



# A strategic approach to workforce analytics: Integrating science and agility

Derrick McIver<sup>a,\*</sup>, Mark L. Lengnick-Hall<sup>b</sup>, Cynthia A. Lengnick-Hall<sup>b</sup>

<sup>a</sup> Western Michigan University, 1903 W. Michigan Avenue, Kalamazoo, MI 49008, U.S.A.

<sup>b</sup> University of Texas at San Antonio, San Antonio, TX 78249, U.S.A.

## KEYWORDS

Agile development;  
Workforce analytics;  
Human resource  
management;  
Advanced analytics

**Abstract** Workforce analytics is a major emerging trend in human resource management. Yet, despite the enthusiasm, there exists a misunderstanding of how organizations can successfully use workforce analytics to achieve important organizational outcomes. This article proposes ways to overcome this execution dilemma and achieve organizational success with workforce analytics through the integration of agile development with scientific research. We use a number of company examples to outline five key parts of an agile workforce analytics process: (1) prioritizing issues, (2) integrating deductive and inductive approaches, (3) preparing and validating data, (4) applying multiple methods in concert to support decisions, and (5) transforming insight into action to improve business outcomes.

© 2018 Kelley School of Business, Indiana University. Published by Elsevier Inc. All rights reserved.

## 1. Data analytics for people-related decision making

The application of data analytics to improve efficiency and effectiveness is a growing trend in business (Acito & Khatri, 2014) that is having an impact in functional areas such as accounting (Earley, 2015), in organizational networks such as supply chains (Souza, 2014), and in economic sectors such as healthcare (Ward, Marsolo, & Froehle, 2014).

Human resource management (HRM) is a latecomer to the data analytics bandwagon (SHRM Foundation, 2016), but executives recognize its potential while acknowledging skepticism of their own organizations' readiness for adoption.

While it goes by several names—such as workforce analytics, human resource (HR) analytics, talent analytics, or people analytics—these activities all have several things in common (Marler & Boudreau, 2017). They involve the analysis of HR-related data, but also the integration of data from different internal functions and even data external to the firm. Information technology enables the collection, manipulation, and reporting of diverse types of both structured and unstructured data. All of this analysis is used to support people-related

\* Corresponding author

E-mail addresses: [derrick.mciver@wmich.edu](mailto:derrick.mciver@wmich.edu) (D. McIver), [mark.lengnickhall@utsa.edu](mailto:mark.lengnickhall@utsa.edu) (M.L. Lengnick-Hall), [cynthia.lengnickhall@utsa.edu](mailto:cynthia.lengnickhall@utsa.edu) (C.A. Lengnick-Hall)

decision making in organizations, and link HR decisions to business outcomes and organizational performance.

As early as the 1940s, a few large companies were using analytics to improve selection and talent management (Lawler, 2015). However, with the advent of information technology, collecting and analyzing data has become easier, making workforce analytics accessible to virtually any organization. Furthermore, new sources of data, such as those collected from wearable technology, email, and calendars, provide opportunities for understanding employee behavior and improving performance in ways heretofore not thought possible.

This growth of analytical and evidence-based decision making (and the technical tools accompanying it) has great potential for improving organizational effectiveness and efficiency. Yet, despite substantial publicity, a challenge remains for understanding how organizations can successfully use workforce analytics to influence organizational outcomes. As many organizations strive for strategic insights from their people data by building workforce analytics teams, execution has lagged behind other functions and often falls short of expectations (Rasmussen & Ulrich, 2015). For example, in a survey of 10,447 business and HR leaders, Deloitte (2017) found that although 71% of companies believe using workforce analytics is important for business performance, only 8% report they have usable data, only 9% believe they have a good understanding of which talent dimensions drive performance in their organizations, and only 15% have broadly deployed HR and talent scorecards for line managers. Even with the publicity surrounding workforce analytics, and the accompanying growth of corporate data, organizations have been slow to realize gains and often have encountered difficulties moving from interesting statistics to strategic impact.

To overcome this execution dilemma, we explore the benefits of using an agile development process in conjunction with an evidence-based management philosophy. This approach reflects the science-driven foundation of workforce analytics. An agile development process has been adopted by many companies (Chen, Ravichandar, & Proctor, 2016) and is receiving increased attention in academia since the release of the Manifesto for Agile Development (Beck et al., 2001). Evidence-based management is a recent trend originating in academia that encourages practitioners to use the best available evidence from multiple sources for making organizational decisions (Barends, Rousseau, & Briner, 2014). Together, an agile development process along with an evidence-based management

philosophy and practice allows organizations to maximize the benefits of workforce analytics.

This article explains how to develop an agile workforce analytics development process that incorporates evidence-based management practices while fostering flexibility and interaction across organizational processes, systems, and people to create value. Three building blocks need to be established before beginning the agile development process: (1) workforce analytics capability, (2) a workforce analytics vision, and (3) a strategic HRM perspective. The agile development process consists of five steps: (1) prioritize issues, (2) integrate deductive and inductive approaches, (3) prepare and validate data, (4) apply multiple methods in concert to support decisions, and (5) transform insight into action to improve business outcomes. The next section provides an overview of the state of workforce analytics and an explanation of why agile development can be particularly useful in its implementation.

