Beyond Forecasting:
Using Predictive Analytics to Enhance Organizational Performance

By Min Park, Mercer

When employees quit, it's costly. Aside from the general stresses created in a work environment, there are costs related to productivity, recruiting, and training. There can be other more subtle costs too. For example, high voluntary turnover levels at call centers can negatively impact customer service levels. Poor customer service can, in turn, have broader consequences to an organization's brand and performance. To this end, organizations are implementing countless efforts aimed at improving employee engagement and retention, whether it's promoting a healthy working environment, providing compensation programs that differentiate, creating more valuable benefits packages, etc. But how do we know which of their practices really work, and works best for their own employees? What retention efforts or programs will truly "move the needle," and should be the focus of an organization's investments?

To start addressing these questions, organizations might seek out evidence of success of various programs, for instance, by exploring turnover data tracked in HR information systems – the record of choices that employees have made to stay or quit over time.

Using such data to forecast turnover levels is one good way that an organization can start to track, measure, and manage its efforts to improve employee retention.

But, organizations don't need to stop there. Predictive models can do more than simply forecast. They can tell a rich story and pinpoint actions related to the employee life cycle. Organizations can read the information in a predictive model once it's built, and gain insights into the impact of the various predictors, whether it's around compensation levels, distances from home to work, history of performance ratings, supervisory relationships, and other individual attributes or organizational variables. These insights can be used to inform what practices most effectively improve results through a clear, data-driven grasp of which employee- and employer-driven factors most greatly influence retention. Described another way, we can take predictive analytics one step further to hone in on the best investments for better retaining a workforce and driving organizational performance. Through statistical modeling, it is possible to seek out which of the many possible factors most influence the workforce's decisions to stay or quit, develop a strategy, and then act on it.

Human Resources at a large financial services firm, FinCo, did exactly this for its call center employees. The Fortune 500 company has been recognized as a top employer and brand in many locations, and it is crucial to its business that it retains its customer-facing employees who contribute to and maintain a high level of service. With this goal in mind, FinCo built predictive turnover models for its call centers, drawing on historical personnel data from its HR systems to understand what factors are causally connected to higher or lower probabilities of quitting.

The results revealed clear links and actionable insights around compensation, career development, experience levels, mobility, and work-life balance as its key drivers of retention. It pointed to specific policy actions and tradeoffs around these topics, helping to reinforce and refine current efforts in these areas with greater impact and precision, ultimately, to improve call center performance and branding.

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The Objective

FinCo's study set out to pinpoint the right set of actions to target the most effective ways to improve retention – to find ways to make employees happier and more engaged at work – through data and statistical modeling insights.

Looking across five years of historical data, predictive statistical models were developed for call center employees – modeling their likelihoods of quitting within the following month, and also within the following year. The objective was not to forecast turnover rates or head counts. Instead, these turnover models were developed to study and understand which predictors lead to the greatest increases and decreases in the probabilities of its employees quitting, and by how much. The objective was to find the highest-torque methods for reducing employee turnover.

Reducing call center turnover is important for this company for similar reasons as it may be at any other high-performance organization. It would help realize gains in productivity and boost organizational performance through a more stable, experienced, and engaged customer-facing workforce. Human Resources practitioners have long estimated that costs associated with employee turnover can range up to a substantial portion of an employee's salary. At this organization, it was estimated that for every employee retained, it could realize a savings of approximately 25 percent of the employee's first-year salary through productivity gains, as well as from avoiding costs associated with recruiting, onboarding, and training of replacement hires.

This organization set out to gain insights – from large amounts of archived data – in efforts to build a better place to work place for its employees, while also improving its own organizational performance.

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What factors were examined, and where was the data sourced from?

Three broad categories of data were collected and examined as predictors of turnover in its model: individual attributes, organizational factors, and external influences. These categories were selected based on Mercer's research and experience that links them as the common sources for causal factors leading to employment outcomes. Individual attributes include things about the employees work history such as age, tenure, career level, promotion, and so on. Organizational factors include things about each individual's internal work environment such as their organizational segment, or recent turnover rate at their call center site. External influences include characteristics about the outside market or geography in which individuals reside, such as local area unemployment rates. Control variables are included as well, though typically not reported (such as time period, or other demographic factors).

With the exception of data around external influences, all data were sourced from FinCo's HRIS systems where data for all employees who had worked at its call centers had been accumulating for numerous years.

