the executive business sponsor and then handpicked staff to serve on the team. By knocking down some organizational walls and putting one person in charge with the right team members, we achieved much better results.

O'CONNOR: The way that we'll succeed at Nokia is to create a culture that treats data as our most critical asset. The keys to making this happen are executive support, evangelism, and collaboration. I don't have technology at the top of this list because that part comes easy to people at Nokia.

We have many smart, technical people at Nokia who have used open source tools to download data and create information silos. However, we have to stop creating these silos if we want to achieve our vision of 'smart data'. We have an executive leader who believes that 'smart data' is Nokia's differentiator going forward, and he makes it clear that data silos are no longer an acceptable way of doing business. The goal is a single, unified data asset.

Since executive mandates alone do not ensure successful change, we also need evangelism to ensure analytical success. Our key executive sponsor highlights 'smart data' stories at internal employee events, customer meetings,

and industry keynotes. Internally, we document and publish these success stories to remind employees about the importance of analytical projects.

And the third key to our analytical success is collaboration. Although we have a centralized analytics group responsible for building the technology ecosystem and shared data asset, we rely on subject matter experts in each business group to develop analytical applications and services to drive our smart data initiative.

SUMMARY

There are many factors involved in running a successful analytics program. But providing the right culture, people, organization, architecture, and data are the basis for success. We'll examine the outer layers of the framework in Part II of this book—that's the "soft stuff" of people, projects, and processes.