

An Oracle White Paper
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Oracle Crystal Ball for Workforce Planning and Analytics

Executive Overview

Organizations of all sizes and across all industries constantly deal with workforce issues like: how can I make hiring plans when I don't know how much demand I will have from our customers? How can I plan for attrition, when I don't know how many of my employees will leave the company for other opportunities, elect to retire, or unfortunately even become disabled or die? What is the likelihood we are, or will be considerably short-staffed or over-staffed? These issues are critical to organizations because the cost of poor workforce planning is extremely high.

This paper outlines the capabilities of Oracle Crystal Ball in the development of a data-driven, fact-based approach to deal with these organizational workforce planning issues. This approach takes into account the uncertainties around customer demand as well as the likelihood of employee turnover. The Monte Carlo simulation capability built into this approach is ideal for simulating thousands of customer demand and attrition scenarios to give business managers a complete picture of demand and capacity combinations that pose risks to the organization. Further, by using sophisticated optimization capabilities, managers can not only evaluate workforce risks but establish hiring and backfill strategies that ensure coverage of customer demands at specified confidence levels, and at minimum cost and headcount.

Background

When profitability and margins are high, revenue streams are growing and there is little or no competition in product markets, companies can afford a steady-as-she-goes approach to managing their workforces. Unfortunately, today most companies worldwide face challenges that call into question not only their financial performance, but their very ability to survive. The recent Great Recession has caused many companies to reduce their workforces to subsistence levels. They continue to work with over-lean workforces due to uncertainty about the timing and strength of the global recovery, and the uneven nature of the recovery in many markets. In addition, the globalization of many markets has introduced competition to many industries that heretofore faced little. This competition is forcing companies to optimize the size and makeup of their workforces to maintain margins and service at world-class levels. Consequently these workforces have very little capacity to deal with unforeseen demand spikes, and unplanned attrition of their skilled workers. This forces business owners to use expensive and relatively inexperienced outside labor sources, or face the prospects of poor customer service, or missing revenue and profit opportunities altogether. This situation can be further exacerbated when a company's skilled workforce is not broadly spread across age groups, as older workers approaching retirement may constitute a large and critical percentage of their required labor pool.

To compound the frustration, most companies have relatively high amounts of data regarding the demographics of their workers, yet have little idea about if and how it could be used to predict and forecast the likelihood that workers will leave the company (for retirement or any other reason). Likewise they generally make forecasts

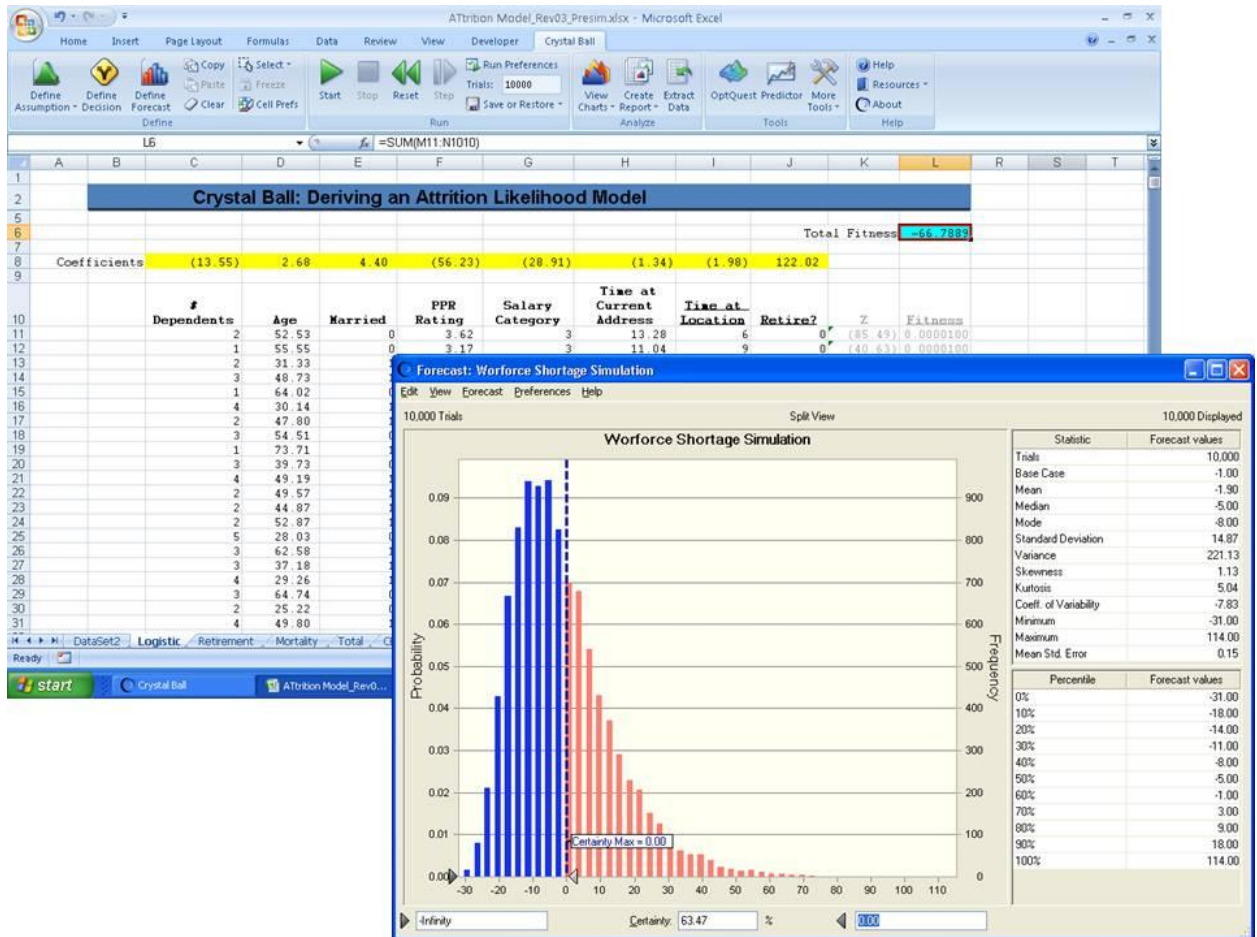
around the average expected demand that will be placed on the workforce over the planning horizon, with no way of estimating how high or low these demands might go above or below that average. Like the wader crossing a river that *is on average* 3 feet deep who drowns in an 8 foot depression¹, they find out the hard way that the average forecast even when it is accurate, gives them no way of anticipating extreme swings up or down in any intervening time period.

