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Building an effective analytics organization



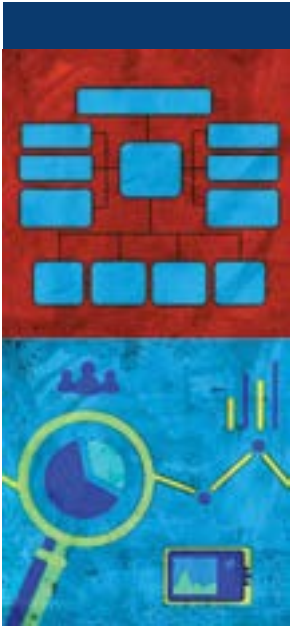
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Data sheet: Advanced analytics



Gloria Macias-Lizaso

Building an effective analytics organization

As companies recognize the predictive power of advanced analytics, many are hoping to use AA to drive their business decisions and strategies. While most companies understand the importance of analytics and have adopted common best practices, fewer than 20 percent, according to a recent McKinsey survey, have maximized the potential and achieved AA at scale.

In working with a wide range of organizations, McKinsey has seen many companies start their analytics journey eagerly, but without a clear strategy. As a result, their efforts often end up as small pilots that fail to scale or have significant impact. Some of these pilots have been mere exercises in “intellectual curiosity” rather than a serious effort to change the business. Consequently, they are not designed with an end-to-end approach that incorporates the necessary conditions for implementation. Instead, the pilots are carried out in small labs with limited connection to the business, and fail to provide the answers the business needs to move forward. Even if a pilot does answer the right questions, it may not address the cultural aspects that would, for example, make a sales representative trust a model more than her own experience.

These companies quickly become frustrated when they see their efforts falling short while more analytically driven companies are leveraging their data. Democratization of data is blurring sector boundaries; businesses will increasingly find themselves disrupted not by the company they have been monitoring for the last several years, but by a newcomer from another industry. Being the best in an industry is no longer enough; now companies must aspire to be at least at par across industries to compete effectively. Functional ex-

pertise, beyond specific sector expertise, will become more and more relevant.

With this in mind, McKinsey conducted an extensive, primary research survey of over 1,000 organizations across industries and geographies to understand how organizations convert AA insights into impact, and how companies have been able to scale analytics across their enterprise (see sidebar on page 61). In this article, we will discuss how to design, implement, and develop the right organization and talent for an AA transformation. An AA transformation usually requires new skills, new roles, and new organizational structures.

Building an AA-driven organization

Top-performing organizations in AA are enabled by deep functional expertise, strategic partnerships, and a clear center of gravity for organizing analytics talent. These companies’ organizations usually include an ecosystem of partners that enables access to data and technology and fosters the co-development of analytics capabilities, as well as the breadth and depth of talent required for a robust program of AA.

For a company aspiring to an AA transformation, these elements can be incorporated into any of several organizational models, each of which is effective as long as there is clear governance, and the company encourages an an-

McKinsey's Insights to Outcome Survey

In the fall of 2017, McKinsey performed quantitative research (using a survey-based approach) of approximately 1,000 organizations across industries and geographies. The survey contained 36 questions, most of which measured respondents' degree of agreement or asked respondents to choose their top three responses. The 1,000 responses encompassed more than 60 responses per geography and over 50 responses per industry, which ensured statistical relevance in various cuts of the data. The responding companies represent more than \$1 billion in revenues.

The survey targeted analytics leaders and C-level executives with a broad perspective on their organization's analytics capabilities across the enterprise. These respondents included 530 individuals in analytics roles and 470 in business roles.

The industries covered by the survey included: A&D, automotive, banking, insurance, energy (including oil and gas), resources (including mining and utilities), telecom, high tech, consumer, retail, healthcare, pharmaceuticals, transportation, and travel. The geographies covered included: US, UK, France, Germany, Spain, Brazil, India, Australia, New Zealand, Singapore, China, Japan, and the Nordics.

analytical culture across business units to learn and develop together. Answering a few key questions can help to identify the best model.

1. Centralized, decentralized, or a hybrid:

First, the company should decide whether to create one centralized AA organization, in which AA stands alone in a center of excellence (COE) that supports the various business units; a decentralized organization, in which analytics is embedded in individual businesses; or a hybrid, which combines a centralized analytics unit with embedded analytics areas in some units.

