

The analytics academy: Bridging the gap between human and artificial intelligence

As organizations rebuild their foundations to compete in the era of data and advanced analytics, in-house capability-building programs offer the best way to train workers up to the task.

by Solly Brown, Darshit Gandhi, Louise Herring, and Ankur Puri

The rise of artificial intelligence (AI) is one of the defining business opportunities for leaders today. Closely associated with it: the challenge of creating an organization that can rise to that opportunity and exploit the potential of AI at scale.

Meeting this challenge requires organizations to prepare their leaders, business staff, analytics teams, and end users to work and think in new ways—not only by helping these cohorts understand how to tap into AI effectively, but also by teaching them to embrace data exploration, agile development, and interdisciplinary teamwork.

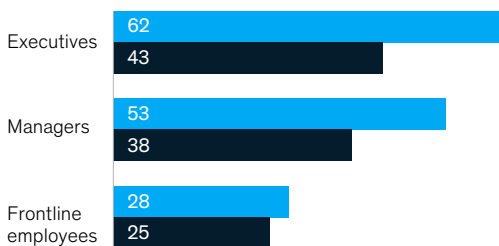
Often, companies use an ad hoc approach to their talent-building efforts. They hire new workers equipped with these skills in spurts and rely on online-learning platforms, universities, and executive-level programs to train existing employees.

But these quick-fix tactics aren't enough to transform an organization into one that's fully AI-driven and capable of keeping up with the blazing pace of change in both technology and the nature of business competition that we're experiencing today. While hiring new talent can address immediate resource needs, such as those required to rapidly build out an organization's AI practice at the start, it sidesteps a critical need for most organizations: broad capability building across all levels. This is best accomplished by training current employees. Educational offerings from external parties have limitations, too: they aren't designed to deliver the holistic, company-

Education is a key differentiator: At high-performing organizations, employees at all levels are better educated on data concepts.

Employees who understand data concepts very well or completely, % of respondents

■ At high-performing organizations
■ At all other organizations



specific training or the cohesive, repeatable protocols essential for driving deep and lasting cultural changes, agile and cross-functional collaboration, and rapid scaling.

The answer to the talent challenge, in our experience, is creating an **in-house analytics academy**. These bespoke analytics-training centers are a relatively new development, and our experience to date suggests that they are poised to move from early adoption by select organizations to core elements of the AI transformations that lie ahead for most companies.

In this article, we explore **what an analytics academy can do that other approaches largely can't**, as well as share best practices culled from companies that have launched academies.

It's important to note that the current focus for analytics academies is to help their organizations successfully bring AI to scale. As a result, their first order of business is to reskill those who play an active role in this work—for example, helping business staff to acquire crucial analytics-translator skills. As more AI systems are deployed, a subsequent and equally important issue that all companies and society in general will need to answer is how to retrain workers when machines take on tasks humans once did. We believe academies hold the promise of playing a role in this retraining effort. But that is part of a larger conversation that is not the focus of our discussion here.

The rise of the analytics academy

Our experience suggests that analytics academies can be an extremely effective avenue for developing an AI-educated workforce in a concerted manner, providing a mechanism to deliver three critical building blocks needed for successful AI efforts:

- **A common vision, language, and protocol** across training interventions ensures that all stakeholders (executives, business teams, analytics teams, and frontline staff) align around the core elements necessary to embed AI into their business successfully, to apply the same methodologies when identifying and developing solutions, and to understand one another's roles and responsibilities. Doing so institutionalizes knowledge and learnings from previous AI use cases, ensures sponsorship from leaders, and fosters community building so that teams run like well-oiled machines capable of building a minimum viable product much more quickly. It also enables organizations to deploy talent where it's needed, which not only maximizes expertise across the business but also boosts retention of highly sought-after experts, such as data scientists, whose job satisfaction is often closely intertwined with opportunities to learn and grow by working on a variety of different business problems.

