Utilizing Data Analytics for Employee Benefit Plans

Data Analytics. The phrase brings to mind words like Big Data, Business intelligence, Analyze, Predictive Models, and Visualize. In this article, Kirstie Tiernan, a Forensic Technology Services Director with BDO's Consulting Group, introduces the concept of using data analytics (commonly defined as the use of techniques and processes to extract, categorize and analyze data) as a tool for plan sponsors and discusses some of the key considerations that are the building blocks to understanding and using data analytics successfully.

The applications of data analytics to employee benefit plans (EBPs) are potentially endless. Imagine a large participant population with manual data entry of 401(k) deferrals that are performed by many payroll analysts. To internally test that the deferrals were input correctly, you could run a comparison of the data set of deferral changes (from the record-keeper) to the payroll data. As those familiar with administering plans know, EBPs can be prone to operational errors, which must be corrected by the sponsor. Finding these errors timely can reduce the sponsor's cost of correction.

There is often a significant gap between the possibilities of what can be done with data and what a plan sponsor can realistically execute. Limitations on resources, time, budget, and software are all common factors that keep companies from taking full advantage of data analytics. Important keys to using data analytics include: start small, identify projects with clearly attainable objectives (to help obtain "buy-in" from others within the company), and build an environment that makes it easy to progressively add in additional datasets and analytics.

What Data Do You Have?

One of the first things to consider is what data is available. A company may have a human resources information system, payroll system, time and expenses system, email, social media datasets, etc. that hosts data pertaining to the employee benefit plan. Depending on the nature of the desired analytics, public records, market intelligence, industry benchmarking data, Twitter feeds, and general online chatter may also be relevant. It is important to map out the available data sources and to understand both the "owners" of the data and access to each dataset. An assessment of what is available and the effort needed to obtain the data on a regular basis is crucial to planning an effective analytics strategy.

What Tools Do You Have (Or Need)?

Does the company already use certain tools that plan management could utilize throughout the analytics program? SQL Server and Oracle are large database tools that most companies have in place behind their ERP systems. Other tools that are used often include statistical tools like R or SAS or analysis tools like IDEA or ACL. Visualization is also a very important consideration because it doesn't matter how much work is done if it can't be explained simply and succinctly. Tableau, Qlik, and MicroStrategy are some of the more popular tools out there for visualization and are generally considered fairly easy to use. Of course, Excel charts are also a basic (albeit minimum) option. For companies with access to programmers and developers, we typically recommend using SQL Server and Tableau, which are a good combination of analysis tools. If no developer resources are available, ACL/IDEA/Excel can be used.

What Data Do You Need To Analyze?

The crucial question with analytics is what story to tell. The easiest place to start is with the most manual set of tasks. Identify what manual tasks are performed by the plan sponsor. Rather than spending the time manually pulling data and then extracting, updating, combining, formatting, and charting it, consider using an analytic that will pull the data together from multiple systems and also target and focus the analysis so that the review of false positives is limited.

One caution with the incorporation of analytics is to be careful so as not to add unnecessarily to the workload. Incorporating several reports for the plan committee or the plan auditor to consider by using analytics is only beneficial if it reduces the work elsewhere or provides such an additional value to the review that it is worth the additional time and effort. For example, we assisted a plan sponsor who had incorrectly calculated 401(k) contributions which resulted in the need to go back and review all 401(k) contribution requests. The majority of these requests were handled in emails back and forth with the human resources department. The plan sponsor provided several Outlook email files that were processed through a document management tool using search term reports which reduced the potential universe of approximately 46,000 emails to approximately 6,000 emails. Utilizing email threading to review only the strings of emails that were non-duplicated, the number of emails to be reviewed was further decreased to 3,000. The remaining emails were reviewed for the pertinent information. By running the search terms and email threading, the desired information was obtained while only reviewing 6.8% of the total document universe.

How Do You Ensure the Data Analysis Process Adds Value?

Before going through the steps of pulling together data, running the analytics, and automating a process, a suggested first step is to think about how the analytic can be modified to drive value and consider the primary intended goal(s) of the process. For example, before analyzing participant accounts for anomalies, consider what potential issues can be identified and corrected. Likewise, identifying plan vendors with weekend payments may be an interesting exercise, but flagging vendors with duplicate payments where funds could be recovered would be a goal that adds real value.

We also often use analytics during our forensic investigations by identifying patterns and trends across years and systems of data. One particular investigation related to a potential fraud in a defined benefit plan. Using visualizations made it much easier to see that one employee received significantly higher payments over years of time compared to the payment activity of other participants. Benefit payments were broken down between type, such as beneficiary, lump sum, and retirement annuity payments. Using these categories, paired with the employees' years of service, spotlighted unusual activity based on averages. While these visual charts did not identify fraud, they summarized the data in a way where we could focus our interviews and forensic review in an efficient manner. This example also highlights that, while analytics may not always provide a clear-cut answer, it can be an effective tool to focus and drive the right questions.

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