Our benchmark of several organizations indicates that any of these models can

work effectively, as long as governance is established to prevent the various units from becoming islands. The proposed organization depends somewhat on how advanced the company and the business units are in their use of analytics.

It is important to note that any organization will change over time as the AA transformation evolves. Some companies start out decentralized and eventually move AA into a centralized function, while others that are centralized later move into a hybrid model of hubs and spokes. Top-performing companies prepare for these eventual changes.

One organizational example

A large financial and industrial conglomerate created a separate COE that reports directly to the CEO and supports the organization with AA expertise, AA resources (on "loan"), use case delivery, infrastructure to execute use cases, and technical interviewing. The center also manages data partnerships, develops new businesses by designing and deploying cross-company and ecosystem use cases on the company's own infrastructure, facilitates aggregated AA impact calculation, reports progress to the executive committee, and executes the data committee's mandates. The center started out as a small cost center but aspires to transform into a self-standing profit center within two years.

Two successful strategies

One industry conglomerate addressed this scale requirement by starting with a centralized COE serving all business units. As the use and understanding of analytics grew across the organization's companies, they demanded more support, and the COE was split into sub-groups that were fully dedicated to the largest companies. Over time, ownership of these groups was transferred to the "client" company—but not until they had built a sense of community and common methodology across the entire conglomerate. This sense of community was further reinforced by requiring all new recruits to spend six months at the COE and to go through specific AA training and networking events. Since fragmentation of the analytical talent across functions is almost inevitable over time, it is critical to start out with the appropriate processes and mechanisms to ensure consistency and community across these new profiles.

A leading pharmaceutical company developed an integrated talent strategy that merged business and analytics functions. The company recruited technology and analytics executives in key management roles and developed analytics career paths for them. Placing analytics professionals in key business roles enabled the company to identify and operationalize new analytics opportunities before their competitors could. The organization successfully embedded analytics in key elements of the business—for example, analytics on clinical trial data to enable more cost-effective data.

The choice between centralization and decentralization is not an all-or-nothing decision but should be decided per sub-function. Data governance, however, should be centralized, even if data ownership is not. For data architecture, top-performing companies often have data centralized within business units. This data typically includes data from marketing, sales, operations, and so on. Most top-performing companies centralize partnership management; otherwise, competing or redundant partnerships could inadvertently be set up in various parts of the organization, and intellectual property could be at risk.

2. To outsource or not to outsource: Another decision is whether AA talent should be partially outsourced, and if so, how. Should outsourcing be limited to low-level data analytics activities? Or should the company establish several tactical partnerships for selected tasks? Or would a stra-

tegic partnership with an external vendor be the best approach? AA will effectively become the "brain" of the organization, so companies should be careful not to outsource too much. Top-performing companies often keep analytics that provide a competitive advantage—such as pricing analytics—within the organization. A central, internal unit can oversee all AA outsourcing, and partnerships can be established for specific AA solutions or to bring in particular assets, such as unique sources of data or advanced solutions.

3. Locating the AA unit: Yet another important decision is where to locate the AA unit. AA is most effective when it is cross-functional, accessible enterprise-wide, and integrated with the business. Various levels and functions can host it, but the final location should have enough visibility and access to the C-suite to break through inertia and enable transformation. It is helpful if the unit has an enterprise-wide view, given its trans-

formational potential for all functions.

The AA unit is often most effective when it is a sub-unit of business intelligence—as long as this area has an enterprise-wide perspective—or of strategy or digital.

Some companies locate their AA units in IT, but this arrangement can be challenging. IT staff—who are used to managing longer-term projects that are often disconnected from the business—may not be prepared to manage short-term, agile AA

projects. AA projects can end up last on their list of priorities. Including AA within marketing or operations, meanwhile, can limit its potential to transform the remaining parts of the organization.