## 2. Linking workforce analytics to organizational success

The benefits of data-driven decision making do not happen automatically for organizations. It can take a number of years to effectively build, analyze, and test effective analytical tools and models. Factor in the messy ethical and political issues with workforce data, the complex and changing nature of employment data, and the fact that HR is usually on the bottom of the technology resource allocation plans in most companies and it is easy to understand why success is difficult. Like all value-adding functions, workforce analytics must find a way to drive effective evidence-based decision making. Workforce analytics is a technology-centric, research-oriented field. Success in this context benefits from agile processes that use iterative solution development, and testing that allows for extensive collaboration.

Workforce analytics involves not only uncovering, diagnosing, and understanding major problems, but also the ability to design evidence-based solutions that adjust to changing needs, dynamic environments, and shifting requirements. Generational and life stage differences, the new gig economy, freelance work, flexible schedules, the digital experience explosion, as well as the constantly shifting balance in the global supply and demand for talent all put heavy pressures on analytics to constantly monitor, adjust, and react to changing conditions.

Both workforce analytics and HR in general are cross-functional activities. That is, workforce analytics is not only an HR concern, but also a concern in other functional areas such as marketing and operations. Workforce analytics does not solve HR problems exclusively; it solves business problems, too. As Ulrich and Dulebohn (2015) explained, success in workforce analytics requires everyone in the organization to develop a new perspective on HR and its role in the firm. It requires a new level of collaboration across the business.

Traditionally, the HR function was evaluated based on the activities it delivered rather than results. For example, an HR department might have justified its performance by touting the number of new employees hired during the previous year, the percentage of managers who received 50 hours of training, or the number of employees who attended meetings communicating the roll out of a new quality management program. As Ulrich (1998) explained, these activities were easily counted, but as measures of effectiveness, they were woefully deficient.

Rather than focus solely on activities, what is needed is a focus on results and an improved understanding of how results are achieved. For example, rather than simply measuring the amount of training provided, analytics need to provide evidence that shows how the training increased customer satisfaction and how increasing customer satisfaction increased sales. Rather than simply measuring number of hires, analytics need to provide evidence that investments in hiring higher quality employees led to productivity increases. This shift in focus from familiar HR metrics to crucial business outcomes will challenge HR professionals to interact, collaborate with employees in other areas, and incorporate feedback from decision makers across the organization.

Although HR policies and procedures should work as an overarching complementary system to drive strategic value, the process of developing analytical solutions to aid decision making needs to be segmented and iterative. A foundation of agile development is the value of incremental, modular developments. One of the pillars of predictive analytics is the benefit of small wins (Siegel, 2013) and most analytical work can be broken into parts and conducted in rapid iterative cycles. Consequently, a small modular win is typically seen as feasible and can go a long way to improving long-term workforce decision making. Furthermore, a predictive model is just one tactic in a large set of analytical tools. Data-driven solutions can range from well-designed dashboards, reports, and workforce scorecards, to big data and advanced analytical models. Making

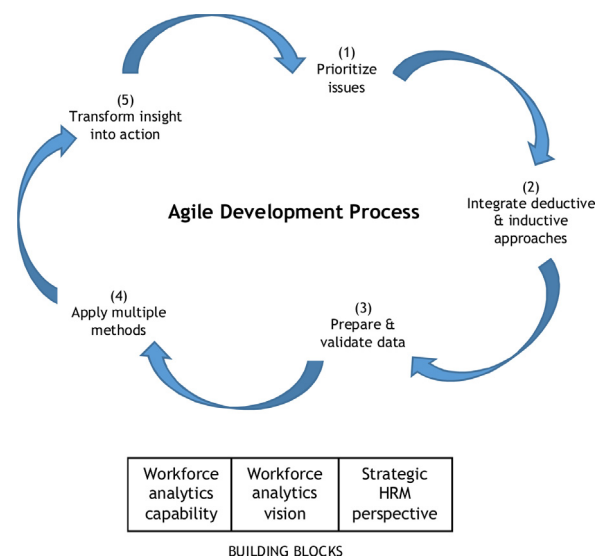
progress on any of these decision support tools through modular development techniques not only adds valuable insight, but also provides essential learning opportunities. Early iterations and pilot tests in workforce analytics create a mechanism for feedback and communication. Of perhaps even greater importance, tools developed through collaboration and user feedback have a stronger potential for actually being used.

### 3. Building blocks of an agile workforce analytics process

An agile workforce analytics process rests on a few major principles for guiding workforce initiatives in organizations. First, workforce analytics is an ongoing continuous improvement activity rather than an event with a targeted conclusion. Second, the process has emergent properties. That is, not all the issues in the ongoing process can be anticipated ahead of time. Many factors such as politics and data-related problems will surface during on-going activities. Finally, questions are expected to be reframed and new questions will arise during the development process. Leaders are expected to learn how to ask the right analytical questions as problem-driven issues become clear.