Workforce Analytics with Crystal Ball

To illustrate the utility of applying Crystal Ball to workforce planning and analytics, the following example workflow describes a series of critical capabilities which address the issues and frustrations outlined above:

1. Using employee demographic data and employment history from a system like Peoplesoft HCM, an HR Manager uses Crystal Ball with Microsoft Excel to derive a predictive model which forecasts the likelihood that the people in her department will retire next year.
2. Professionals from sales and marketing automatically load historical sales data by month from a budgeting and planning system like Oracle Hyperion Planning. They then use the time series forecasting capabilities in Crystal Ball to generate in only a few minutes, a forecast of demand that includes trends and seasonal patterns in historical sales. Instead of single numbers (averages), the forecast shows an entire spectrum of possible demand patterns and their associated likelihood, for each month of the business plan.
3. Using the predictive attrition model from #1, and the demand scenarios from #2, a General Manager (GM) uses Crystal Ball to simulate 10,000 different scenarios of attrition and demand. In seconds, the simulation shows that in over 40% of simulated scenarios, they will be short-handed in critical skills. Ironically, the average shows them to be overstaffed!

¹ From a cartoon in “The Flaw of Averages” by Sam Savage, an excellent and readable book on the fallacy of using averages or best estimates for business planning and forecasting



- Concerned about the 40% probability of being short staffed, the GM uses Crystal Ball Decision Optimizer to determine the number of new hires required to reduce the probability of understaffing to 10%, while minimizing headcount costs. He also considers alternate strategies with 3rd party partners and borrowing resources from another division.
- The GM loads headcount changes into Oracle Hyperion Planning, along with ranges for attrition forecasts and sales and demand forecasts. Along with similar forecasts from other divisions within the company, executives at headquarters rollup optimized workforce plans and forecasts and incorporate them into their tactical and strategic planning process.

Conclusions

The current economic environment is unforgiving of poor workforce planning practices. Making decisions around headcount, skill availability and mix, career progression, and organizational changes are complex and are associated with huge costs and consequences. Best practices involve using statistical tools to analyze historical data and trends to make fact-based forecasts that are free from organizational inertia to maintain status-quo. Simulation and optimization techniques are ideal at giving managers a view of the entire gamut of business scenarios and their likelihood, given significant uncertainty in the very human decisions that their employees will make about their careers, or choices our customers will make about our goods and services. Simulation allows a quick and easy forecast of the future business environment that is rooted in historical data, and can be conditioned with the expertise of our most experienced people. Optimization techniques in turn guide management toward difficult decisions which trade-off confidence in meeting future demand, with the very high costs associated with building and maintaining a skilled workforce. These decisions must account for uncertainties in workforce demand and availability.

Crystal Ball is a powerful but user-friendly software tool that is ideally suited and field-proven for workforce planning and analytics. With its ability to utilize information from world-class human capital management tools, it gives managers a complete tools set for understanding their historical data, simulating future business environments, and making staffing decisions that account for the wide range of possible business environments they face.



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Hardware and Software, Engineered to Work Together

