

HARNESSING THE POWER OF



FOR SOUND HR DECISION MAKING

BY CURTIS POWELL

The cost of higher education has come under intense scrutiny over the past several years. While many colleges and universities have made significant investments in academic, residential and/or research facilities to recruit and retain the best faculty and students, continuing to provide competitive compensation and benefits in order to attract and retain high-quality faculty and staff must also remain a priority. Salary and benefits costs make up more than half of many educational institutions' operating expenses, and the contributions of faculty and staff to organizational success is perhaps the most important lever to achieve a competitive advantage. The challenge then for many human resources leaders is to contain costs while developing a high-performing workforce.

One way to address this challenge is by using big data to discover relationships among workforce data, uncover options for streamlining business transactions and understand whether complex interdependencies (e.g., among pay, benefits and organizational culture) are aligned with the strategies of your organization.

The U.S. workforce is aging at a rapid pace. According to data from the Department of Labor, the number of American workers age 55 and older hit a record 35 million in 2016, while the number of individuals age 16 to 24 in the labor market was at its lowest level. Today's typical workplace employs individuals from four different generations, and the ways in which organizations hire and retain the four cohorts of employees might need to be different to ensure competitive success. For example, keeping older workers might require retention programs that include part-time or project-based work, while retaining younger employees may require new approaches and programs that provide them with instant rewards, career advancement and workshift flexibility. Thus, it's critical to know which HR programs, practices, services, communication strategies and technological advances appeal to each cohort of worker. It's also important to understand the most effective pay practices, benefits, professional development and engagement programs that will optimize the organization's competitiveness in a dynamic and competitive marketplace.

Fortunately, data analytics capabilities can interrelate workforce data to answer the questions that will provide leaders with more effective workforce strategies to better engage employees and improve the overall productivity of the organization.

Rensselaer's Objectives for Using People Analytics

From observations I've made throughout my career, it seems that HR professionals have good intuition about what will work, and what won't, in implementing sound initiatives related to acquiring, developing and retaining talent, improving productivity and maximizing organizational results. Their professional experience, instincts and daily interactions with employees often provide good insight to inform their strategies. However, today's workforce is incredibly diverse, so HR leaders need very specific information to support their decision making. This is why big data analytics are not just an opportunity — they are an imperative for human resources today.



By mining multi-dimensional data, HR is more proactive, predictive and decision-making oriented.

Workforce analytics vary by organization but in general, organizations, through their business intelligence functions, use them to diagnose key drivers of business performance. Some of the main purposes of using workforce analytics include:

- Assessing costs and consequences of important employee behaviors (such as turnover);
- Utilizing job boards and social media performance statistics and applying them to accurately predict job posting success;
- Acquiring the best available talent; and
- Optimizing the workforce and cultivating new organizational leadership through proactive strategies to attract, develop and compensate employees.

Rensselaer Polytechnic Institute's division of human resources sought to harness the power of data analytics through a collaborative project with Rensselaer professor Peter Fox, who led a team of graduate students in analyzing data on HR trends and practices at the institution over a 10-year period, from 2004 to 2014. Data fusion, regression, classification, cluster analysis, time series analysis and other

statistical techniques were used to visualize, assess, analyze, manipulate and aggregate big data to make this kind of data volume tractable. The effort focused on seven major areas — compensation, benefits, training, job performance, paid time off, disability leave and compensation claims. The goal was to use data analytics to determine factors that could lead to validation of the effectiveness of current HR programs, services and policies and how these factors have supported the retention of Rensselaer's most productive talent.

Data analytics can interrelate workforce data to answer questions that will provide leaders with more effective workforce strategies.

Members of the HR management team (representing the areas of benefits, retirement, employee relations, compensation, employment, environmental health and safety and operations) were looking for data that would help them answer the following questions:

- Is there a connection between paid time off used and employee healthcare cost?
- Do Rensselaer's professional development programs impact performance, promotion and retention in the desired way?
- Can future leaders be identified by comparing data of high performers with low performers?
- Are there correlations among training, violation of rules and environmental health and safety issues?
- What benefits do employees value most and what kind of education is required to help them understand the value?
- What kind of behaviors are related to unsatisfactory work performance?
- What factors increase an employee's engagement and productivity?
- What are the job competencies that determine an employee's success in the job?