- **Customized content linked to a company's goals, starting point, and industry context** ensures that training translates into business value. To this end, academies design learning programs that consider their company's transformation road map as a whole, as well as its unique cultural barriers and skills gaps that could derail progress. They tailor learning journeys to their business and worker needs, articulating how skills will enable the desired outcomes. For example, academies ensure leaders are well versed in AI so they can develop and execute a strategy that pushes them ahead of the competition. They offer business staff the technical knowledge to translate business needs into AI solutions. They enable data scientists, data engineers, and other technical experts not only to stay on top of rapid innovations in their field but also to learn how to collaborate with their business colleagues effectively so that they focus on the business problems that will drive the greatest value. And they consider how to shift workers who will be using AI tools from their tried and tested ways and assumptions to relying more on new AI-driven insights.
- **Active apprenticeships** help bring classroom theory to life, enable participants to learn by doing, and facilitate employee growth from a "learner" who has a classroom understanding of a topic to a "practitioner" who is skilled at capability delivery and, ultimately, to an "expert" who can lead in their function. In some cases, such as building translator expertise, this fieldwork is especially critical. Just like US medical school graduates need residency training to build their diagnostic chops, translators benefit from similar guidance as they learn.

There is no one-size-fits-all approach for delivering these components. Companies often structure their academies a bit differently based on where they are in their AI journey and where they need to go. Often, however, it is effective to start with executives and leadership in order to create alignment, establish a common aspiration and understanding, and enable role modeling for the broader transformation.

One global metals producer focused first on developing its leadership training program so it could effectively guide the company's AI transformation—which would ultimately reduce operational costs across more than 15 manufacturing sites. Senior business and operational executives who previously didn't back AI initiatives, because they were either doubtful of the technology or simply out of their comfort zones, became strong supporters of their company's transformation.

Six best practices for building an effective analytics academy

Even though there isn't a single "academy" template, we're starting to see some common themes among the most successful ones. Those themes include synchronizing academies with strategic goals; delivering tailored learning journeys to every stakeholder (starting at the very top and cascading throughout the organization); addressing all important skill gaps, not just the technical ones; promoting on-the-job learning; energizing engagement; and keeping training relevant over the long haul.

When integrated, we find the best practices that follow can fundamentally change the speed, depth, and scale at which these companies can extract value from AI-driven analytics. Not considering these practices in totality can have a domino effect. For example, organizations that treat the academy as a stand-alone entity rather than

as an enabler for transformation may not recognize who should be trained and what curricula are needed.

Tie training to transformations

Academies are most successful when they align skill building to their company's AI road maps. By articulating how newly acquired skills will further the company's strategic goals, they can ensure they have the right talent and skills to support their journey and demonstrate tangible value from their capability building.

One industrial firm used its academy to prepare leaders, business staff, and analytics teams for embedding AI into daily operations so they could squeeze out production inefficiencies. Leaders gained a strong understanding of the opportunity and how AI worked, driving greater buy-in and support for a series of use cases aimed at continuous manufacturing improvement. Simultaneously, analytics teams deepened their understanding of business goals and challenges, which shifted their focus from a purely technical endeavor, such as where they could apply a particular AI technique such as neural networks, to applying their expertise to solving problems with the highest business value.

Such work is paying off for the industrial firm. Academy-trained teams are already using AI to predict optimal operational parameters—for example, to identify which changes in machine settings will reduce quality defects. To date, these teams have implemented initiatives worth 10 percent of the company's earnings (before interest, taxes, depreciation, and amortization), with tens of millions in profit ultimately expected over 18 months as nearly a dozen new AI tools improve yield and throughput across multiple units in the plant, increase energy efficiency, and reduce defects.

At a large retail conglomerate, leaders created an academy to support a company-wide AI transformation launched to combat the existential threat they faced from digital natives. At the time, staff had limited analytics skills and were applying them only in small pockets around the company. Decision makers with more than 20 years of experience in their respective fields were often unaware, unconvinced, or uncomfortable with AI. However, in just six months, the academy upskilled more than 1,000 employees, with 150 new staff members now going through training each week. More than 40 of the 100 AI use cases on its road map are now in flight, and the company expects 70 percent growth in earnings before interest and taxes over the next three years, should all the use cases be completed.

Leave no role behind

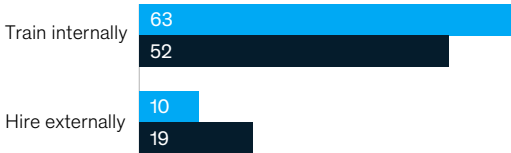
Delivering impact at scale requires active involvement from stakeholders across all levels of seniority, including boards, executives, business lines and functions, technical teams, and end users, along with highly critical translator expertise.

