Human-resources departments are becoming corporate data centers, probing in-house stores of information to figure out who they should hire and promote, how much those employees should be paid, and even how managers should manage.

Now two professors at Stanford University and the University of California, Los Angeles, are using data analytics to figure out better ways to motivate sales teams.

Over the past seven years, the professors, Harikesh Nair of Stanford's Graduate School of Business and Sanjog Misra, a marketing professor at UCLA Anderson School of Management, have been working with a very large U.S. contact-lens manufacturer to help figure out what incentives are the most
effective for the company’s sales agents.

Initially, the firm paid its agents a salary and commission. The commission was paid out when the agent’s sales per quarter met a quota, and the company imposed a ceiling to prevent paying out too much.

But the firm struggled to set the right quota and ceiling. Too low a quota, and it would provide little incentive to increase sales. Too high and it could be demoralizing for agents. What’s more, the firm wasn’t sure if paying out commissions quarterly was effective, because sales agents could slack off during the bulk of the quarter if they knew they could easily make their numbers by the end.

Companies traditionally rely on guess work or past performance to set sales plans. But the professors built statistical models showing how changes to the quota, the ceiling and the commission period would affect the agents' productivity and sales.

Using their algorithms, the professors pinpointed what they thought was an optimal plan for the firm: Low quotas, no ceilings and monthly commissions.

The contact-lens company implemented the plan and found striking results, says Stanford’s Mr. Nair. Overall revenue increased 9% in one year, with an average revenue increase of $79,730 per agent per quarter.

Employees were happier, too, because the quota was more attainable. Agents were more motivated and less likely to slack off because they could receive a commission each month, researchers found.

In another working paper studying the same firm, the researchers set out to see whether they could design a more customized pay plan for individual sales agents because different people respond differently to incentives. Since it’s impractical for a company to offer a unique compensation structure for each agent, the researchers sought another solution.

They found that by offering two different compensation plans, but giving managers the analytic tools to sort employees into the different plans, the firm satisfied different agents’ pay preferences. Some salespeople, for example, were motivated by higher potential commissions, while others preferred the security of higher base pay.

Mr. Nair cautions that the pay structures at this firm may not be applicable to other companies’ sales teams, because no single approach fits all when it comes to pay. But he encourages other firms to work with academics to help run experiments and find out what works.

“You really cannot improve HR and sales plans without some quantitative understanding,” says Mr. Nair. “And academics could work on real-world problems like this.”