As shown in Figure 1, the agile workforce analytics process is built upon a foundation of three building blocks: (1) a workforce analytics capability, (2) a workforce analytics vision, and (3) a strategic HRM perspective. The five steps of the agile workforce analytics development process are: (1) prioritize issues, (2) integrate theory- and data-driven

Figure 1. The agile development process



approaches, (3) prepare and validate data, (4) apply multiple methods to support decisions, and (5) transform insight into action to improve business outcomes.

Next, we describe the three building blocks that form the foundation for implementing an agile workforce analytics process.

### 3.1. Workforce analytics capability

We identified four major workforce analytics capabilities areas: (1) math and statistics, (2) programming and database skills, (3) domain knowledge including HR expertise and behavioral science, and (4) communication and visualization. It is unlikely one individual will possess all of the requisite knowledge, skills, and abilities and be able to keep up with changes in all four domains—at least not at a reasonable cost. Because these competencies are difficult to find in a single individual, success often comes from forming workforce analytics teams comprised of a group of employees having diverse backgrounds. Firms often need to look outside HR to finance and IT departments to obtain the necessary skills. Going to the external market to borrow or buy capabilities is also an option. Large global ERP companies like Microsoft, SAP, and IBM are developing consulting practices devoted to this effort. In addition, specialized consulting firms that focus on workforce analytics are emerging. Academics are also starting to apply their knowledge on a much larger scale. All of these trends point to a growing number of available resources.

### 3.2. Workforce analytics vision

Agile development is not chaos without planning. Rather, it is a balance between prioritization and learning. Learning is incorporated into shorter workforce analytics planning and development cycles steered by a vision. The vision provides two critical functions. First, it sets direction and focus for the workforce analytics team. Second, it communicates to the organization exactly what the workforce analytics team is striving to do. This creates necessary transparency.

A sample vision provided by IBM's workforce analytics consulting group reads: "The workforce analytics function uses data-driven approaches to provide people-related insights that improve business outcomes" (Guenole, Feinzig, Ferrar, & Allden, 2015, p. 8). What is critical is that the vision provides initial direction, intent, and alignment. Johnson Controls has the following guiding vision: Use data and insight to "inspire, influence, and shape

how Johnson Controls makes people decisions" (Hirsch, Sachs, & Toryfter, 2015, p. 7).

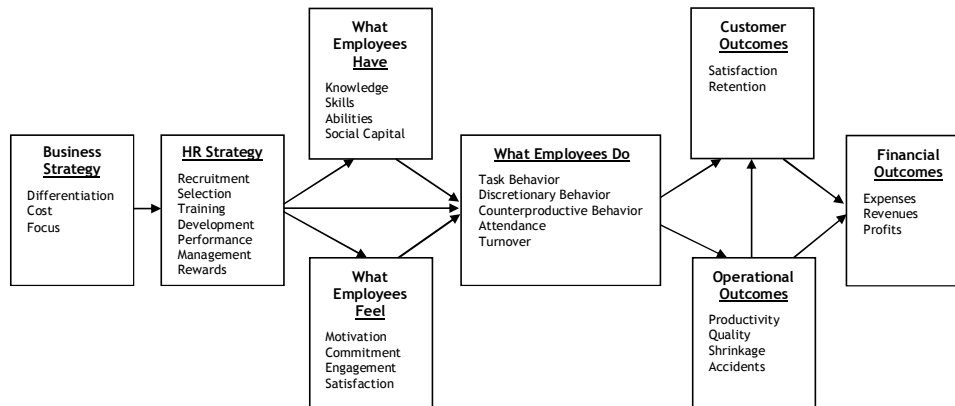
Vision provides direction and helps the organization understand the purpose of the workforce analytics team. Common themes include the emphasis on data-driven insights and the expectation of performance benefits. This provides the analytical compass for each of the five iterative cycle components.

### 3.3. Strategic HRM perspective

To benefit fully from the potential of workforce analytics, organizations need a strategic HRM framework or roadmap that focuses attention on important outcomes and the factors that influence them. This framework lays out important variables in a way that suggests possible linkages that workforce analytics can illuminate. It also provides guidance to workforce analytics teams as they build long-term strategic capability while at the same time make incremental improvements in operations. It provides a big picture of where they are going, but also allows them to create user buy-in through more short-term immediate impact projects. This is where an agile workforce analytics process can both demonstrate potential benefits early in the process and build momentum for a more long-term comprehensive approach when the foundations have been established. Too often in the past, organizations have tried to push major innovations by starting with a comprehensive approach and promising that benefits will follow later. Users are expected to embrace something that they may see as more work for no immediate gain. An agile workforce analytics process reverses the sequence of organizational change efforts and enables employees to experience benefits quickly.

