



Algorithms to Decode an Organisation's Culture (At Last)

Text analysis based on machine learning is beginning to reveal previously inaccessible truths about organisational culture.

This is the first in a series entitled “The Future of Management”, about how changes in culture and technology are reshaping what managers do. INSEAD professors Pushan Dutt and Phanish Puranam serve as academic advisors for this series.

Everybody agrees organisational culture is extremely important for managers to understand and shape. Few are satisfied with the tools we have to do it today. It's not the absence of solid theories about culture that's the problem; the challenge has been reliable measurement. That's a cue for machine learning and big data to enter the fray. These techniques mine large volumes of free-form text data to infer relatively simple attributes (e.g. employee sentiment), as well as more complex constructs, such as the strength and uniqueness of an organisation's culture.

Pioneers in this area include **The Computational Culture Lab**, a collaborative venture between Stanford University and University of California, Berkeley. Its recently **published papers** analyse years of internal emails at a tech firm to show how employees' use of single vs. plural pronouns reflects their level of “enculturation”, which in turn predicts the probability that they will leave the firm. Another research team found that the language used in

shareholder letters from 167 European banks was highly indicative of overall corporate culture as well as the banks' propensity to engage in risky behaviour.

Company reviews and cultural compatibility

But if you are wondering how easy it is to get hold of internal free-form text written by many different employees, consider this: If you've been on the job market in recent years, there's a good chance you've used **Glassdoor** to get at the unvarnished truth about a prospective employer. For the unfamiliar, Glassdoor is a jobs site where employees, with the invigorating anonymity of the internet, can rate and review key aspects of their company – including salary. What it amounts to is, as **The New Yorker** put it, “Yelp for workplaces”. Since launching in 2008, Glassdoor has hosted 45 million reviews and ratings about 830,000 companies.

Taken together, Glassdoor reviews contain actionable insights not only for the companies they cover, but also for external analysts. For instance, INSEAD PhD candidate **Arianna Marchetti** is using machine learning algorithms to investigate the elusive issue of cultural fit in M&A – specifically, whether Glassdoor reviews filtered through an algorithm can predict compatibility between two

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corporate cultures, and thus the likelihood of M&A success. Marchetti's method combines topic modelling (which uses machine learning to mine a body of text for common themes), sentiment analysis (which measures a text's positivity or negativity) and traditional keyword-based methods (i.e. matching words in reviews to a standard list known to connote cultural dimensions). With access to reviews spanning several years, she can also track changes in corporate culture over time.

"It's a very fair question whether such methods will truly outperform traditional surveys or interviews of a handful of employees", says Marchetti. "There are possible biases to be mindful of in every kind of data. But the ultimate proof will lie in whether we do better at predicting important outcomes like attrition, innovation and valuation", she adds. That's the bet on the future she is making with her **doctoral work**.

*Do you have suggestions for topics we should cover? Have you come across cool research that is helping us understand the future of management? Please send suggestions to **Benjamin Kessler**, or leave a comment below.*

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