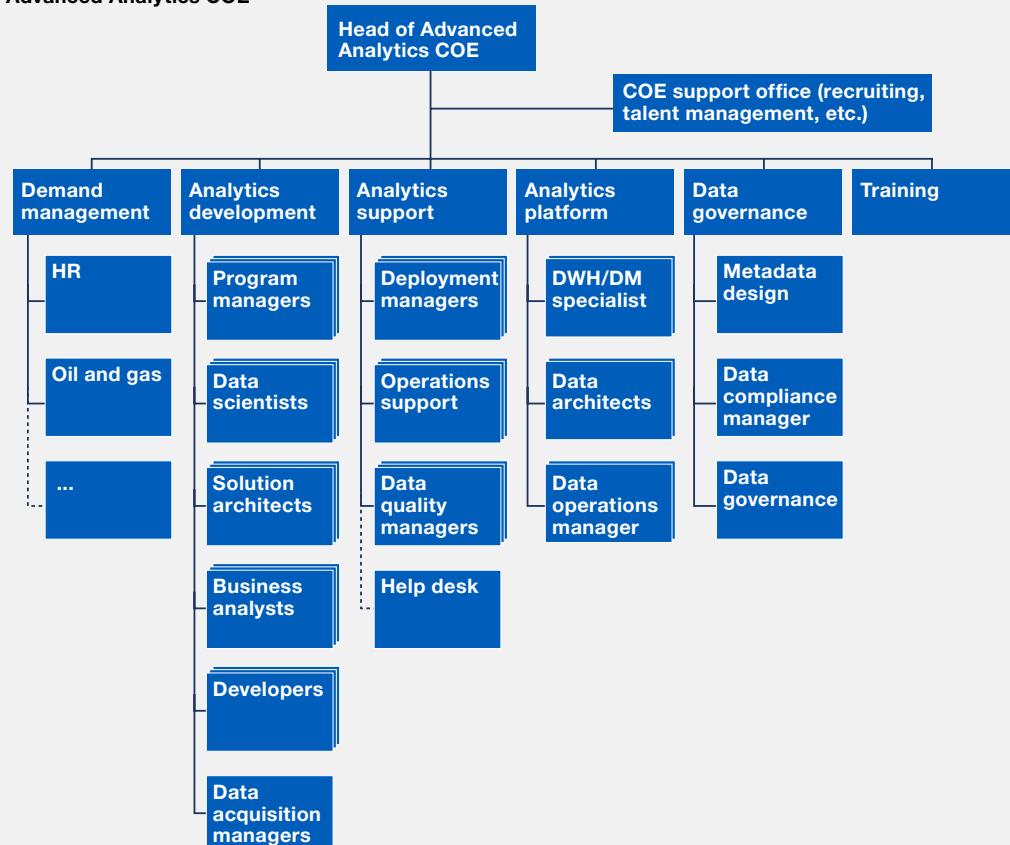
Staffing the AA center of excellence

Sixty percent of top-performing companies in AA have a “center of gravity” for their analytics efforts, according to our survey. They typically include a specific set of roles, skills,

Exhibit 1

An organizational blueprint of the advanced analytics COE.

Advanced Analytics COE



Source: McKinsey analysis

Lessons learned from COE failures

Companies that have rolled out full-scale COEs during an AA transformation have encountered some pitfalls. Some of the most common include:

- 1. A failure to focus on business value.** Successful roll-out of a COE requires a clear vision as to where the COE's biggest business impact can be captured. The COE should be linked to the organization's overall business strategy and should commit to achieving a measurable impact during a defined time frame, with its goals clearly prioritized.
- 2. Over- and under-thinking technology.** Some companies attempt to replicate an entire data history when building their AA COE, resulting in data "scope creep." It is vital to sufficiently think through data integrity/architecture; failing to do so may result in missing data and missing data connections. Some companies try to do too much at once by replacing their hardware, software, and analytics stack simultaneously rather than tackling one at a time. These companies may buy the "best of breed" in each category but then find that none of them "talks" to each other. Instead, companies should build systems and functionality as needed—especially since technologies tend to become obsolete within just a couple of years. New innovations can be integrated later if the system is built gradually.
- 3. Taking more than 18 months to deliver value.** The COE's benefits should begin to come online well before the entire roll-out is complete. If the COE does not deliver benefits sooner, it is often because it depends too heavily on insights-delivery FTEs instead of automation. The delivery of insights should be staged to capture value sooner.
- 4. Insufficient skill-building and change management.** Top management and the internal team must be 100 percent committed to the COE if it is to succeed. Internal stakeholders must be engaged in development or accountable for delivery. The effort cannot focus exclusively on technology instead of the process and people; in particular, the organization must build the requisite front-line skills needed for an effective AA COE. Companies should hew closely to the business case and avoid the functional scope creep that can occur when mid-flight changes not included in the business case suddenly become priorities.
- 5. Operating analytics as an island.** One large US insurance company interviewed by McKinsey hired a sizeable number of data scientists and launched more than 50 pilot projects to test its new capabilities. Despite a real commitment and considerable investment, the analytics team was isolated from the rest of the company, with no connection to the overall business strategy—a critical mistake. Not surprisingly, this company's ad hoc analytics projects had no real impact.