Academies offer a sustainable and streamlined mechanism for handling this broad range of learning journeys and typically provide a phased approach, tackling each cohort as needed.

High-performing organizations overwhelmingly favor in-house training for strategically important analytics roles such as translators.

What is your organization's most common approach to meeting its need for translators? % of respondents

- At high-performing organizations
- At all other organizations



At the aforementioned industrial firm, for example, senior executives participated in six two-hour sessions over the course of 12 weeks to learn “the basics,” including AI essentials, opportunity identification, and ways to sustain momentum. At the same time, more than 150 translators, data scientists, and data engineers received 50 hours of training over the course of ten to 12 weeks on how to deliver use cases collaboratively. For end users, such as plant-operations managers, rather than starting with workshops, the academy first sent regular bite-size emails on the value

of data, the impact AI will have on their day-to-day work, and AI success stories. The academy also conducted town halls for end users to ask questions. As end users become more familiar with AI, the academy plans to deliver targeted workshops to help them use new AI-driven predictions in their work and understand enough about the AI models to know how they arrive at their recommendations—knowledge that’s particularly critical for building trust in AI tools among workers used to drawing on their experience when making decisions.

When considering end-user training, most companies focus on those who will be actively using AI systems or need to incorporate AI recommendations into their workflows. (Store managers and knowledge workers are typical training targets.) However, we are seeing some organizations beginning to engage frontline workers who may not be asked to use new AI tools. For example, the retail conglomerate mentioned previously plans to deliver academy training over time to all 40,000 employees, including store cashiers, reflecting the CEO’s belief that the all-encompassing extent of the transformation he desires requires all-encompassing training.

Go beyond the math

Often, executives envision technical training when they first hear about the analytics-academy concept. True, academies often offer foundational courses—for instance, to help executives learn about AI or to help analytics teams keep up with rapid technology changes. Successful ones, however, also fervently emphasize the organizational and cultural changes required to scale AI and help codify knowledge and establish practices that ensure repeatable use-case execution, another critical enabler of scaling.

Companies that achieve better scale and value from analytics are

4x

more likely to spend more to embed analytics in the organization's cultural and operational DNA

Another retailer at the start of its AI transformation journey found that the most impactful elements of its learning program included the following:

- **Strategy, culture, organization, and talent.** The leaders' program focused heavily on what it takes to drive value, reshape the organization, and develop a data-driven culture.
- **Protocols on how to develop use cases.** Everyone from executives to translators learned a standard protocol for use-case execution—from how to identify potential opportunities and assess a use-case team's preparedness, to best practices in implementing use cases and sharing knowledge and learnings.
- **Soft skills and business knowledge.** The curriculum for technical experts focused heavily on soft skills, such as effective communications (an oft-cited skill gap for technical teams). Also critical was business-specific knowledge such as category management, so experts could more effectively define and prioritize business problems and engage with the business to improve the effectiveness of an AI tool.
- **Agile-development processes and cross-functional teamwork.** Technical teams learned how to apply agile approaches in an AI context and received tips on fostering interdisciplinary collaboration in the cocreation of new tools.
- **Program and change-management skills.** A major focus for translators and leaders was how to gain traction in use-case adoption, from activating front lines to tracking and capturing value over time.

This capability building had an immediate impact, including greater demand for AI tools from the more than 100 divisional leaders who participated in the program and smoother execution of use cases to dramatically increase deployment and adoption of AI.

Blend 'book smarts' with 'street smarts'

Successful academies also combine classroom theory and real work so participants learn by doing and can advance the company's agenda at the same time. We often see this real-world learning delivered in one of two ways.

First, within the classroom, academies offer hands-on projects directly related to solving existing business challenges. For example, after translators at an Asia-Pacific telco completed coursework on spotting AI opportunities, they were asked to put theory into practice by identifying three potential initiatives in their business and

then pressure-testing the value and feasibility of each use case. The laser focus on business value has put them on track to deliver more than \$100 million of incremental earnings before interest and taxes over the first 18 months of the program.

Second, and more important, outside the classroom, academies provide coaching and on-the-job training on active company use cases. By bringing together classroom learning and apprenticeships in targeted learning journeys, academies help participants grow from learner to practitioner as they gain real-world experience. At the metals manufacturer, for example, process-control engineers who received translator training were tasked with initiating the company's first use cases for optimizing manufacturing and supply-chain processes. The engineers guided their teams on which problems to tackle (they found the biggest win was optimizing the recipe for the most important alloys) and drove design, adoption, and training related to the dashboards that line operators would use.

