

Unlock the people equation

Using workforce analytics to drive business results

IBM Institute for Business Value
in conjunction with the IBM Smarter Workforce Institute

Executive Report

Workforce Analytics

Enabling the workforce to drive the business

IBM Talent and Change services and Smarter Workforce solutions combine market-leading talent management and social collaboration tools with the power of workforce science and advanced analytics. They enable organizations to attract, engage and grow top-performing talent, create an engaging social and collaborative culture, and connect the right people to get work done. We help organizations build an impassioned and engaged workforce and deeper client relationships leading to measurable business outcomes.

The key to understanding the workforce

As the complexity of workforce challenges continues to rise, so will the demand for more quantitative approaches to address the increasingly difficult people-related questions central to organizational success. The power of workforce analytics lies in its ability to challenge conventional wisdom, influence behavior, enable HR and business leaders to make and execute smarter workforce decisions, and ultimately, impact business outcomes. To realize value from investments in workforce analytics, organizations need to understand: the relationship between their workforce strategies and their business challenges; the approaches at their disposal; and the capabilities required to translate raw HR data into defensible action.

Executive summary

Gary, the senior vice president for engineering services, re-read the resignation note. Though the email was succinct, he stared at the screen for several minutes as if to find deeper insights between the letters. This was the third project leader who had left in recent months. The company had a major transformation underway, so it was clearly not a good time for important projects to be left rudderless, even for a short stretch.

Gary wondered whether this was an aberration or a new trend emerging within the product engineering group. “How many people have we lost in the last 18 months? How many were high performers the company had carefully cultivated? Did we push them into roles they weren’t ready for? Could we have spotted any warning signals? Could we have done anything to prevent their departures?”

Variations of this scenario play out daily among line managers and HR leaders trying to understand the ongoing ebbs and flows of their workforce. Many organizations wrestle with this central question behind Gary’s dilemma: “How can we better understand and manage our workforce to improve business performance?”



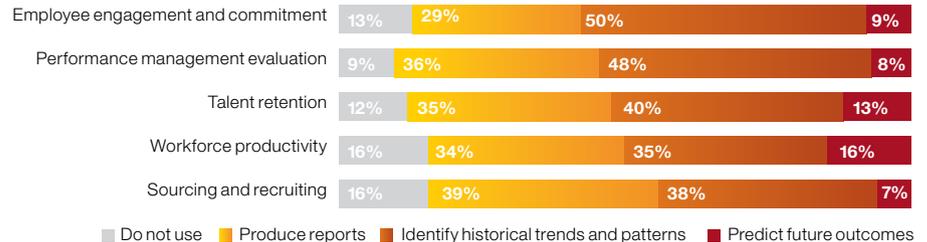
Less than 20 percent of organizations are able to apply predictive analytics to address important people issues

Over 40 percent of organizations are limited to basic HR reporting capabilities

More than 50 percent of companies report difficulty with integrating workforce data from HR and non-HR systems

While in recent years, many companies have strengthened their analytics capabilities in areas such as Marketing, Supply Chain and Finance, far fewer have begun to apply analytics to unravel elusive workforce dynamics such as turnover, employee engagement and productivity (see Figure 1). Many have built the capability to produce basic HR reports and metrics, and some have begun to use analytics to reveal and understand historical trends and patterns. However, the 2014 IBM study of 342 CHROs reveals that less than 16 percent of companies report the ability to use data to make predictions and take action on future workforce issues.¹

Figure 1
How organizations use analytics today



Source: IBM Institute for Business Value. "New expectations for a new era: CHRO insights from the Global C-suite Study," 2014.

To better understand how companies use workforce analytics to improve business performance, we interviewed individuals with responsibility for workforce analytics from 41 organizations throughout North America, Europe and Asia Pacific. Their organizations ranged in size from less than 5,000 to several hundred thousand employees and represent a wide variety of organizations, including retailers, technology companies, banks, government agencies, insurance providers and consumer product producers, among others. We also conducted an extensive literature search and interviewed workforce analytics experts in our IBM HR analytics function and advanced analytics teams.