At the other end of the spectrum, successful AA-driven companies are building centralized AA capabilities and then creating end-to-end agile teams ("use case factories") that integrate profiles from IT, sales, marketing, finance, and other functions. This approach ensures that use cases are immediately integrated into business processes and thus create value.

and capabilities within the COE (Exhibit 1), including data scientists ("quants"), data engineers, workflow integrators, data architects, delivery managers, visualization analysts, and, most critically, translators from the business who act as a bridge between

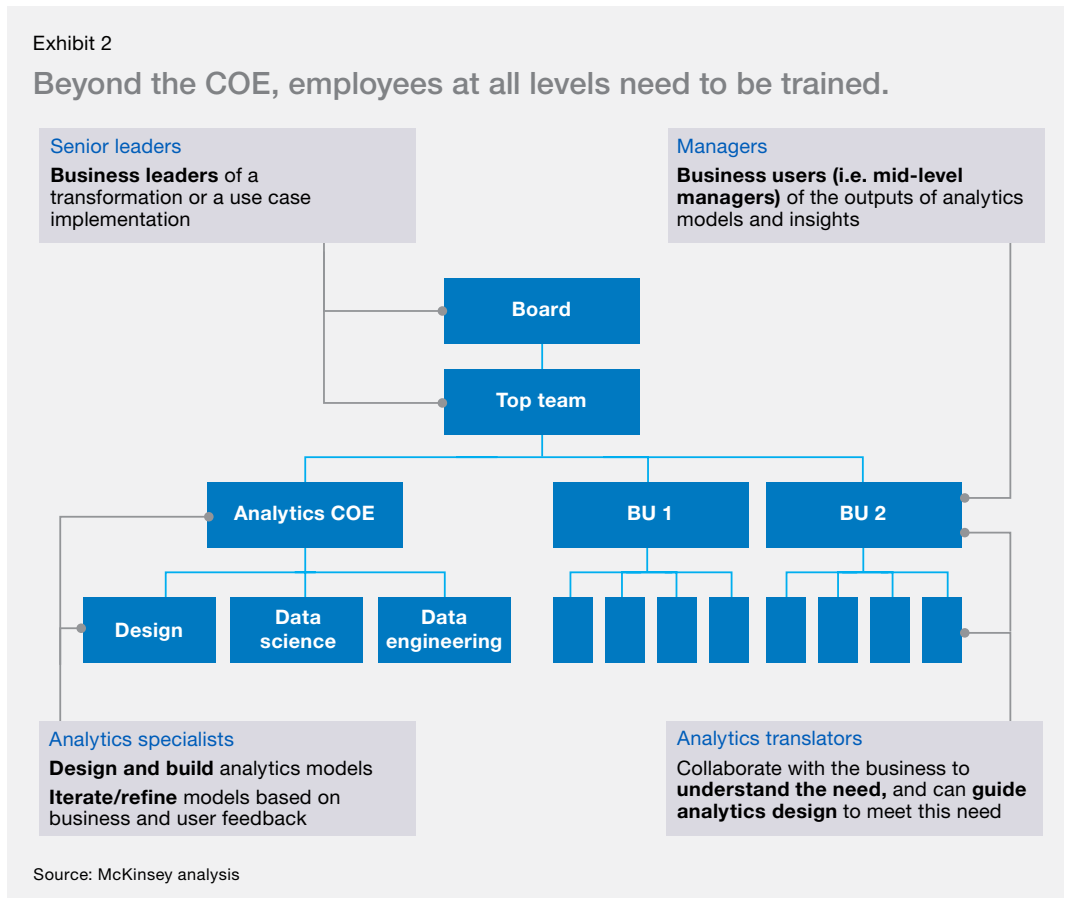
the COE and business units. The translators usually have a combination of business, analytics, and technology skills and are found in the business partner role in data analytics leadership.

Many COE roles are filled with highly specialized analytical resources recruited from advanced degree programs in computer science or math. But these individuals must also be able to translate sophisticated models into simple, visual decision support tools for front-line employees.

They also need to have a collaborative mindset, given the interdependencies among data, systems, and models. With translators bridging any communication gaps, team members from analytics and the business work together in two- to three-month agile “sprints” as they identify problems; find out whether relevant data exists and, if not, whether that data can be acquired; test their models; deter-

mine how those models will be put into production; and learn from the results.