Wright (2008) provided a general strategic HRM framework (see Figure 2) that can be adapted to specific organizations to provide guidance in workforce analytics efforts. It lays out a logical sequence showing possible linkages between various HR practices and intermediate and bottom-line outcomes. A robust research stream in the strategic HRM literature supports the benefits of strategic HR alignment. Achieving value means workforce policies and procedures not only complement each other, but also fit the strategy, the business model, and the culture of an organization. Successful alignment means that data gathering and analysis reflects the ways in which each policy and procedure works in the specific context and across the system as a whole. It is the antithesis of bandwagon adoption and doing something because other firms with very different contexts (e.g., strategy, culture, policies)

Figure 2. Strategic HRM perspective



Source: Adapted from Wright (2008)

are adopting a practice. Workforce analytics offers insight into making better decisions in complex systems of complementary policies and procedures in an organization. A strategic HRM framework enables workforce analytics efforts to consider these broader systemic effects.

Starting at the left of the framework, the organization's strategy (e.g., product differentiation) is linked to the HR strategy. The HR strategy supports and reinforces the organization's strategy by bundling a configuration of HR programs, practices, and policies (recruitment, selection, training, etc.) that affect employees in three ways. First, the HR strategy affects what employees have (knowledge, skills, abilities, and competencies). Second, the HR strategy affects what employees feel, or attitudes (motivation, commitment, engagement, and satisfaction). Together, what employees have and what they feel affects their behavior (task behavior resulting in job performance, discretionary behavior or going beyond what is specified in the job description, counterproductive behavior or working at odds against organizational functioning, and attendance and turnover). What employees do affects important operational and customer outcomes. For example, employee (e.g., a sales representative) behaviors can directly lead to increased customer satisfaction and customer retention. Alternatively, employee behaviors may directly affect operational outcomes (such as productivity, quality, shrinkage, and accidents), and indirectly affect customer satisfaction and retention. Finally, both customer outcomes and operational outcomes have an impact on the organizations bottom line: financial outcomes (expenses, revenues, profits).

It can be tempting to focus workforce analytics solutions narrowly without incorporating the broader picture. For example, many turnover prediction models suggest commute distance and

demographics such as age are predictors of turnover. A solution that lacks a strategic and integrated approach to achieve fit might suggest organizations stop hiring people that live far away and only hire those of a certain age. A strategic and integrated view to achieve fit would instead realize that turnover itself may not be a crucial root problem. Rather, the problem may be various business issues in which turnover plays a role or is a consequence. A strategic and integrated approach looks across the organization, sees the benefits of diversity, the consequences of some turnover, and addresses the turnover issue from a variety of perspectives using a collection of methods. A systemic solution would assess hiring, onboarding, development, performance management, voice, and employee experience issues. Focusing on isolated metrics without proper context leads to suboptimal decision making.

#### 4. An agile workforce analytics development process

Agile methods arose from the dissatisfaction of many organizations with the bureaucratic, costly, and ultimately unsuccessful software development processes that had been used since the 1960s. The Agile Manifesto issued in 2001 proclaimed the need for more flexible and dynamic approaches. However, early attempts at capturing just what was meant by agile methods resulted in ambiguity and lack of theory. Conboy and Fitzgerald (2004) were among the first to bring some clarity and focus to the topic. They defined agility as "the continual readiness of an entity to rapidly or inherently, proactively or reactively, embrace change, through high quality, simplistic, economical components

and relationships with its environment” (Conboy & Fitzgerald, 2004, p. 40). Agile methods consist of three components: (1) flexibility—an organization must be able to respond flexibly, (2) speed—an organization must be able to respond rapidly, and (3) continuous change—organizations must have a continual readiness to change and embrace it as an ongoing activity. Much like software development, workforce analytics involve information technology, skilled analysts, and organizational users collaborating dynamically to create the best available evidence for organizational decision makers. What follows is a description of how agile methods can be used to increase the probability of the successful implementation of a workforce analytics capability in an organization. An agile workforce analytics development process consists of five steps: (1) prioritize issues, (2) integrate deductive and inductive approaches, (3) prepare and validate data, (4) apply multiple methods in concert to support decisions, and (5) transform insight into action to improve business outcomes.

#### 4.1. Prioritize issues

Workforce analytics should focus on issues that have the potential for the greatest impact on important organizational outcomes. Boudreau and Ramstad (2005) use the term *pivotal* to describe those issues that provide the potential for the greatest impact on the organization. With limited resources, decisions must be made wisely with an eye toward getting the most benefit from investments. The question to ask is: “Where does improving the talent of the organization matter most?”

Once organizations begin the workforce analytics process, often an insatiable demand driven by user requests emerges. Responses to this demand need to reflect the organization’s ability to develop actionable strategic insights and cost realities. The initial state of the analytics process is a major factor determining the priority of various initiatives. Some organizations benefit from beginning with an initiative that enables a quick win to establish credibility. Organizations that have an established data-driven culture might benefit from a more substantial first action. The key is to focus on the business issue instead of being obsessed with the data.

As in most technology-centric fields, projects with a high cost and low business impact should be avoided. In a webinar, Will Gaker (2015) from LinkedIn’s workforce analytics team suggested prioritization needs to be driven by two dimensions: (1) business impact and (2) organizational readiness. High impact and high organizational readiness

projects get immediate attention and high priority. Projects with low impact but high organizational readiness are handled through automation and self-service business intelligence. Low impact and low readiness initiatives are avoided and high impact and low readiness projects go in the pipeline.