Ceteris paribus – "all else equal" – X leads to Y

The statistical technique used – multiple regression – allows the models to examine most, if not all, of these factors simultaneously. This means that inferences can be isolated to each individual predictor when explaining its impact on an outcome. For example, it allows for inferences such as "if an employee is promoted within the past year (the predictor - X), he or she has a 30 percent lower probability of quitting within the next year (the outcome - Y) – holding all other factors constant." Put another way, it allows for causal inferences. In this example, if you have two individuals with similar qualities and experiences, and the only material difference observed is that one was promoted and the other was not, the promotee, because he or she was promoted, has a lower chance of quitting (30 percent less). In other words, promotions reduce an individual's likelihood of choosing to quit.

Example Findings and Emerging Policy Questions

These longitudinal models produced a constellation of evidence pointing to a set of clear themes for what mattered most to this organization's call center employees' decisions to quit or not. Here we explore a couple of the findings as examples, and the policy and practice questions they raised.

1. **Realizing opportunities to improve individuals' organizational commitment**

   Finding: The longer an employee has been with the organization, the less likely they are to quit, all else equal. Each additional year of tenure led to incrementally substantial decreases in exit probabilities.
   Emerging questions: Are there programs or incentives in place that encourage employees to stay longer? What additional efforts could the organization invest in to help new hires better adjust to their new environment?

2. **Managing factors influencing work-life balance and flexibility**

   Finding: Employees who have taken a small amount of unplanned time-off, paid or unpaid, are twice as likely to stay, all else equal. Employees who take unplanned absences were relatively few and far between, however, simply allowing this flexibility has enormous returns on their choice to stay. Along with some additional pieces of evidence from the models, this finding validated results from another independent study of its employee perceptions around the benefits of favorable work-life balance conditions on retention. **Emerging questions:** How can this organization continue allowing for some unplanned time-off, within tolerance of its business operations, and communicate it effectively to increase employees' awareness of flexibility? Overall, how can a company identify alternative solutions to further enhance its support of employees' work-life balance needs?

This set of modeling results – along with others – raised key questions and prioritizations. Specifically, around how to leverage and better communicate existing opportunities surrounding "work-life balance," "total rewards," and "career progression," especially to those who are "less-tenured," and "part-time" employees who in general, tend to be more likely to quit.

FinCo was now armed with the quantitative data and evidence to socialize and carry out a meaningful dialog with key stakeholders aimed at developing a focused action plan for reducing turnover.

Theme	Example Factors	Probability of Employee Exit, all else equal	Example Emerging Policy or Practice Questions
Experience, Organizational Commitment	Greater tenure with FinCo,	▼	What programs or incentives are in place to encourage employees to stay longer? First 3-12 months possible key intervention opportunity for new employees?
	New hire within the year, part-time employee	▲	
Work-life balance, Flexibility	Had an unplanned absence	▼	How can FinCo continue allowing for unplanned time-off, within tolerance of its business operations, and communicate it effectively to increase employees' awareness for the flexibility?
Total rewards	Employee has higher earnings through over-time or commissions	▼	Are there ways to communicate and leverage total rewards opportunities especially for less tenured, part-time employees?
Career, Performance, and Development	Closer in career level to manager, promoted within the past year, higher performance ratings	▼	Is it feasible to re-define manager and employee reporting relationships so that managers are closer in rank to their reports? Would this allow for better coaching and career development opportunities?

Table 1. Example of key forces influencing FinCo's call center employees' chances of staying or quitting.

Results are Unique to Your Organization

These findings are completely unique to FinCo. These types of findings are unique at any organization. Among the dozens of factors examined, the ones that will matter most for turnover decisions in your organization will be different from another's depending on how your business structured, how it is run, and its intrinsic cultural and organizational values. For example, in this case, we observed that organizational commitment, work-life flexibility, rewards, and career progression are some of the primary driving forces in call center employees' decisions to stay or leave at FinCo. While many may be able to relate to these findings – and some organizations may even be similar – for many other organizations, these are surprisingly not the primary driving forces behind turnover.

In other organizations, compensation factors may be greatly outweighed by other observable factors such as long-term career path opportunities, the type of work, workplace diversity, or the nature of supervisory relationships dynamics, etc.

It's not to say that these other factors don't matter at FinCo either. It's a question of identifying and measuring what has greater influence on individuals' employment choices.

Predictive analytics will reveal a set of findings that are true to your organization and yours alone. It will reveal which observed and recorded facts have the greatest bearing on the outcome uniquely within your business. It will point to a prioritized action plan that is most effective for only your organization.