This study focused on four questions:

- **What types of problems are organizations attempting to solve with workforce analytics?**
- **How do organizations approach these problems, and what analytics techniques are they using?**
- **What capabilities do organizations need to be effective with workforce analytics?**
- **What obstacles are organizations encountering, and how can they be avoided?**

Ultimately, the objective of workforce analytics is to enable HR and business leaders to make more strategic decisions about how to best manage workforce challenges, ranging from the aging workforce and knowledge loss, to top contributor attrition, to employee engagement.

“One of our driving forces has been the natural progression of analytics into HR. Lots of our HR people came from Finance. We are data hungry as a group. When a question comes up, the first thing the people (who came from Finance) say is, ‘Let’s go back and look at the data.’”

Vice President, HR Analytics, Entertainment

Unlock the people equation

The driving forces of workforce analytics

A range of external and internal forces are leading organizations to use workforce analytics (see Figure 2).

Externally, the nature of the global workforce is changing rapidly, making it more challenging to understand where and how work is performed across an organization. Regulatory and compliance issues require companies to become more transparent in how they classify their employees and demonstrate how they are reducing bias and risk in hiring and promotion decisions. Emerging data sources such as external labor market data and mobile and social applications provide new opportunities to gain even deeper insights into workforce issues.

Figure 2

The increasing use of workforce analytics stems from a wide variety of external and internal influences



Source: IBM Institute for Business Value analysis.

Internally, several forces are also compelling organizations to use workforce analytics to make smarter workforce decisions. Study participants highlighted shifts in strategic direction, including mergers, acquisitions and divestitures — requiring a more insightful view of the workforce. These and other large-scale transformation efforts serve as catalysts to better understand shifting capabilities requirements and manage the inflows and outflows of people in emerging strategic areas. Lastly, experience in using analytics within other parts of the organization stokes greater demand and expectation for HR analytics capability.

From our discussions, it is clear that workforce analytics provides a unique set of challenges compared to analytics efforts pursued in other areas of the business.

HR information systems have not received the same level of investment or attention as other systems, so companies face a litany of data management, integration and visualization challenges. Our recent IBM CHRO study reinforces this fact: over half of companies are challenged by their ability to integrate data within HR systems, or between HR systems and other internal systems such as Sales or Financial.²

Also, employees in HR may lack the level of quantitative experience necessary to extract key insights from today's data. In addition, workforce-related data is a reflection of individuals, who, due to their motivations and actions, are far more complex and unpredictable than commodities or financial metrics. Further, workforce analytics can have significant personal consequences for those affected by its decisions.

Despite these challenges, workforce analytics has powerful potential to shape policy and actions, enabling leaders to discern previously unconnected patterns and trends, and develop an evidence-based perspective of workforce challenges and opportunities. It provides the basis to confirm existing hypotheses and supersede conventional HR thinking.

“If the data is wrong for one person, the organization will question the entire 1,000-person analysis. We have to trust enough to see the value in the data. But the problem is that this is about ‘Bob,’ a person; it’s personal and not about a bottle of shampoo.”

Senior Group Manager, HR Business Intelligence, Retail

Getting down to business

A notable theme emerging from our interviews was the importance of applying workforce analytics to solve business problems through HR actions and interventions, such as identifying the best hiring sources or optimizing employee engagement. From our research, we found companies applying workforce analytics to address six primary business issues (see Figure 3).

Figure 3

Key business issues that can be addressed using workforce analytics

Business issue	Description	Example
Optimizing costs 	Identify and reduce workforce-related expenses such as recruiting, attrition, labor costs and increasing overall efficiency.	A financial services company is looking to reduce attrition in its customer service staff to lower training and turnover costs while maintaining appropriate service levels.
Transforming the business model 	Make significant strategic changes to the way the organization does business to enhance competitiveness and impact the bottom line.	A consumer products company needs to decide where and how to source new candidates with technology skills required to drive its future digital transformation.
Enhancing customer experience 	Increase the quality of service and positive customer experience in all aspects of contact with the provider.	A retailer is looking to staff its stores with the right mix of associates based on product experience and seasonal traffic patterns.
Accelerating sales 	Increase sales and profitability through deeper insights into salesforce enablement.	A technology company needs to make smarter decisions about which salespeople should be assigned to which accounts/territories in its B2B model.
Increasing innovation 	Enable teams to increase innovation and reduce time-to-innovation ROI.	A pharmaceutical firm needs to determine the optimal R&D team mix from various disciplines to increase the chances of a disruptive breakthrough.
Managing risk 	Reduce business, financial, information security and reputational risk.	A federal agency needs to make smarter hiring and training decisions to increase the probability that its law enforcement officers interact effectively with the public.