At Johnson Controls, prioritization relies on evaluating projects on four distinct elements. First, the business must demand it. This means only projects for which there is a defined and established need that will have a positive impact are selected. Second, the data must be available or inexpensive to collect. This means hypothesized predictive elements should be available or there is an effective method to start tracking needed data. Third, the problem has to have what the team refers to as a ‘green element.’ This means projects selected for investment are likely to be reused or might meet multiple future requirements. Finally, outcomes from initiatives must be able to compel action. That is, results must go beyond confirming anecdotal expectations and a plan for using outcomes to drive action in the organization is established prior to conducting the analysis and building a solution.

#### 4.2. Integrate deductive and inductive approaches

With the advent of powerful information technology and the ability to collect and analyze large data sets, organizations have the opportunity to combine two scientific approaches with workforce analytics: a theory-driven (deductive) approach and a data-driven (inductive) approach. Unfortunately, much of the momentum driving workforce analytics adoption in organizations today focuses solely on a data-driven (inductive) approach without considering a theory-driven approach.

One of Google’s early workforce analytics efforts provides a case in point (Pfeffer & Sutton, 2011). For many years, leaders at the company felt that technical expertise was the most important trait for effective managers to have. Managers were thought to be best when they left their employees alone to do their work and only intervened to provide technical assistance as needed. However, when the workforce analytics team dug into company data, they found that employees rated technical expertise last among eight qualities of an effective manager. Instead, effective managers were found to have attributes such as staying even-keeled, asking good questions, taking time to meet with people, and caring about employees’ lives and careers. As Pfeffer and Sutton (2011) pointed out, Google’s data-driven inductive approach identified many attributes that had already been studied in the

research literature and found to be effective. Perhaps time could have been saved and improvements in management made earlier had both a theory-driven and data-driven approach been used.

Deductive and inductive approaches to workforce analytics have similar steps but in different sequences. A theory-driven deductive approach begins with a theory (either something new and original or one that has already received research attention in the scientific literature). Next, testable hypotheses are derived from the theory. Then, observations (data) are collected to test the hypotheses. Finally, the data are analyzed and results are used to either support or disconfirm the hypotheses. In contrast, a data-driven inductive approach begins with observations (data) that are collected or acquired. Patterns or regularities in the data are explored using various analytical methods. Tentative hypotheses are derived from the analysis and theory is constructed from the hypotheses. Rather than viewing these two approaches as mutually exclusive, it is more productive to see them as complementary, providing useful insights that, in the case of workforce analytics, yields a more comprehensive understanding of the issue under consideration.

#### 4.3. Prepare and validate data

Unfortunately, many workforce analytics projects focus on achieving high levels of sophistication and technical outcomes, but fail to stress the importance of key inputs: the data. In reality, workforce data are messy, vast, always changing, comes from many sources, and it is rare that available data are sufficient to address all of the important questions. This underscores the need for an adaptable measurement strategy. Furthermore, many of the data problems are uncovered in the data or metrics as they actually are applied in a scientific data-driven framework. This also increases the need for agile development. It is therefore critical for workforce data to be repeatedly reviewed, evaluated, cleaned, added to (e.g., collecting new data), and transformed to create reliable metrics as part of a data and measurement strategy. The three main goals for data preparation and validation are: (1) data are available or can be collected to measure important variables related to the business issue, (2) stakeholders perceive the processes and data as transparent, and (3) outcomes from the data collection and analysis can be acted upon. Transparency is important because workforce analytics initiatives ultimately will fail if managers don't trust the data or employees feel their privacy is being invaded.

Guenole and Ferrar (2014) argued that data validation should have built-in *feedback* about the data from those who are affected, sharing personal data should be optional or rely on an *opt-in* policy, *recognition* of and benefit to those affected should be prioritized and obvious, and the data use should be *transparent* (FORT). Essentially, validation initiatives should not only improve and build the data source, but also inform everyone early in the process. When using an agile process with a data strategy, validation will bring critical issues with the data to the surface, and more importantly, critical issues of the business. Validation can be an inexpensive way to uncover problematic organization-specific issues.

The workforce analytics team at Johnson Controls views data preparation and data validation as one of the most important steps of the process. To assure validation, the Johnson Controls team establishes and shares what they call validation profiles to ensure transparency throughout the organization. Validation eliminates some of the 'black box fear' ensuring employees know about data being used and where the data originated. Issues are addressed early and in a transparent manner. Feedback from validation informs further solution development. By dealing with data issues early in agile development cycles, validation also moves later critical conversations away from data issues toward business impact.