Measuring and Monitoring Should also be Unique

Benchmarks are useful in many contexts, but they're not always enough. They are often keys to someone else's success, and when it comes to managing internal dynamics and outcomes within your business, the relevant measure (and actions) should be unique to you. It's possible to go beyond what others are measuring and look inside to determine what the right drivers are.

Beyond prioritized action plans, predictive analytics will also pinpoint the right metrics to monitor, i.e., unique to your organization, and tell a compelling story: metrics that can be clearly structured around – and relevant to – the problem statements at hand.

What are the right metrics? Consider the following examples around the issue of turnover:

1. **Monitoring of leading indicators** – Creating and monitoring metrics and individual attributes that are leading indicators (key predictors) of your turnover, in addition to monitoring turnover rates so that you can detect early warning signs of elevated turnover and act on it before it becomes worse;
2. **Tracking hot spots** – Identifying and tracking "Top-5" and "Bottom-5" lists of turnover levels and changers; examine their characteristics – in terms of the leading indicators for turnover – and gaining visibility into improvement areas and areas of potential concern to prevent future snowball effects;
3. **Creating risk lists** – Producing "high-risk" employee list reports using the leading indicators of turnover, perhaps filtered by performance or potential ratings, and use discretion to appropriately target key interventions; or,
4. **Creating internal benchmarks (highlighting sites with higher than expected turnover levels)** – Using predictive models to establish rate-of-turnover targets for each organizational entity or site: highlighting where voluntary turnover is substantially

above expectation and monitoring by month how each site's turnover rate compares to the expected turnover rate and determining corrective actions as needed.

Each of these examples takes advantage of predictive modeling results, feeding them back into dashboard designs to enable a view of the system of effects that leads to employment outcomes, such as turnover, and most importantly, are unique to your organization. Doing so provides more meaningful insights that will greatly enhance the workforce intelligence that is made available in support of driving organizational change.

Driving Change

Organizational change is not easy. Conducting advanced analytics may only be half of the battle, and some might even argue that it's the easier half.

Data-driven findings can challenge current people practices in place, and as a result, they can initially be met with resistance. Socialization of analytical insights can be a challenge. To drive change with this data, knowing the audience, and knowing your data are critical. Analyses can always examine more factors, and data will never be perfect, so understanding where there are potential gaps and pitfalls is crucial. Study their implications and be ready to talk about them with senior leaders.

Insightful analytics and good story-telling is often the first step in driving change, especially as organizations grow larger and become more complex. Carrying dialog around findings, developing buy-in from leaders and decision-makers – gaining credibility and building positive relational capital – is so important to successfully achieving data-driven actions and results. For large organizations, this is easier said than done. Data can be met with significant resistance if it goes against the grain of recent actions or beliefs. It is crucial to understand and navigate the internal landscape of an organization to successfully use data to drive change.

Key Takeaways

1. **Use predictive analytics to drive organizational intelligence and performance.** Reveal workforce dynamics and drivers of employment outcomes – use this to start the dialog around truly evidence-based policy actions and practices.
2. **Findings are unique to your organization.** Don't cut and paste results from other organizations. What's important to Company ABC or Competitor XYZ may be less relevant to your business and organizational culture.
3. **Be patient, stick with it.** It can take years to build the right metrics and analytics into a workforce management process.
4. **Use what you have and combine multiple sources of information.** Leverage what data you and your organization have been collecting already; start with what you have and what you're already measuring, and look for evidence across multiple sources of information.
5. **Know your data, your audience, and the internal landscape**. Understand and navigate the internal dynamics within your organization to successfully use data for driving change. Seek out a business or other well-connected leaders within your organization to promote, facilitate, and lend credibility to your findings.

Since conducting this study, FinCo has launched into a socialization effort with its leadership to refine its policies and practices aimed at dramatically reducing turnover. Furthermore, it realized the value of this approach and will mobilize resources and business data to continue applying predictive analytics to an expanded set of data. FinCo's vision is to surface deep insights into – and quantify – the relationships between human capital factors and business performance outcomes. Such insights will empower HR to work with their senior leadership in developing, honing, and carrying out talent strategies that will optimize its organizational effectiveness and bottom-line performance.

About the Author

Min Park is a senior associate with Mercer's Workforce Analytics and Planning team. She is a statistician by training, who is interested in harnessing vast amounts of data to solve talent and workforce related issues. She advises clients on how to build and shape their future workforce by pinpointing and prioritizing their most effective human capital management strategies – through analytics and qualitative research. With more than eight years working with Mercer, and a graduate degree in statistics, she has deep expertise in human capital strategy and measurement. She can be reached at ***min.park@mercer.com.***