From the Boardroom to the Front Line:

Prioritization and Practicality with Advanced Analytics

By Scott Mondore, Hannah Spell, and Shane Douthitt

The focus on increased use of analytics and data has intensified in the last few years in nearly all functional areas of organizations—and HR is no exception. The term "analytics" is being used quite frequently in the HR and talent management space, but with little definition of what it actually is. The opportunities (and technologies) are nearly limitless in terms of collecting data, data mining, and reporting. However, more data and more reports do not create business value.

Prioritizing People Data to Drive Business Outcomes

Using analytics in an organizational setting should ultimately have one clear goal: driving actual, tangible outcomes such as sales, profit, revenue, or turnover. Notice we use the term driving versus merely connecting data. Showing relationships is nice, but true accountability for results and return-on-investment (ROI) needs to be the ultimate measure of success for analytics. HR has been spinning its collective wheels for years chasing the latest miracle fads such as employee engagement, empowerment, loyalty, with agility now on the horizon as the next big thing.

These topics are not inherently wrong for business; rather, HR hasn't accessed the right toolkit to separate real gold from shiny objects that seek attention. Advanced analytics provides the opportunity to cut through all the consultant-speak and go directly to the bottom line to show which elements of people directly drive business results. Below, we outline what advanced analytics should look like.

Real Statistical Rigor

In order for organizations to truly capitalize on the power of analytics and the masses of data being collected, an understanding of analytic methods is critical. In fact, few organizations are fully harnessing analytics due to a number of misconceptions about predictive analysis methods. It is not uncommon for an organization to invest in a predictive analytic program that is actually not predictive. Many leaders will agree wholeheartedly that correlation does not equal causation and then proceed to believe research that is based on correlations and group comparisons. Below are three common analytic methods that are often misconstrued as being predictive in nature.

Descriptive Analysis and Data Visualization

A descriptive analysis typically consists of averaging across items or displaying counts or frequencies for a given topic. Trends can be visualized by charting averages or frequencies across time points to obtain a trend line. Additionally, group comparisons can be made to determine if groups within an organization scored differently on a given topic. Despite trend lines and group comparisons' usefulness in helping to gain an understanding of group differences or an organization's progress on the given topic across time, trends based on descriptives alone cannot be projected with accuracy into the future.

Unfortunately, HR has gravitated toward data visualization tools which, although effective at creating pretty pictures, are *not* predictive analysis and do little to actually move the needle on business outcomes. In short, descriptives are helpful in tracking progress, and comparisons are helpful in determining whether or not a change is statistically significant, but neither are predictive analyses.

Correlation and Simple Regression

Correlation and simple regression identify the strength and direction of relationship between two things. Although measures of relationship, these methods are not necessarily predictive. Just because a relationship exists between two variables does not mean that one *causes* the other. Think of the classic example of ice cream sales and shark attacks being correlated. No one would argue that shark attacks cause ice cream sales to go up nor that ice cream sales cause more shark attacks—they both just happen to increase during the summertime. Similarly, having high engagement and high business outcomes doesn't mean that engagement causes the other. Because these methodologies do not tell if a true relationship actually exists, they are not considered strong enough for prediction. If investments are going to be made based on analysis, then correlation and simple regression are not up to the task—these are not predictive analytics.

Multiple Regression

Multiple regression is closer to modeling real-world relationships because multiple factors can be tested as predictors of one outcome. This allows for the examination of each factors' unique effects on the outcome. While regression does identify variables that predict (i.e., are antecedents to an outcome), they are not necessarily cause–effect. Although a step in the right direction, this method is still not the strongest method to determine cause- effect relationships because measurement error cannot be modeled; only one dependent variable can be included, and, most importantly, causation cannot be determined. This method gets closer, and if organizations are using this method to make HR decisions this is certainly a good thing, but there is still another more rigorous method that gets closer to true predictive analytics.

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Advanced Analytics

The best method for making predictions in the HR space is an advanced statistical modeling method called structural equations modeling (SEM). SEM allows for various factors, or causes, to be assessed in relation to multiple outcomes concurrently. This is important because, like in the real world, things do not occur in a vacuum, but rather alongside many different influencers. For example, when examining factors that contribute or drive employee outcomes such as performance and turnover, it would be misleading to only look at the relationship between employee ratings of their managers and turnover.