#### 4.4. Apply multiple methods in concert to support decisions

Too often, organizations adopt complex models over simple solutions. This can lead to overlooking simple value-added options like measuring the level of strategic understanding in the workforce and determining whether employees know how they impact the business. Research by Becker, Huselid, and Ulrich (2001) demonstrates that this kind of analysis can produce powerful results. Discovering what phenomena to measure and learning how to capture key factors is just as critical as advanced modeling. Easy, cost effective measurement of critical data often can provide bigger bang for the buck than costly, sophisticated, complex data solutions that are difficult to interpret. For example, simple dashboards help to drive questions, start conversations, uncover opportunities, and lead to actions just as much as advanced regression models with impressive visualizations do. A simple dashboard showing a grid with current talent capabilities, talent desires, and talent capacities in each area can be a great visualization tool to show the status of the workforce and upcoming needs for strategic

workforce planning. Combining this with external supply talent forecasting and predictive strategic sourcing using pre-hire prediction algorithms leads to a high impact solution that capitalizes on a mix of analytical tools and techniques.

Selecting an approach that incorporates various tools and techniques with a laser focus on organizational decision-making norms has the highest probability of leading to scalable and predictive insights that drive action. Essentially, the key is to use a menu of techniques together to build a very user-friendly analytics engine to serve the decision makers, similar to how Amazon and Netflix serve their customers. Effective workforce analytics is not about the analysts demonstrating their prowess by providing eye-catching sophisticated mathematical models, but instead by providing users with what they need to make better decisions in a format that users can relate to and understand and, more importantly, in which they can take action.

#### **4.5. Transform insight into action to improve business outcomes**

Useful analyses that are not acted upon are merely missed opportunities. It is one thing to conduct a technically sophisticated workforce analytics effort. It is another thing to get people to use the results in a way that improves business outcomes. Analysis informs the decision, but does not present an optimal solution. It is crucial to begin by asking and understanding what decisions the organization plans to make or what the organization wants to change. It is also essential to understand who are the process owners, the stakeholders, and the ones who will affect and be affected by the results. For example, flagging employees for attrition or building a survival analysis model that predicts employee exits is only the beginning. Using that information to take action involving specific employees must follow for the organization to benefit.

The key output from workforce analytics is not a dashboard or an attrition number, but the actions that decision makers and companies take that alter the business to add value. One of the biggest challenges for creating value from any analytical model is scaling the model into production and turning the results into action. The potential value of workforce analytics models is undeniable, but the hardest part of workforce analytics is often change management, including communication, organizational buy-in, and collaboration.

LinkedIn and Johnson Controls provide two examples of how companies transform insights into action. LinkedIn's workforce analytics team uses analytics as the 'connective tissue' across the employee life

cycle. This means workforce analytics shapes recruiting and hiring, monitors onboarding and time to productivity, inclusion and engagement, measures the effectiveness of training and learning, evaluates how programs influence performance, predicts retention, and measures succession risk. Similarly, at Johnson Controls, dealing with critical business issues ranging from improving sales to decreasing turnover begins by prioritizing and implementing the right set of complementary tactics and ensuring there is value placed on people management skills. A prime example of this is their analysis of performance management reviews. Rather than jump on the latest trend of dismantling them, the workforce analytics team analyzed the process in detail and discovered that not completing the review, and specifically not completing the goal setting part of the review, was a strong predictor of controllable turnover. Instead of eliminating the reviews, Johnson Controls shifted the process to focus on more frequent goal setting to create alignment in the organization. Success in achieving desired organizational outcomes depends on implementing context-dependent policies, procedures, and practices.

Johnson Controls also uses a methodical approach for sharing results that puts a premium on building buy-in and incorporating feedback along the way. Each iteration involves sharing insights with different levels of the organizational hierarchy, identifying key constraints to action, brainstorming potential action items, and identifying next steps. This process usually surfaces a number of potential organizational constraints. The action items focus on changes in policies and procedures and depend on prioritizing and implementing the right set of tactics. The early conversations quickly shift from how we got these numbers and what's inside the analytic 'black box' to the complementary procedural and cultural changes needed to drive the business.

Turning insight into action highlights another key activity for workforce analytics: monitoring and measuring results to determine whether the action was effective. It is essential to establish and capture the data to determine if the change was perpetual (Kotter, 1996). It is vital to close the loop and continuously improve and monitor the outcomes of the actions.

#### **5. Example: Applying an agile workforce analytics process to improve store performance**

Similar to many retail organizations, Foot Locker's retail stores were disadvantaged by high turnover



that arose from a decentralized, high volume hiring process performed by busy store managers. Foot Locker used an agile development process to create actionable solutions from workforce analytics to improve hiring and enhance store performance. To assure results and validity, the company embarked on a multi-year journey that included many iterations and pilot programs. If they had jumped directly into wide-ranging redesigns of policies and procedures, they would have missed opportunities for further testing and refinement and for robustness checks on potential changes. The result was an analytics-driven technology platform that improved candidate selection and experience, expedited the onboarding process, and resulted in a double-digit reduction in turnover. This, in turn, led to more employee time selling, double-digit increases in productivity, increased customer satisfaction, and a significant increase in in-store sales. The Foot Locker initiative illustrates the steps of a practical application of an agile workforce analytics process.

Assessing strategic fit required assuring that the end result not only aligned with Foot Locker's strategy and business model, but also determining that it was realistic for the employee experience and easy for store managers to use. The outcome of the workforce analytics effort was an integrated combination of online assessment and in-store interview processes that helped improve the hiring outcomes and enhanced store performance. This integrated approach saved countless hours of hiring manager time allowing them to focus on store operation and execution. This furthered the company's ability to implement its business strategy and compete effectively in the marketplace.

