

Using workforce analytics to understand career paths: the risk of becoming a specialist

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The field of workforce analytics frequently suffers from the problem of “more talk than action”. Discussions of what could be done rarely live up to what really does get done. Given this, we were excited by a recent project where researchers from New York University (NYU) worked with a SAP SuccessFactors customer to analyze workforce data collected through SAP SuccessFactors technology. The project was carried out in collaboration with [SAP Leonardo Machine Learning Research](#). This team works with diverse academic partners to develop and apply machine learning methods in the context of SAP solutions.

The results of this study were presented at the [IEEE Conference on Big Data](#) in the paper “Squires, P., Kaufman, H.G., Togelius, J., & Jaramillo, C.M. (2017). A comparative sequence analysis of career paths among knowledge workers in a multinational bank”. This study illustrates a method for increasing the applied use of advanced workforce analytics to address human capital management (HCM) challenges. It also uncovered interesting observations about the nature of career paths for knowledge workers.

Increasing the use of advanced workforce analytics. Advanced workforce analytics involves interpreting workforce data using complex statistical and machine learning methods to gain insights into organizational patterns, trends and performance. This is something very few companies do on a consistent basis, if at all. Advanced workforce analytics is difficult because it requires three elements coming together that tend to belong to different organizations.

- **Business Challenges.** Companies can usually identify important questions that could be addressed through workforce analytics. But these companies may not have the analytical expertise to conduct the analysis nor do they have an easy way to gather workforce data.
- **Analytical Expertise.** The expertise needed to conduct advanced workforce analytics is often found in universities. Unfortunately, many academicians who have expertise in advanced analytical techniques do not have access to the workforce data necessary to use them. Nor do they know what business challenges would be best addressed by these techniques.
- **Workforce Data.** HCM technology providers create solutions that provide access to large amounts of workforce data. But whether this data is ever used for advanced workforce analytics depends on their customer’s interest in sharing it with people who have the expertise needed to analyze it.

One way to expand the use of workforce analytics is to encourage collaboration between companies, academic researchers, and HCM technology providers. The study by Squires et al. illustrates this sort of collaboration between SAP, NYU, and an anonymous SAP customer.

Insights into knowledge worker career paths. The purpose of the Squires et al. study was to gain insights to help attract and develop knowledge workers. Knowledge workers, sometimes referred to as people who do “thinking for a living”, are employees possessing specialized skills and expertise relevant to supporting business strategies and operations. The study looked at job transition and performance data for a sample of 2,804 knowledge workers employed by a global bank. The goal was to understand the relationship between job transfers, job performance, and promotions.

A key question was whether promotions were more common in knowledge workers who focused on becoming specialists as opposed to generalists. Specialists primarily work in jobs within their functional area of expertise (e.g. a financial analyst working in the finance department). Generalists are knowledge workers who rotate through positions outside of their core function (e.g. a financial analyst working in the information services department). The analysis revealed that generalist knowledge workers who take roles outside of their area of expertise are more likely to be promoted. Yet 41% of the knowledge workers in this study were specialists who had never worked in another area.

The study also revealed interesting patterns related to tenure, functional departments, performance and promotion. Certain functional departments tended to promote new employees faster than existing employees. In other words, the longer employees worked in these departments the less likely they were to get a promotion. Somewhat counterintuitively, the employees with the lowest probability of promotion had with longest tenure and highest performance appraisal ratings. This could just be a result of employees being well-placed in certain roles. But it might also suggest concerns about long-term, high performing employees being “taken for granted”.

This study has several implications for workforce management strategies. It reinforces the value of cross-functional experiences as key to leadership development. Knowledge workers seeking higher levels of leadership responsibility should be encouraged and supported in taking cross-functional assignments. The study raises questions about potential risks to allowing knowledge workers to become overly specialized or “too settled” in their roles. Knowledge workers who only work within their area of expertise may be missing important qualities found in colleagues who have had exposure to other functions. This has implications for attraction and retention of knowledge workers. If a company wants to advertise itself as a place for knowledge workers to “build their careers” it might do well to ensure knowledge workers are provided with opportunities to work outside their area of expertise.

This study is a great example of benefits that result when companies, universities, and technology organizations collaborate. We thank Dr. Squires and his colleagues for their contributions to the field of workforce analytics and HCM knowledge. And we look forward to supporting more collaborations in the future. To learn more about SAP’s machine learning initiatives please visit our [SAP Leonardo Machine Learning website](#).