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Statistics in the workplace

The one common thread among all the many users of statistics is that it is a tool used, among other things, to collect, analyze, and summarize data, and present the results data in a way that the average person can understand. For salesmen, statistical analysis is used to persuade others to buy a product. For politicians, it is used to garner votes and win elections. For insurance companies, it is used to maximize profits by determining liabilities and reducing claims. For investors, it is a tool to determine the risk and reward of their investments.

One of the ways that I have seen statistics used in my workplace is on my company’s 401(k) investment website. The site uses data that has been collected and analyzed on a daily basis about each employee’s 401(k) investments. This data includes the employee’s age, years of employment, types of investment; individual stocks and mutual funds. It also includes the number of shares bought and sold, the price of each share, and the profit or loss for each share.

The data gathered is organized into balances, investments, and contributions. It further organized into investment type, rate of return, and current mix of investments. Thus organized, the data is analyzed for the performance of each investment, and predictions are made by the website’s software for future performance. It is then presented to the employees in the form of graphs and charts which graphically illustrate the results.

By analyzing the rate of return, and seeing their 401(k) balance rise or fall, this allows each employee to interpret how their investments are performing. The graphs and charts give them the information needed to decide whether or not to change the mix of investment types, to increase or decrease the number of shares in each, and how much money to contribute to their 401(k) fund.

Page One presents a table; an account summary of the year-to-date contributions, balance, and percentage gained or lost. Page Two presents a table and a pie chart which illustrate the contributions made by the individual employees and the company. Page Three presents a time-series graph which represents the rate of return for each investment, expressed as a percentage on a weekly basis. Page Four presents bar graphs representing the historical performance of each investment, and infographics - visual representations which illustrate the relative risk of each.

The tables, charts, graphs, and infographics create a user-friendly interpretation of the complicated financial statistical analysis performed by mega-computers using the advanced software required to conduct such analysis. The use of statistical analysis has created opportunities, never before available to the average employee, to control the direction of their own retirement funds. Employees previously were dependent on the financial accounting management professionals to grow their company retirement funds, leaving them entirely dependent on the wisdom and motivation of these managers.

Tom Anderson wrote an online article titled *Your 401(k): When It Was Invented—and Why* which described how a benefits consultant named Ted Benna created the first 401(k) plan in 1980 (Anderson). This resulted in the ability of future employees to change the direction of their retirement plans, and the marriage of modern desktop computers with statistical analysis and computer graphics placed the ability to effect such changes directly into the employees’ hands.

A related, but different subject, which makes use of statistics are the 401(k) loans which are available to company employees who have 401(k) retirement accounts. Behind the 401(k) website lies accountants and computers working daily to calculate loan balances, rates of interest, payment schedules, and payoff amounts. All of this information is charted and graphed in relation to the employees age, current salary, projected monthly retirement benefit, social security benefits, and outstanding 401(k) loan balances.

There are many other ways that the Engineering and Human Relations departments use statistics, but they are mostly transparent to the employees. The company’s 401(k) website is the one place where all employees can benefit directly from, and see the results of, statistics used in the workplace.