### 5.1. Prioritize issues

Foot Locker attracted more than 1.5 million applicants across more than 3,400 locations each year and wanted to increase sales per hour. A number of plausible actions were possible, but they felt that the highest possible return would result from using a scientific method for improved selection that could improve team retention as well as enhance the customer experience. This was seen as a high impact issue in which small gains from analytics could have a major influence on store performance. The key was consistently finding the right talent for selling the product in the stores. Mixing a deductive and inductive scientific approach with a data and measurement strategy helped to build an assessment model that identified characteristics of high performers among current employees. To build the assessment, current employees were recruited to participate using an opt-in approach; 60% of

employees representing many levels responded. This opened the communication and provided necessary transparency. The initial assessment provided sufficient data and the ability to establish a pilot project among a small sample of stores to test the assessment. Iterations enabled the company both to learn and to assure the necessary level of rigor in the process. It was essential to validate the tools and techniques before releasing the platform to store managers. The final tool established data ranges on competencies to predict pre-hire performance.

### 5.2. Use multiple methods in concert to support decisions

To assure a scientific approach was followed, an outside consulting firm specializing in measurement, assessment, and validation collaborated with the director leading the analytics project. The application of predictive analytics to identify ideal in-store worker behaviors was straightforward, but the resulting solution was more complex. The outcome was a dashboard with a simple red, yellow, and green configuration for each candidate to inform the store managers who were making the hiring decision. Since store managers are the final decision makers and are responsible for store performance, the goal was to provide them with a tool that was predictive and that felt natural.

### 5.3. Transform insight into action to improve business outcomes

The multiple iteration process involved a budget and plan for pilot studies, and then expanded into full-store implementation. In the first iteration, pilot studies began in 2011 using stores that were most representative of the company's general customer populations. This helped encourage buy-in among store managers by demonstrating the company's willingness to see what worked before pushing an all-encompassing implementation. The second iteration involved using the results of the pilot study to transfer new knowledge regarding hiring policies and procedures throughout the organization. It is important to note that the store managers were still responsible for making the hiring decision and could hire anyone they wanted within established boundary conditions, but now had knowledge regarding how those decisions might influence store performance. They had actionable information that could influence outcomes important to their own and their stores' success. The project also included return on investment analysis and continuous monitoring to assure that the changes remained successful over time.

An essential lesson is that transforming insight into action to improve business outcomes is not the final step in a project. It is part of the ongoing process. New information is injected and the analysis is repeated to incorporate feedback. The project is ongoing and Foot Locker continues to refine, examine, and monitor changes in the analysis and data.

## 6. Conclusion

Workforce analytics is a process—one that is continuously advanced by improving problem solving through sound measurement, appropriate research methods, systematic data analyses, and technology to support organizational decision making. In this article, we have advocated for an approach that involves establishing a foundation of building blocks that include a workforce analytics capability, a workforce analytics vision, and a strategic HRM perspective. Once the foundation has been laid, an agile development process is that which creates an iterative, learning-by-doing sequence that has the potential to lead to better integration of workforce analytics into decision making and more effective implementation. While the starting point is different for every company, one way to achieve success is to use an agile development process. This agile process consists of (1) prioritizing issues, (2) integrating deductive and inductive approaches, (3) preparing and validating data, (4) applying multiple methods in concert to support decisions, and (5) transforming insight into action to improve business outcomes. Using an agile process means that planning for everything first may be detrimental because it could lead to building potentially unnecessary, costly capabilities. Some analytics efforts will fail, but an iterative approach provides opportunities for learning. The emphasis is not on getting it right the first time, but on using the vision to make sure the process is focused in the right direction.

The strategic HRM framework acts as a map, guiding both analysts and teams given the task of introducing workforce analytics into an organization's programs and practices. One of the most important roles early on in the introduction of workforce analytics in an organization is demonstrating value by showing impact on important outcomes. An overarching strategic HRM framework guides analysts and decision makers to focus on those metrics that have the most potential for affecting those important outcomes. An overarching strategic HRM framework also provides line managers and other users of workforce analytics products with a better understanding of the

linkages between HR programs and practices and outcomes that are important to both operations and to the bottom line of the organization. Rather than expending efforts on discovering trivial relationships that have little impact, the framework keeps them focused on the pivotal or high impact possibilities.

Using an evidence-based management philosophy and practice ensures that organizations are considering the best available evidence from multiple sources and assessing its quality before making important decisions that affect operational and strategic business outcomes. Using an evidence-based management and philosophy increases the likelihood of favorable outcomes resulting from workforce decisions. Furthermore, an evidence-based management philosophy and practice creates a continuous learning environment that takes into account new information as it is generated either within or outside of the organization. The best available evidence for a decision that must be made today may not be the same as the best available evidence for a decision that must be made in the future.

