

RCIO 2019 Presentation Submission:

Do you speak Hadoop? An analytics tutorial of the latest tech in big data, and how you can utilize them in HR.

Maira Compagnone
Appalachian State University
Industrial-Organizational Psychology/Human Resource Management Master's Program
HR Science Research Team
Departments of Psychology and Management
compagnoneme@appstate.edu

Jessica Harris
Appalachian State University
Industrial-Organizational Psychology/Human Resource Management Master's Program
HR Science Research Team
Departments of Psychology and Management
harrisjl4@appstate.edu

Philip Hinson
Appalachian State University
Industrial-Organizational Psychology/Human Resource Management Master's Program
HR Science Research Team
Departments of Psychology and Management
hinsonpe1@appstate.edu

Yalcin Acikgoz
Appalachian State University
Industrial-Organizational Psychology/Human Resource Management Master's Program
HR Science Research Team
Department of Psychology
acikgozy@appstate.edu

Submission Abstract:

Disruptive new technologies are changing the way businesses are run (Amshoff, Dülme, Echterfeld, & Gausemeier, 2015; Daneels, 2004), and HR is no exception to this trend (Shah, Irani, & Sharif, 2017). For example, organizations are utilizing their internal data about their employees and work processes in an effort to make more informed policies (Chen, Chiang, & Storey, 2012), while also utilizing the massive data on the internet about their applicants in making selection decisions (Berkelaar & Buzzanell, 2015; Faliagka, Tsakalidis, & Tzimas, 2012). However, while generally having a good grasp of traditional research methodologies, I-O and HR professionals are generally not very familiar with the tools utilized in harnessing big data to make employment and policy decisions. This has led to skepticism that HR analytics will flourish as a management tool that finally gets HR the touted seat at the executive suite (Angrave, Charlwood, Kirkpatrick, Lawrence, & Stuart, 2016), and calls that HR analytics may end up being a fad unless it is based on certain set of rules (Rasmussen & Ulrich, 2015).

One of the problems contributing to this risk is that despite having a good grasp of the basic research methodologies (e.g., data cleaning, regression, and ANOVA), I-O and HR professionals generally lack the advanced knowledge and skills that would allow them to use the right tools at their disposal in best leveraging big data (CIPD, 2013). In addition, the latest guidelines for education and training in industrial-organizational psychology do not even mention the terms “big data” and “analytics” (SIOP, 2016), showing that concern regarding how to leverage big data in HR also extends to graduate education. This means even the most recent graduates will likely enter the workforce without having the expertise on the new tools used in analyzing big data. Also contributing to the challenge is that the literature on HR analytics is mainly on “what” is to be done instead of “how”, and as a result, “...HR practitioners who have engaged with this literature are enthused by its ideas, but feel no better informed about how to put them into practice than they were before they read it (Angrave et al., 2016, pp. 4)”. Collectively, this means that even the newest I-O and HR professionals in the field, despite being equipped with the foundational knowledge of how to use big data and analytics, will often be not familiar with the more advanced or newer data storage and data mining techniques available, and the literature will not be of help when the attempt to initiate HR analytics in their organizations. Accordingly, there is a need to bridge the gap between graduate students and I-O/HR professionals who wish to utilize big data in decision-making and the more advanced analytics tools and methods available that would allow them to do so.

This presentation is aimed at bridging this gap by showing the audience “plain English” explanations of some of the technology, advanced modeling techniques, and methodologies that I-O/HR professionals might not be exposed to in master/Ph.D. programs or while working in HR. In order to accomplish this, the presentation will open with an overview of the technologies that are being utilized to leverage big data. This will include AI/machine learning, natural language processing, relational databases, data lakes, and neural networks, and the software options available that handle big data applications such as Hadoop and other programming languages used by professionals in the field. Next, with the audience’s participation, different potential uses of these technologies in HR will be highlighted. Finally, the presentation will conclude with a case study in which big data is utilized to improve occupational safety outcomes.

Press Abstract:

Organizations are increasingly using big data and analytics in decision-making, and HR is no exception to this trend. Applications of big data analytics are becoming common in HR with advanced tools being developed for this purpose. However, despite having a good grasp of the basic research methodologies, I-O and HR professionals generally lack the knowledge and skills to use big data analytics in their practice. In addition, the latest guidelines for education and training in industrial-organizational psychology do not even mention the terms “big data” and “analytics”, showing that this concern also extends to graduate education, and the literature is not very informative about how to actually do HR analytics. This presentation is aimed at addressing this problem by showing the audience “plain English” explanations of some of the technology, advanced modeling techniques, and methodologies that I-O/HR professionals might not be exposed to in master/Ph.D. programs or while working in HR. This will include AI/machine learning, natural language processing, relational databases, data lakes, and neural networks, and the software options available that handle big data applications such as Hadoop and other programming languages used by professionals in the field.

References

- Amshoff, B., Dülme, C., Echterfeld, J., & Gausemeier, J. (2015). Business model patterns for disruptive technologies. *International Journal of Innovation Management*, 19(03), 1540002.
- Angrave, D., Charlwood, A., Kirkpatrick, I., Lawrence, M., & Stuart, M. (2016). HR and analytics: why HR is set to fail the big data challenge. *Human Resource Management Journal*, 26(1), 1-11.
- Berkelaar, B. L., & Buzzanell, P. M. (2015). Online employment screening and digital career capital: Exploring employers' use of online information for personnel selection. *Management Communication Quarterly*, 29(1), 84-113.
- Chen H, Chiang R.H.L., Storey, V.C. (2012). Business intelligence and analytics: From big data to big impact. *MIS Quarterly*, 36(4): 1165–1188.
- CIPD (2013). *Talent Analytics and Big Data – The Challenge for HR*. London: Chartered Institute for Personnel and Development.
- Danneels, E. (2004). Disruptive technology reconsidered: A critique and research agenda. *Journal of product innovation management*, 21(4), 246-258.
- Faliagka, E., Tsakalidis, A., & Tzimas, G. (2012). An integrated e-recruitment system for automated personality mining and applicant ranking. *Internet research*, 22(5), 551-568.
- Rasmussen, T. & Ulrich, D. (2015). Learning from practice: how HR analytics avoids becoming a fad. *Organizational Dynamics*, 44(3), 236–242.
- Shah N., Irani Z., & Sharif, A.M. (2017). Big data in an HR context: Exploring organizational change readiness, employee attitudes and behaviors. *Journal of Business Research*, 70, 366-378.
- Society for Industrial and Organizational Psychology, Inc. (2016). *Guidelines for education and training in industrial-organizational psychology*. Bowling Green, OH: Author.