Workforce Planning and Optimization
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RETENTION OF ENGINEERS
Putting compensation and learning and development to good use
Engineering Services firms are facing an ever-shrinking supply of talent. Coupled with an aging workforce, the problem of having a sufficient supply of capable engineers and project managers is of significant concern. The following case study identifies insights and actionable recommendations from the analytics in a large Engineering Services firm experiencing critical talent turnover.

The firm, headquartered in the US, with offices in several countries around the world, has over 10,000 employees. Its operations include industrial products, water management, processing, and government services. Over the last two years the firm has been experiencing high voluntary turnover, increased retirement rates, and mediocre business performance. Management recently approved a pilot project to identify solutions. The project duration was three months and the firm enlisted the support of OptTek Systems, developers of OptForce®, to assist its internal staff in this effort.

Talent, financial, and operational data were assembled from a number of sources and HR systems; interviews were held with leaders from the global offices; and models were built representing workforce behavior at the individual employee level by implementing the OptForce analytics solution. The models were tested for validity and were used for the ensuing analyses. The following is a summary of the results.

Turnover rates in high-risk, critical roles (Engineers and Project Managers) are higher than average (14% and 13%, respectively). This has led to high turnover costs – over $10 million in the past year for Engineers and over $8 million for Project Managers. In addition, over the last two years the company has observed sharp increases in turnover among employees with fewer years of tenure. The turnover costs are significant enough to take action.

As the firm tries to increase its revenue, demand for Project Managers is expected to grow, and Engineers are the primary feeder role for Project Managers, making turnover of Engineers even more costly. Further compounding turnover risks, the
A demand forecast based on projected revenues is greater than the demand forecast based on current trends in headcount, meaning that there are likely to be larger talent gaps in the future; as a result, the firm may not be able to meet its revenue goals.

**Insight #1**

The predictive capabilities in OptForce allowed us to model employee behavior so that the impact of interventions may be assessed and their ROI evaluated. OptForce predictions showed that, under the status quo, about 100 Engineers are expected to leave the organization over the next 12 months, at a cost of approximately $8 Million. Currently, there are roughly 200 Engineers with 1-3 years of service; if the Company can achieve a reduction in turnover among these employees over the next year, then any program which achieves such reduction and yields a positive ROI should be implemented.

**Recommendation #1:**

Implementing OptForce compensation planning

Let us consider Engineers with between 1 and 3 years of service (YOS). The impact of the most recent salary raise on turnover is shown in Figure 1. The average annual salary of Engineers with 1-3 YOS is approximately $70K; a 5% raise is therefore $3,500, while a 2% raise is $1,400 – a difference of $2,100. Based on the data, Engineers who got a 5% raise are retained at a rate that is at least 4% higher than those who got a 2% raise. With an average turnover cost of $80K per Engineer, a 4% increase in the annual retention rate would save the Company $3,200, a net savings of $1,100 per Engineer per year.
These results indicate that not only is there a clear, direct effect between compensation and turnover, but we are even able to predict the magnitude of that effect. The firm should consider increasing the level of raises in certain critical roles.

**Insight #2**

Of all Engineers with 1-3 years of service, those who have taken at least one leadership training course have a 10% higher annual retention rate (89% vs. 79%) than those who have not. Since the average turnover cost of engineers with tenure between 1 and 3 YOS is $80K, if training costs less than $8,000 per employee it yields a positive ROI (assuming a 10% gain in retention).

**Recommendation #2:**

*Increase learning & development (L&D)*

Investing in L&D programs and integrating these with career planning will increase retention of engineers in critical roles. Emphasis should be placed on those engineers with career plans leading to roles in project management. We also recommend communicating clear career path
opportunities to these valued employees.

**Insight #3**

Building the workforce model for the firm has resulted in a computer-based capability that is highly representative of the behavior of talent, especially for the critical roles identified. This digital model enables rapid, customized, as well as structured report generation with a high visualization value through the software portal provided. This capability will save significant preparation time and will permit that time to be used for other responsibilities.

**Recommendation #3: Implement OptForce web portal**

Acquiring the OptForce solution not only entitles the user to access our workforce and data experts, it also provides access to our web-based analytics portal; the analytics capability and its integrated training program orients users on how to pull data from the model as needed; each user can have a customized dashboard and visualization graphics custom-built to their requirements.

**Future Work**

While this project was only a pilot, other areas of focus where future performance could be improved were identified. Recruitment channels can be analyzed more thoroughly with regard to turnover and high performing talent in order to reduce costs and optimize recruiting strategies. An analysis of mobility can also offer potential gains via cost reduction and minimizing turnover.
As this project moves beyond the pilot phase, the savings generated will be significantly greater than their cost. It will also deliver a platform for HR to more deeply engage its finance and operations partners, thereby enhancing strategic planning and business performance.

Let’s Talk About Workforce Planning and Optimization

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About OptForce
OptForce is a proven, data-centric solution that utilizes advanced statistics, simulation and optimization to create actionable people analytics that improve organizational performance, reduce talent risk, and enrich the work experience.