- How do we compensate employees and for what results and performance so as to retain the most productive employees?
- Do employees understand the retirement plan and know its value?
- What type of professional development programming will improve the leadership skills and performance of employees?
- What incidents and behaviors are related to unsatisfactory job performance?
 - What behaviors are critical in building a greater awareness of a culture of safety?
 - What is critical to influence employees' job satisfaction?
 - What is important to increase engagement among employees?

A Learning Curve

As Rensselaer's HR team began to articulate key questions, the reality of the diversity, heterogeneity and forms of data became apparent. Importantly, the aforementioned guiding questions invoked the need for an integration of previously isolated data sources. HR team members needed to shift their mentality in order to think beyond their traditional analyses, moving away from low-dimensional means (spreadsheets, bar charts and line plots) to multi-dimensional arrays. It also became apparent that the data needed to be cleaned and changes in the data collected over time needed to be traced.

As the working collaboration between the data analytics team and specific HR managers developed, an important shift from the analytics team driving the process to HR leaders driving the process was necessary. This change was important so that the HR leaders, who are the subject matter experts, could make robust interpretations from the results. To facilitate this, Professor Fox and his team slowly increased the dimensionality of the data. Subsequently, when additional factors were added (either variables within a data set or another entire data set), the HR leaders and data analysts were in sync. All too often data analytics professionals or services quickly overwhelm customers with sophisticated predictive and prescriptive models that are nearly impossible to intuitively understand. As previously noted, HR professionals' intuitions must be valued and included in a people analytics process.

One benefit of the close collaboration of the analytics and HR teams was the establishment of better data management practices for HR's internal data collections — in essence a list of dos and don'ts for the curators of individual data sets, with an eye toward their use in people analytics.

Findings

The sheer number of findings from the study was at first overwhelming and required dedicated time to assess and validate. Overall, there were 125 discoveries, many of which were expected, but nearly 50 of which were deemed to be significantly impactful — and a few that were just plain startling (and that we likely never would have uncovered if not for the data analytics study). A few of the findings and plans of action resulting from these findings are as follows:

Performance Management

Arising from the performance ratings analytics, we found that non-exempt employees age 21 to 24 need the greatest attention for improvement in performance rating. A similar finding was obtained for non-exempt employees with less than one year of service (which is a significant share of Rensselaer's overall employment population). The results suggested that we need to pay more attention to generational differences and perhaps alter our performance management approach for younger employees in order to capitalize on the values and strengths they bring to the workplace.

Compensation Claims

An example of a detailed finding within compensation claims was that employees whose occupation is environmental specialist and who have less than one year of service had the most workplace accidents. Demographically, this finding applies to 94 percent of employees in this job category. As a result, we're reviewing how we communicate and train on various aspects of safety measures, such as wearing personal protective equipment, using proper tools for the job, reading and understanding chemical material safety protocols, etc.

Talent Management

Benchmarking data gathered on performance, skills, job experience and other factors helped us identify and create a plan to track high-potential employees who will be able to fill senior management positions when they become vacant.

Faculty Retention

Related to faculty retention, the study found that when faculty members are part of a major research initiative and/or reside in a successful academic department, the retention rate is higher. Therefore, the institution is reassessing the ways in which it engages faculty members.

Paid Time Off

Data revealed that when there is a high usage of paid time off by an employee, most likely the employee will separate from the university within an 18-month period. This data point has informed our retention and early recruitment strategies.

The Challenge

In order to excel in today's complex business environment, HR leaders are challenged to make good business decisions with confidence. To do so, they need the right data. But the reality, according to the Visier white paper *From HR Metrics to Workforce Analytics: Five Key Workforce Insights That Every Employer Should Capture for Greater Business Impact*, is that the most commonly measured workforce metrics are of very little help to HR professionals and business leaders in achieving real insight into maximizing their human capital investment. Says the author of the paper, "In order to make better business decisions about their workforce, leaders should see the connections in their workforce data and examine comprehensive workforce topics."

By doing just this, Rensselaer human resources has paved the way for people analytics to become part of its routine practice. By mining multi-dimensional data, the HR function is now more proactive, predictive and decision-making oriented. 

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