Workforce analytics opens an opportunity for HR to be a key driver of the business. However, whether the benefits of its promise are realized or not depends upon how it is applied and used. Workforce analytics professionals must be able to ask the right questions, determine the right metrics, and provide evidence that enables strategic decision makers to understand tradeoffs among alternative courses of HR actions (policies, practices, investments). Workforce analytics solutions will continue to develop in an ever-changing field and business context. Focusing on the issues that drive the business and using shorter agile development iterations that drive participation, feedback, and learning is one way to succeed.

## References

- Acito, F., & Khatri, V. (2014). *Business analytics: Why now and what next?* *Business Horizons*, 57(5), 565–570.
- Barends, E., Rousseau, D. M., & Briner, R. B. (2014). *Evidence-based management: The basic principles*. Amsterdam, Netherlands: Center for Evidence-Based Management.
- Beck, K., Beedle, M., Van Bennekum, A., Cockburn, A., Cunningham, W., Fowler, M., et al. (2001). *Manifesto for agile software development*. Available at <http://agilemanifesto.org/>
- Becker, B. E., Huselid, M. A., & Ulrich, D. (2001). *The HR scorecard: Linking people, strategy, and performance*. Boston, MA: Harvard Business Press.
- Boudreau, J. W., & Ramstad, P. M. (2005). *Talentship, talent segmentation, and sustainability: A new HR decision science paradigm for a new strategy definition*. *Human Resource Management*, 44(2), 129–136.

- Chen, R. R., Ravichandar, R., & Proctor, D. (2016). *Managing the transition to the new agile business and product development model: Lessons from Cisco Systems*. *Business Horizons*, 59(6), 635–644.
- Conboy, K., & Fitzgerald, B. (2004). Toward a conceptual framework of agile methods: A study of agility in different disciplines. In *Proceedings of the 2004 ACM workshop on interdisciplinary software engineering research* (pp. 37–44). New York, NY: Association for Computer Machinery.
- Deloitte (2017). *Rewriting the rules for the digital age: 2017 Deloitte global human capital trends*. New York, NY: Deloitte.
- Earley, C. E. (2015). *Data analytics in auditing: Opportunities and challenges*. *Business Horizons*, 58(5), 493–500.
- Gaker, W. (2015, November 10). *Becoming HR's best friend: Building talent analytics at LinkedIn*. Available at <https://startupproduct.com/events/becoming-hrs-nerdy-best-friend-building-talent-analytics-at-linkedin/>
- Guenole, N., & Ferrar, J. (2014). Active employee participation in workforce analytics. *IBM Smarter Workforce Institute*. Available at <https://hosteddocs.ittoolbox.com/employeeengagement.pdf>
- Guenole, N., Feinzig, S., Ferrar, J., & Allden, J. (2015). *Starting the workforce analytics journey: The first of 100 days: IBM smarter workforce institute report*. Available at <http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?htmlfid=LOL14045USEN>
- Hirsch, W., Sachs, D., & Toryfter, M. (2015). *Getting started with predictive workforce analytics*. *Workforce Solutions Review*, 6(6), 7–9.
- Kotter, J. P. (1996). *Leading change*. Boston, MA: Harvard Business Press.
- Lawler, E. E. (2015, May 20). *Talent analytics: Old wine in new bottles?* *Forbes*. Available at <https://www.forbes.com/sites/edwardlawler/2015/05/20/talent-analytics-old-wine-in-new-bottles/#32a05d961c90>
- Marler, J. H., & Boudreau, J. W. 1. (2017). *An evidence-based review of HR analytics*. *International Journal of Human Resource Management*, 28(1), 3–26.
- Pfeffer, J., & Sutton, R. (2011, September 3). *Trust the evidence, not your instincts*. *The New York Times*. Available at <http://www.nytimes.com/2011/09/04/jobs/04pre.html>
- Rasmussen, T., & Ulrich, D. (2015). *Learning from practice: How HR analytics avoids being a management fad*. *Organizational Dynamics*, 44(3), 236–242.
- SHRM Foundation. (2016). *Use of workforce analytics for competitive advantage*. Available at <https://www.shrm.org/foundation/ourwork/initiatives/preparing-for-future-hr-trends/Documents/Workforce%20Analytics%20Report.pdf>
- Siegel, E. (2013). *Predictive analytics: The power to predict who will click, buy, lie, or die*. Hoboken, NJ: John Wiley & Sons.
- Souza, G. C. (2014). *Supply chain analytics*. *Business Horizons*, 57(5), 595–605.
- Ulrich, D. (1998). *Delivering results: A new mandate for human resource professionals*. Boston, MA: Harvard Business Press.
- Ulrich, D., & Dulebohn, J. H. (2015). *Are we there yet? What's next for HR?*. *Human Resource Management Review*, 25(2), 188–204.
- Ward, M. J., Marsolo, K. A., & Froehle, C. M. (2014). *Applications of business analytics in healthcare*. *Business Horizons*, 57(5), 571–582.
- Wright, P. M. (2008). *Human resource strategy: Adapting to the age of globalization*. *SHRM Foundation*. Available at <https://www.shrm.org/hr-today/trends-and-forecasting/special-reports-and-expert-views/Documents/HR-Strategy-Globalization.pdf>