The COE can be built in about 18 months, typically in incremental steps. It may start with five to ten data professionals, including data engineers, data scientists, and translators. In its end-state, it likely will require significantly more. The number of translators needed will vary by business unit but is generally about 10 percent of business unit staff. Most companies source their translators from “client” business units and then train them, since these employees will have deep knowledge of the processes that AA is trying to optimize. These individuals are usually analytical, critical thinkers who are well respected in the company.



To illustrate how the various key skills and roles come together in the COE, here is an example description of these roles' working together to fulfill a business request:

- The translator and business owner identify and prioritize the business request.
- The data scientist works with the translator to develop an analytics use case, including an algorithm and analyses to test.
- A data engineer from the COE works with the relevant business division to understand the data requirements of the use case and to identify data sources.
- The data engineer works with IT/the business to ensure data availability, identify gaps, and develop ETL (extract, transform, load) to load data into analytics sandbox.
- A data scientist programs the algorithm and analyzes the data in the sandbox to generate insights.
- A visualization analyst develops reports and dashboards for business users.
- A COE workflow integrator works with the business owner to develop a prototype for models and tools.
- The COE ensures that key business and IT stakeholders test the prototype tools and solutions.
- A delivery manager pilots the prototype and dashboard and works to obtain a go/no-go decision.
- The delivery manager and COE workflow integrator work with IT to scale the prototype to the enterprise level.
- The COE delivery team and translator work with the business and IT to ensure adoption and ongoing model maintenance.

In this process, feedback would be gathered between steps nine and ten.

While the COE and some of its roles may emerge gradually, it is best to have the data, platform, and career paths needed for an AA transformation in place from the beginning. If the platform is still under development, adding more people may only make that development more complicated. And without a clear career path, attracting this scarce talent will be difficult. As much as possible, roles should be clearly delineated to prevent squandering valuable talent on functions for which they are over-qualified, which can undermine retention.

Career development and strategic partnerships

Gaining an edge in analytics requires attracting, retaining, and sourcing the right talent.

In McKinsey's survey, 58 percent of respondents at top-performing companies say that their organization has deep functional expertise across data science, data engineering, data architecture, and analytics transformation. Top-performing organizations have four times as many analytics professionals and one and a half times more functional experts than other companies.

These companies also retain three times more talent—primarily by creating strong career development opportunities. People with superior analytics talent usually have many potential opportunities and thus need to see a clear career path and opportunities for growth within a company if they are to join or stay with it. Several career tracks should be

available, as some analytics staff may wish to pursue a more technical profile, others may move into translator or integrator roles with the business, and some will likely move into managerial positions.

In all cases, these individuals tend to stay motivated if they are learning on the job and from one another. Achieving this goal requires a minimum scale for each analytics group. Having only one or two data scientists in each function will not help them learn, and they may have difficulty making themselves understood.

To fill any gaps in talent, 62 percent of survey respondents at top-performing companies say that they strategically partner with others to gain access to skill, capacity, and innovation. For example, a large, multinational retailer developed a strategic partnership with a start-up incubator that focuses on identifying cutting-edge technologies—such as drones—to transform the retail industry. The retailer found that employing a mix of in-house talent and smart, strategic partnerships with other organizations enabled it to get the best out of both, thus affording access to skills, capacity, and innovation on a much larger scale. Through the incubator, the retailer formed partnerships with start-ups and venture capital investors. The company also created a compelling value proposition for attracting top analytics talent.

Beyond the COE: training employees for cultural change

As detailed in “Hidden figures: The quiet discipline of managing people using data,” on page 36, an AA transformation requires a profound cultural change, as the entire organization must change the way it operates. Employees need to learn to trust in AA, to understand what they can ask of it, and to know that AA can answer far more complex questions than traditional analytics ever could. Outside of the COE, then, employees at all levels—senior leaders, managers, analytics specialists, and analytics translators—need to be trained to be AA-proficient and to drive the transformation forward (Exhibit 2, page 65).

A sweeping—but feasible—transformation

Transforming a company to be AA-driven is a monumental task that should not be undertaken in one fell swoop, but instead incrementally, based on use cases. Since AA can and will transform a company, the effort to cultivate an AA-driven organization is most effective when it comes from the top, from senior executives. If a company focuses on the value of advanced analytics and builds AA capabilities as needed—while still having the data, platform, and talent strategy in place from the beginning—its AA transformation will succeed.

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