By accounting for multiple factors simultaneously, a statistical model is a more stringent and accurate assessment of the impact various experiences have on influencing performance and turnover. Continuing with this example, a truer model of factors related to the outcomes could include ratings of coworker support, career development opportunities, job fit, and manager relations. In this way, you are accounting for and examining multiple "causes" at the same time, much like how an employee experiences these factors concurrently while on the job.

Further, SEM has four advantages over the other analytic methods:

1. Multiple inputs or "causes" can be tested along with multiple outcomes concurrently.
2. An accurate assessment of ROI can be calculated.
3. It provides the ability to correct for measurement error.
4. Causation can be inferred.

The caveat to utilizing SEM is that it requires specialized statistical software and a highly trained statistician to be correctly implemented. However, this should not be a deter-

rent for any HR practitioner hoping to leverage this type of analytics. These analyses can be outsourced externally or internally to those with expertise in predictive analytics.

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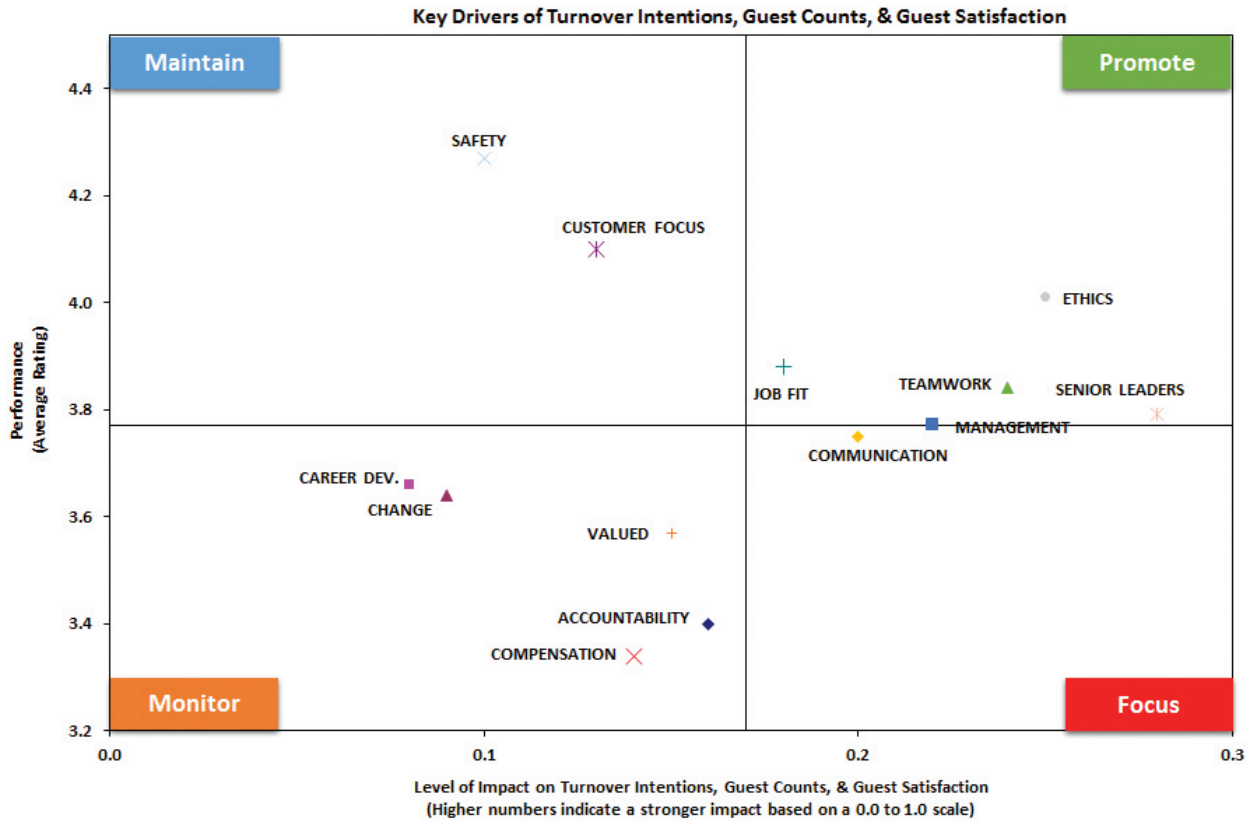
Prioritization and Practicality

The real outcome of using analytics with strong rigor is that it will prioritize exactly where investments should be made to drive business results. More data does not mean better data—so narrowing down the critical few areas with high levels of confidence that they will pay off is where the focus should be. This changes the narrative from "we have a lot of data which should tell us lots of things" to "our rigorous analysis points to a handful of areas which will drive sales."