Source: IBM Institute for Business Value analysis.

While all are important, the need to optimize costs is among the most cited business challenges. Examples include an organization managing the number of employees — neither too many nor too few — in key functions and locations, and lowering the costs associated with employee attrition.

Similarly, we saw numerous examples of organizations applying workforce analytics to enabling large-scale transformation efforts. For example, several organizations we spoke with from a variety of industries are using analytics so that they have people with the required skills in the right locations to develop digital products and services.

Important, but mentioned less often, the organizations we interviewed were using workforce analytics to enhance the customer experience: increasing the quality of service by boosting employee engagement and making sure the right people were in the right roles with the right skills. Similarly, organizations apply workforce analytics to accelerate sales through smarter goal setting, identifying the traits of successful sellers and sourcing them more effectively.

We did see a smaller number of companies exploring the use of workforce analytics to foster innovation. This included visualizing the social networking patterns associated with sharing knowledge and developing new ideas, as well as understanding the diverse makeup of project teams. We also spoke with organizations using workforce analytics to understand risk-related issues, such as determining whether there is sufficient labor to support the organization's growth agenda.

“We use HR data to solve business problems that we could not have solved otherwise – to do things with those numbers that beforehand were much more difficult to do when buried in a spreadsheet.”

Global Director, Talent Management, Engineering

Interpreting the data: Traditional and emerging analytics approaches

The sophistication of workforce analytics approaches among our study participants varied widely (see Figure 4). Many felt reasonably comfortable with their ability to use descriptive statistics to report on and benchmark against basic HR metrics, though some remained hampered by both data quality and the need for ongoing report customization. A large percentage of companies reported using more diagnostic techniques, such as multivariate analytics, to identify correlations between two different data sets, such as leadership effectiveness and turnover, and to identify basic trends and outliers.

Figure 4

A full range of analytics options are used to solve workforce challenges

Types of analytics		Description	Example
Predictive	Descriptive and benchmarking 	Report on and compare existing HR data at various levels of granularity.	Identify percent of project leaders that voluntarily left the organization in the last 12 months.
	Diagnostic 	Understand the “why” — potential relationships and patterns among variables that contribute to outcomes, as well as data not fitting standard patterns.	Understand the potential relationship among age, tenure, pay, training and promotion velocity of top contributors who left in the last year.
	Forecasting and scenario modeling 	Identify future direction and different outcomes under various scenarios.	Identify by segment how many top-producing account managers will leave in the next 12 months.
	Propensity modeling 	Understand the predisposition of specific people and groups to take certain actions in the future.	Isolate the factors that would most likely contribute to a key leader’s decision to leave the organization.
	Prescriptive modeling 	Define the optimal actions to take to achieve a future outcome.	Identify the five actions that will lead to the greatest level of R&D leader retention.
	Cognitive computing 	Uncover patterns in complex data quickly and easily explore multiple hypotheses using natural language to interact with advanced computing systems that sense, infer and even think.	Verbally ask about the relationship between recruiting sources and performance among thousands of employees, and receive additional alternative patterns worth exploring.

As expected, the more mature organizations were applying predictive modeling, such as using robust forecasting models to predict turnover, and anticipate the future supply and demand for specific jobs. At the same time, they also dispelled the myth that descriptive analytics must be mastered first. They explained that once usable data is available and the right people with the right skills are in place, organizations can “jump” to predictive modeling. However, most of the organizations we spoke with were still uncomfortable with the leap toward predictive analytics.

A few organizations reported that they can identify the likelihood that certain individuals or groups would leave their jobs, given the actions of others with similar characteristics. A smaller number of companies described the use of prescriptive modeling, which not only determines the potential for an action to occur — such as an individual leaving the organization — but also identifies potential remedies to that action. Finally, to derive rapid insights, we see the early emergence of the application of cognitive computing which reflects machine learning and artificial intelligence to analyze structured and unstructured workforce data.

