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The Increasingly Virtual Nonprofit:

Big Data—The Beginning of the End

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I. BIG DATA

In October 2013, Bersin by Deloitte, released a study indicating that its review of approximately 480 corporate organizations revealed that more than 60% were investing in Big Data and analytics for Human Resources.[1] At the same time, Bersin found that only 14% had done any significant "statistical analysis" of employee data and a mere 4% have developed their systems to the point that they are able to engage in "predictive analytics" (e.g., determining that prior tenure predicts turnover better than degree or school).[2] The remaining 84% are still dealing with data management and reporting, trying to make sense of the mountain of available information and delivering both ad-hoc and standard operations reports.[3]

Although there are many, many more available, this paper begins with a brief look at reported examples of companies applying data analytics to the realm of people management and human resources.

A. In Practice

1. Bank of America

Bank of America invited Dr. Ben Waber, visiting scientist at MIT and President and CEO of Sociometric Solutions, to conduct an in-depth study of 80 Bank of America call center employees spread across four teams at a single call center to identify factors that correlated with job stress and performance.[4] The study took place in three phases: (1) initial measurement of the call center teams, analysis of the results, and proposals for workplace changes; (2) a normalization period of three months to permit for the changes to become a routine part of work; and (3) re-measurement to gauge the effect of the changes.[5]

To take the "measurements," Waber and his fellow MIT researchers used advanced "Sociometric Badges" about the size of a pack of playing cards and capable of capturing vast amounts of data regarding the activities of the wearer, including the content of conversations, precise physical movements, and the use of doors and other devices keyed to its infrared sensor. With the data analysis algorithms built into the badge, each Sociometric Badge is capable of saving the equivalent of one year of behavioral data onto

[1] http://marketing.bersin.com/high-impact-talent-analytics.html.
[2] *Id.*
[3] *Id.*
[4] Ben Waber, People Analytics: how Social Sensing Technology Will Transform Business and What It Tells Us about the Future of Work, FT Press (2013).
[5] Waber, People Analytics, p. 80.

a 4GB SD card.[6] Waber and his team also captured emails, call records, and Bank of America productivity data.[7]

Waber's review of the email data showed an almost box-for-box reproduction of Bank of America's organizational chart, with little to no communication occurring via email between peers.[8] Reviewing call records, Waber and his team found employees on the phones interacted with three other employees on average, almost all of which were other people on the same team. In terms of productivity, the data showed it took employees an average of 263 seconds to resolve a customer call. Finally, employees reported a moderate amount of stress (3.07 on a scale of 1 to 5, with 5 being the most stressed). Notably, employees reported this level of stress *all the time*.[9]

Waber and his team hypothesized that cohesion—that is, the way the people to whom an employee spoke connected with each other—would correlate positively with performance and negatively with stress. Conceptually, a "cohesive" network looks like a web with the employee at the center—many connections between each of the people with whom the employee is speaking—while a "diverse" network looks more like a star, with lines emanating from the employee to others but without connections between those others.[10]

After reviewing the data, Waber and his team found that cohesion was by far the most significant factor in regards to productivity and stress, having roughly 30 times the impact of experience. Waber and his team also examined face-to-face interaction, network centrality, and degree, but nothing had the same impact as cohesion. By reviewing each of the individual interactions and then overlaying them with location and time information, Waber and his team further determined that most cohesion was being generated not during formal meetings or informal discussions at individual workstations but during the brief period of overlap between the lunch breaks of employees on the same team.[11]

To test the finding, Waber and his team recommended that the break structure for the four teams being studied be changed so that employees on the same team all had the same 15-minute coffee breaks during the day. The assumption was that if an employee is on break with his or her team, the employee will talk to the people the employee regularly

[6] *Id.* pp. 8-15.
[7] *Id.* p. 83.
[8] *Id.* p. 83.
[9] *Id.* p. 84.
[10] *Id.* p. 60.
[11] *Id.* p. 85.

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