The ability to collect large quantities of data more frequently is no longer an obstacle—however, the time that leaders have to consume this amount of data and take prioritized action is dwindling. Tools that enable more report generation is actually a net-negative for organizations because the more time spent analyzing means less time implementing and driving business results. Also, it is worth noting that if analytics are only used to create corporate presentations, then the value of those analytics will be minimal. The key is to make the most advanced analytics as simple and actionable for front-line leaders and employees while being focused on bottom-line metrics, not just HR metrics.

Making advanced analytics practical involves two key focal points: making the analytics easy to quickly understand and leveraging practical advice on taking action on the areas of greatest business impact. One way in which organizations can help leaders prioritize analytic results is the use of heat maps like the one below. In this example, the analytic model examined the influence of a number of employee survey categories as drivers of three important outcomes to this business: turnover, customer satisfaction, and customer volume.

From the SEM model, we were able to prioritize each survey category by looking at the statistical results (i.e., Beta weights) and giving them a priority score. Next, we plot the categories from left to right on the heat map according to this priority score. The further a survey category is to the right of the heat map, the more critical it is in driving those three important outcomes. Those categories to the right of the vertical axis are the ones which were found to be statistically significant drivers of the three business outcomes. Finally, the



CASE STUDY –

Proper application of predictive analytics can be extremely effective when done correctly by helping leaders make well-informed decisions backed by data. In one such example, a large, global software company needed to understand which of the knowledge, skills, abilities, and personality traits of their sales force were driving sales performance. The organizational leaders wanted to fully understand business performance drivers so that they could make informed decisions on future hiring, training needs, and promotion or reorganization decisions.

The company collected data on several assessments of their sales force.

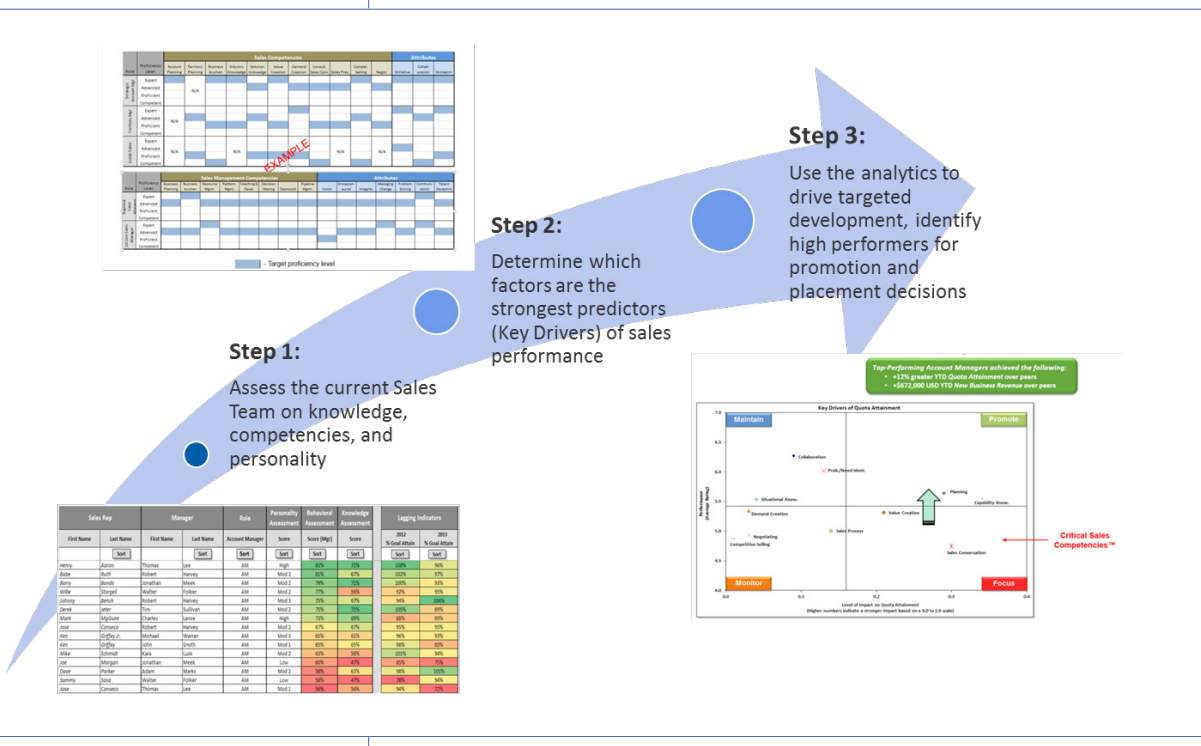
- A knowledge assessment provided information on the level of understanding on several key aspects of the product and sales tactics.
- A personality inventory assessed several personality factors thought to be important for sales performance.
- Sales managers rated their sales force on a variety of behavioral competencies presumed to be important for sales performance.