“We’re changing our business model through a wide-scale transformation initiative to move our enterprise to a more digital environment. Having the right competencies to support this change and our future requires careful planning.”

Vice President, HR, Global Financial Services

“We have used analytics to assess retention at the small-group level, but now we are also looking at attrition risk at the individual employee level. The holy grail for us would be to predict attrition by finding early warning signs in social data, like the level of engagement in social activity.”

Ian O’Keefe, Head of Talent Analytics, Sears

Thinking outside the box

We identified several emerging data sources that organizations are starting to use that provide new insights into workforce issues:

- **Social analytics** — Capturing and analyzing the data generated within internal and external social platforms to better understand interactions among individuals, overall employee engagement patterns, and identify trending topics and sentiment
- **Neuroscience analytics** — Using data collected from online cognitive tests based on neuroscience research to better understand an individual’s aptitude for different types of work-related activities
- **Sensor-based analytics** — Studying how employees move and congregate throughout the day to better understand collaboration patterns and identify sources of knowledge sharing and innovation
- **Integrated external labor market information** — Capturing information about local and global labor markets through mining macro-economic data, job boards, recruiting sites and other sources of public information.

While many of these approaches are still emerging, forward-thinking companies recognized the value and abundance of data these approaches offer.

Building a workforce analytics capability

Study participants identified eight vital capabilities needed to transform workforce analytics from a series of non-standard or ad hoc projects, to an ongoing source of value to the business (see Figure 5).

Of these eight, respondents considered four to be especially important: analytics roles and capabilities; data and technology; data security and privacy; and culture.

Analytics roles and capabilities

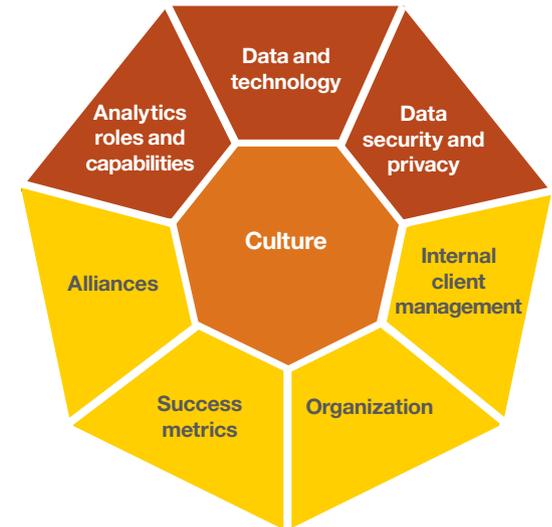
Participants cited the need for certain critical analytics skills, including data architecture skills, to understand important sources of data and how data moves among different systems. The importance of the emerging HR data scientist role was often mentioned, addressing the requirement for advanced analytics/statistical skills to recognize the strengths and weaknesses of different analytics methodologies and apply them appropriately. Additionally, and perhaps considered the most important, was the impact on HR professionals, from the CHRO to HR business partners. They must be able to think analytically, ask the right questions and develop hypotheses that can be evaluated by analytics models.

Data and technology

Having the right analytics tools and technology was at the forefront of technical capabilities. Managing the myriad of data sources and systems necessary to enable the use of analytics was seen as equally vital. While some organizations were comfortable with the accuracy and quality of their workforce data, others said this was still a major stumbling block in their analytics efforts. Among the primary difficulties companies faced were data quality, integration, standardization, visualization and governance.

Figure 5

Eight organizational capabilities that enable workforce analytics



Source: IBM Institute for Business Value analysis.

“We need culture change to drive data-driven decision making. Our industry is prompting all print companies to ‘unfreeze’ past practices. Change messaging is in everything we do, even in our paychecks.”

Manager, Workforce Analytics, Publishing

Data security and privacy

Workforce analytics provides the opportunity to improve decision making, yet it includes a responsibility to address concerns associated with the use of employee data.

Several participants we interviewed discussed not only the need for adequate security and protocols to prevent the inadvertent disclosure of employee data, but also the need for companies to address employee concerns about how data will be used. This includes a clear understanding of which data is freely available for company use versus which should be used only with permission, as well as transparency about how the data will be used and how individual privacy can be maintained. Organizations also need to consider local legal regulations and collective bargaining agreements in such decisions.

