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HP Learns about itself – Case Study

- Business Understanding: Defining the Problem

  In this case study we had our team construct predictive models to identify the "Flight Risk" employees with a sample size of 330,000 employees. The "Flight Risk employees are those who are at risk of leaving the company and here at HP "We achieve our common objectives through teamwork.", so this is a very important area for us. Even though the turnover rate is hard for a lot of company especially in management, we hate to see the good ones go so it is worth the longevity of our staff.

  The questions we are trying to answer, the target variables, are which employees will quit the company and what will the managers do with the predictions for the employees they supervise? If our team succeeds, they will be highly regarded for helping our company change the 20% turnover rate as the 27th largest employer in 2011.

- Data Understanding

  The data consists of the important factors many employees negotiate for like salary, raises, and other like job ratings and rotations. With a timeline of two years this data is holding all these employee records as they are needed to see what is really causing the

turnover rate. All this data can be used because it is internal data from the best of the best employees who have gone through our interviewing process and some have moved up in the ranks, others have left. So not only do we have the data for the former employees but also the current employees who have gotten promoted or stayed with us, and those employees could also be at risk, maybe their contract renewals are coming up, we want to see how we can retain them.

- Data Preparation

  The data is all wrapped up into a single score, the Flight Risk score, which only a handful of managers are shown because they can interpret the meaning of the score. With another variable to pass into the model having this score can be a huge factor for an individual being in a range of quitting or what risk level they are at, solely based on the input and the output of the model, it will be up to the manager to act based on their discretion.

  As the data is coming internally the format is going to be documented for the team as they make requests to our API and feed into our databases and work with this data to get it ready for the Flight Risk Score.

- Modeling

  Our team Halder and Dey developed the Flight Risk model that takes in all the variables and focuses on how these variables weigh in relative to one another, how they combine or interact, and which other intuitive hunches that don’t pan out should be eliminated.

The model iterated over this, crunching the numbers, and learning from each iteration, as a predictive model, the Flight Risk model is going to output the Flight Risk score for each employee and will train on that data over the last two years, we can check the accuracy of the model now that we know in the present which employees were at risk and did leave the company.

- Deployment

After deployment, the Flight Risk Model identified $300 million in estimated potential savings which was huge for the company, for staff replacement and productivity loss. Out of the 75% of employees who left HP, 40% of those had the highest Flight Risk Score. Even the team members Halder and Dey were at high risk of leaving the company because analytic skills are in high demand and only growing so best when you have a great team like this who goes above and beyond creating an opportunity for management to prevent losses, keep them happy.

As stated above the results are shared with only a few because the Flight Risk Score has to be interpreted by someone who understands it, a high score could be because something happened in the recent month for example, but that only occurred once.

- Summary and Conclusions

We must look at this great work the team did and use the Flight Risk model and score properly, we can't just use the employee as numbers and figures, the manager who supervises them must be altered if there is a huge flag and see if they can help the employee. And this does not always include a promotion because many of the employees who received promotions did not receive a huge pay spike and that made their Flight Risk Score go up. The team's development and deployment of the Flight Risk Model and incorporation of the Flight Risk Score has opened opportunities for HP to retain our great employees and having to stop the coast for onboarding new employees.

References:

- Siegel, E. (2016). Predictive analytics: the power to predict who will click, buy, lie, or die. Wiley.
- Abbott, D. (2014). Applied predictive analytics: principles and techniques for the professional data analyst. Wiley.