The key goal was to identify which factors from all of these assessments were the key indicators of sales performance. The company provided several measures of sales performance data that were linked to the assessment data in order to conduct predictive analytics. This wealth of data enabled the following:

- Identify which factors from each assessment were key drivers of current sales rep performance by linking assessments to sales outcomes such as new business revenue and quota attainment.
- By identifying which factors were key drivers of performance, a profile for a successful sales force was developed to make data-based staffing and talent management decisions.
- The company was able to use current sales force scores to identify sales representatives that needed focused training related to the key drivers.

By applying SEM to the assessment and sales performance data, the organization was able to not only identify which factors were statistically related to sales performance, but also determine which factors had the strongest relationships with sales performance. This linkage allowed the organization to prioritize and weight specific competencies, personality traits, and knowledge factors to create a predictive algorithm that could be used to make developmental, promotion, and placement decisions, as well as hiring decisions.

By using the company's own data to determine the specific factors driving sales performance (rather than taking an off-the-shelf model of broad sales competencies), they were able to increase their ability to make a successful decision more than twice as often. Success was achieved because specific, tailored approaches are by nature more predictive in that they take into account the uniqueness of the organization.



From the competencies identified as key drivers in sales performance, the company developed a tailored training curriculum to target these specific skills. After implementation of the new training curriculum, the company evaluated the performance of those that completed the training and those that had not. They were able to see an increase in sales revenue of $60 million and an increase in quota attainment of $100 million for the sales force that completed the training courses.

In sum, the use of this organization's rich data enabled them to utilize advanced predictive analytic methods to provide a tailored approach to the assessment of the sales force; their hiring, promotion, and placement decisions; as well as what they focus on and how they structure training initiatives. The ROI of using advanced analytics to create customized solutions for an organization will make it well worth the time and effort. Demonstrating ROI is critical. If ROI can't be shown and the bottom line isn't impacted, *any* time and effort spent will be wasted.

mean score for the survey category sets its position from top to bottom on the heat map. While the priority score from left to right is the same across the organization, the performance score is determined based on each leader's own results. For example, while one manager's score on communication may be below the midpoint and would be an area of focus for him/her, another manager may score quite well on Communication and would not need to spend time and resources working to develop that area.

By using the heat map to deliver manager results, the organization knows that not only are all manager focused on a few key areas that drive business results, but that even among those key drivers, managers are able to strategically focus on only the categories in which they have areas for improvement. This serves two important purposes. One, it strategically focuses the organization as a whole on a clear direction for action. Two, it allows managers across all levels of the organization to utilize resources in an effective manner, to ultimately see true ROI from their actions. An explanation of each quadrant follows.

Focus

The bottom right quadrant is labeled Focus. This quadrant is the most important because any survey category that falls into this area is scoring below the organizational average and is a significant driver of the business outcomes.

Promote

The upper-right quadrant of the heat map is labeled Promote. These are the survey categories the leader is scoring well on, and they are important drivers of business outcomes. For these survey categories, the leader would want to get the word out to his or her people and promote and celebrate the areas in which the work unit is already doing quite well.

Monitor

The bottom-left quadrant of the heat map is called Monitor. The survey categories that land here represent areas of weakness for this leader; but they are not significant to driving the business outcomes. These are areas that are important to monitor, but should not be the focus of much time and effort because they will not provide ROI in terms of impacting the business.

Maintain

The top-left quadrant of the HeatMap is called Maintain. This represents the areas in which the leader is doing a great job, but these survey categories are not impactful on the outcomes. Again, the leader can celebrate these areas, but should not focus time and attention to any follow-up in these categories.

Business Outcome Drivers

The ability to uncover competitive advantages and root causes of issues, while driving business outcomes, are what the goals of data and analytics should be. The quick rise of HR technology and science has many positives, but what often gets lost in all the new interfaces are the two most critical factors of doing effective analytics: prioritizing people data to drive actual business outcomes and making the analytics actionable. The ability to slice-and-dice data is a "nice-to-have," but action happens on the front-line not in PowerPoint presentations and charts.

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