Culture

Good analysis, by itself, only solves part of the problem. According to many study participants, a culture that supports data-driven decisions and promotes the use of workforce analytics is a critical success factor.

Important keys to building a workforce analytics culture include:

- Communicating a compelling vision of the “future state” workforce analytics culture
- Securing executive sponsorship for workforce analytics
- Embedding workforce analytics into HR and business processes
- Promoting evidence-based workforce decision-making
- Driving and measuring workforce analytics adoption.

The other four capabilities also considered important by study participants, but mentioned less often were:

- **Internal client management** — Identify internal clients, understand their needs, set expectations and clarify the workforce analytics value proposition
- **Organization** — Design and structure the workforce analytics function, reporting relationships and accountabilities to support the business direction and the workforce analytics vision, as well as the establishment of a workforce analytics center of excellence
- **Success metrics** — Determine how to measure the impact of analytics efforts, assess adoption levels and clearly identify return on investment
- **Alliances** — Build strategic alliances with internal functions (particularly Finance, IT, and functional and geographic HR leaders). Draw from the lessons learned in parts of the organization that are more analytically mature. Work with partners to access external data sources and augment analytics capabilities as needed.

“The challenge is partly the data itself. What is the ability to integrate data from multiple sources? Is the data out of date? Is there duplication? And on an ongoing basis, how do we ensure data governance – a consistent way for managing people data effectively?”

Senior Manager, Group HR, Financial Services

“Drive conversation versus pushing data.”

John Callery, Director, People Analytics, AOL

Increasing the odds of success

Our research included organizations that are just starting to focus on workforce analytics, as well as those more advanced in their analytics capabilities. Understanding the needs of both groups yielded important lessons. For companies taking initial forays into the use of analytics, four areas were identified as potential pitfalls:

- *Being too “HR-centric”*: Solve business problems more than HR problems.
- *Seeking “data nirvana” before starting workforce analytics*: While organizations agreed that data quality is essential, remember that no data set can achieve 100 percent accuracy.
- *Positioning workforce analytics as a substitute for human judgment*: Keep in mind that analytics is a tool that can augment, rather than eliminate, the knowledge and wisdom gained through management experience.
- *Ignoring the need for trust*: Build confidence in the integrity of workforce data, the business acumen of analytics professionals and the validity of workforce analytics models.

Once an organization has built credibility through initial successful workforce analytics efforts, study participants told us about the importance of :

- *Linking workforce analytics to the overall business strategy*: Analytics efforts need to address business challenges that are significant to strategic outcomes.
- *Taking action based on discovered workforce insights*: Follow through on the results of decisions that were based on analytics efforts.

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- *Demonstrating workforce analytics ROI:* Communicate positive, tangible results using ROI metrics and share success stories to justify continued investment.
 - *Building the workforce analytics capacity to scale:* Early wins often bring a flood of requests from business users seeking similar benefits. Decide how to prioritize projects and resources, and develop distinct roles and responsibilities.

Leaders looking to jumpstart their workforce analytics efforts should focus on four areas.

- **Choose early winners.** Work with line-of-business executives who have a clear need and are receptive to analytical approaches.
- **Ride a transformational wave.** Leverage momentum from ongoing transformation efforts to obtain buy-in and resources, and create visibility.
- **Start small and grow.** Select initial projects where the scope is controllable and then expand by gradually taking on more complex projects.
- **Leverage symbiotic relationships.** Early on, build internal partnerships with other functions, such as IT and Finance, to get a head start and make the most of scarce analytics resources.

“Do not recreate the wheel. Reach out to other colleagues. Some companies have been doing it for 50 years.”

Melissa Arronte, Senior Vice President, HR Analytics,
Citizens Financial Group

Ready or not? Ask yourself these questions

- Which current strategic efforts are driving the need to better understand and manage your workforce, and how can you use workforce analytics to support those efforts?
- How can you more effectively measure and report the value of applying workforce analytics in your business?
- What major data impediments hamper your ability to apply analytics approaches? How can your organization overcome them?
- What current workforce analytics capability gaps exist within your organization and how can you close them?
- Which cultural dimensions support or interfere with the use of analytics to make smarter decisions about your workforce? How can you begin to orchestrate the necessary cultural changes?

For more information

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