How to make use of machine learning to improve employee retention

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Its an open secret that top perfroming competent employees are key to any organizational success. When one key employee leaves the organization, the effects are felt in all departments. Directors and HR leaders are spending sleepless nights trying to find ways of retaining they performing employees. But what if there was a method that can enable them to know and understand in advance who is at risk of leaving the organization, what factors are causing him to leave and what can be done to prevent that attrition? Guess what, there is a method that can solve that. Machine learning can be used to reduce employee attrition.

Employee turnover is the proportion of the employees who leave an organization over a set period. It's also referred to as churn and includes both voluntary leavers (those that resign or retire) and involuntary leavers (as in the case of redundancies, poor performance, or other cases where the employee was forced to leave the organization).

Machine learning is the scientific study of algorithms and statistical models that computer systems use to perform a specific task without using explicit instructions, relying on patterns and inference instead. It is seen as a subset of artificial intelligence.

When companies experience high employee turnover, their budget and operational capabilities are affected. Turnover costs involve recruiting, selecting and training new hires. When vital positions remain unfilled for extended periods, current staff become taxed and productivity suffers.

When key employees that other employees rely on to get help or work done leave, it disrupts all social and communication structures. This disruption results in loss of productivity. A research done by Sagie and team in 2002 found that a high-tech firm lost 2.8 million US dollars or 16.5% of before-tax annual income because of employee turnover. These researchers also found that turnover reduced profits, increased the organization's total risk, and triggered more turnover among the organization's other employees.

There are many organisations in Zimbabwe and abroad who are struggling to adopt machine learning especial in the HR department. Part of the reason is that they do not know how to implement it and where to start. There are some steps that can be followed to apply machine learning to reduce employee attrition.

1. **Identify relevant data**

You have to identify relevant data from within your organization. This data is data concerning your

employees. The data may include employee position, experience, age, income, marital status, maternal leave, number of sick days taken, and performance reviews.

But where does all these data come from? The data comes from different sources within the HR department and resides across different HR systems, Excel spreadsheets, and paper records. Accessing data across disjointed systems is inefficient and time-consuming. All this data need to be unified into a central repository.

This combined data should include both employees who left and those still within the organization. Clean and make sure the data is ready for analysis to avoid the issue of garbage in garbage out.

1. Discover what happened?

We call this descriptive analytics. The first step in solving most problems is figuring out what's going on. Dig into the data and try to find out who exactly is resigning: Is it your top performers? Senior managers? How much revenue did we gain or lose? Amount of costs incurred by the department or location? When many of the employees who leave are your best and brightest, they take all their skills, knowledge and connections with them, putting your organization at a disadvantage.

Simple statistics such as mean, mode, percentiles, etc will be applied. Graphs will be used for both information that is grouped into categories and continuous data. Most of the statistics makes sence when presented in form of a graph.

1. Discover why it happened

We call this diagnostic analytics. Using the information you discovered above (descriptive analytics), you might be able to reach some conclusions about the situation. For example, from the above analysis, you may discover that contract employees are leaving the organization more than permanent employees. The conclusion might be because contract employees are not getting overtime pay.

1. Discover what will happen

We call this predictive analytics. Here you will be trying to find out what will happen if one factor is changed. You will be trying to be proactive by seeking future trends. This is the stage where we use the results or relationships obtained above to build a machine learning model.

For example, offering overtime payment will positively impact retention. As with many companies, you don't have to make all the changes once. You need to implement the changes logically manner and use the resources wisely. It also helps individuals accept and embrace change.

1. Discover what you should do

At the prescriptive analytics stage, decisions are made. You have to consider all the options as an organization. All the action plans provided at this stage should be data-backed. For example, an

overtime rate of two times the normal hours will increase tenure.

Many studies have shown that employee turnover significantly affects an organization's performance. It changes the organisation's direction when a top executive leaves. For example, when Steve Jobs was fired from Apple, the organization changed direction and lost its actual cause. The same happened to Starbucks when Howard Schultz. With all the benefits and savings that come with applying analytics, it's time for organisations to apply this technique in managing their employees.

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