Energize engagement

One multi-industry holding company offers a model for how companies can motivate workers to attend academies and apply their learnings. First, it positions training for prime roles, such as translators and data scientists, as a privilege. For example, business leaders nominate high performers for translator training, who are then approved by the company's chair, vice chair, head of analytics, and academy program head. Likewise, data-science and data-engineering candidates must be cleared for training following a technical-assessment test.

Second, the company celebrates achievements, including individual completion of courses, team completion of projects and delivery of value, and overall attainment of organizational milestones, such as completion of priority use cases. High performers are awarded trophies at the annual company meeting in front of more than 100 leaders.

Third, in addition to applauding achievements, the company works to free academy participants from fear of failure as they pursue fieldwork. Learners present to specialists—and sometimes even to the CEO—use cases that didn't quite go as planned. By asking different types of constructive questions, diverse constituents illuminate a wide range of lessons learned.

Finally, the company is making training social and even community led. For instance, academy participants take and upload short, two- to three-minute videos on a community website, sharing everything from what they learned to what projects they worked on. Use-case teams present technical aspects of their work to other program members and colleagues from their business vertical. And the company is now organizing meet-ups and hackathons with the broader AI community in its region and even inviting faculty from local institutions as guest speakers—all of which drives demand for skill building from the ground up.

Keep it relevant

AI technologies are constantly evolving, and technical experts need to stay up to date on AI techniques, tools, and supporting technologies. Talent comes and goes, and new hires need to acquire institutional knowledge quickly. As transformations march forward, cross-functional teams find better ways of working together, which must ultimately be fed back into the ecosystem.

As a result, the most successful academies put in place structures that allow them to continue evolving as the landscape changes. These include the following:

- **Cultivating internal faculty.** While organizations typically launch their academies using external faculty, several companies we work with are actively building out their cadre of internal faculty. At the Asia–Pacific telco, high performers from the first wave of academy training were selected to cofacilitate courses during the second and third waves of training. Over time, they were given increasing ownership for leading classes. By the fourth wave of training, they transitioned from teaching assistants to lead instructors, receiving behind-the-scenes coaching as needed. The telco also videotaped experienced facilitators as reference for new instructors.
- **Creating an academy leadership team.** Responsible for growing the academy, this leadership team continually updates the curricula to bring real-world experience back into the classrooms. The metals producer, for example, aims to create a new team within its analytics center of excellence, reporting directly to the head of analytics, to oversee academy growth. This team will likely include an academy dean and content managers for each learning track, along with support from the company's learning planners in HR.
- **Engaging ongoing support from leaders.** The CEO at the industrial firm joins academy participants for lunch on opening day of each training program to reinforce the importance of their mission, presents the awards to academy graduates at company events, and gives top performers first pick of plum assignments. Such support not only generates excitement around academy training but also elevates the visibility of graduates (and their skills) to ensure they have meaningful roles in the company's transformation moving forward.

A growing number of global organizations are elevating capability building to the top of their AI agenda. They recognize that tapping into the transformative power of AI is not simply about building the technical platform, identifying opportunities, or even hiring data scientists. The keys to success also include upskilling the 60-something-year-old board member, the seasoned but sceptical executive, and their newly formed cross-functional analytics teams and frontline end users, to ensure all have the skills and knowledge they need to help their company choreograph AI at scale.

Driving capability building at such a significant and, in many ways, organization-specific level across a diverse workforce requires the targeted learning journeys that analytics academies are expressly designed to deliver. Already we've seen academy-trained teams gain more traction with AI than was previously possible within their organizations. And as the technology continues to evolve, so too will academies, to ensure workers are equipped for whatever lies ahead.Q

Solly Brown is an associate partner in McKinsey's Sydney office, **Darshit Gandhi** is an associate partner in the New York office, **Louise Herring** is a partner in the London office, and **Ankur Puri** is an associate partner in the Delhi office.

The authors wish to thank Ali Arat, Holger Hürtgen, Sebastian Kerkhoff, and Akanksha Midha for their contributions to this article.

Copyright © 2019 McKinsey & Company. All rights reserved.