

HR ANALYTICS AND BUSINESS PERFORMANCE – A MEDIATION MODEL

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ABSTRACT

The role of Human Resources Management has evolved from being an administrative function towards being a more strategic partner. The most significant driving force behind this evolution is technological development. For instance, tools of data analytics, and other visualization techniques help management make informed decisions. Storing, processing and analyzing data form an integral part of HR management. This paper analyzes how the outcomes of using HR analytics in various processes and strategies can be used to bring about business outcomes like ROI and improved decision-making. A survey questionnaire was distributed among a sample of 180 HR professionals working in the city of Bangalore. The data collected was subjected to statistical analysis using SPSS v24. The results showed that the outcomes of using HR analytics to enhance process performance and strategy implementation can significantly improve Business Outcomes. Further, the Utilization of HR analytics was found to partially mediate the direct effects of HR analytics on Business Outcomes. It can be implied from the results that the effectiveness of HR analytics on decision-making and ROI can be enhanced by utilizing its outcomes on process performance and strategy implementation.

JEL Codes: M1, M5, J2, O0, O1, O3, O15, D69.

Keywords: HR Analytics, Competencies, Utilization, Business Outcomes, Decision-Making, Return on Investments (Roi).

INTRODUCTION

HR analytics, unlike HR metrics which are measures of HRM outcomes, represent the various statistical techniques and experimental approaches used to show the effectiveness of HR activities (Lawler III, Levenson & Boudreau, 2004). The various definitions offered for HR analytics in literature have certain things in common. These include HR analytics -- is a sophisticated analysis of HR-related data; integrates data from different functions; collects, manipulates and reports data for making people-related decisions; and links HR decisions to business outcomes and organizational performance (Marler & Boudreau, 2017). In the present study, we aim to establish an empirical relationship between HR analytics and business outcomes. The terms “HR analytics”, “workforce analytics” and “people analytics” coexist in literature and are often used interchangeably. In the present study, the term HR Analytics will be used, since the study was conducted in an Indian context, where the dominant label is “HR analytics”.

In the recent years, the potential of HR analytics towards offering valuable insights for the HR managers to make people and organizational decisions has transformed the domain of HR management to business effectiveness (van der Togt & Rasmussen, 2017). HR analytics are increasingly adopted for predicting business outcomes like productivity, sales, profits, and quality decisions. By effectively predicting the business outcomes, HR analytics add more value to business. They also play an important role in delivering the organizational strategies as well (Reddy & Lakshmikeerthi, 2017). Owing to these benefits offered by analytics, analytics has been considered as a must-have capability for the HR profession (Angrave, Charlwood, Kirkpatrick, Lawrence, et al., 2016).

HR analytics help organizations to identify and redirect the money spent on wrong initiatives to beneficial initiatives, quantify the RoI made due to the impact of analytics on bottom and top-lines, and quantify the impact of decisions made by HR executives on business outcomes (Mondore et al., 2011; Fred & Kinange, 2015). Thus, by investing in stronger analytics, organizations can track the efficiency metrics around HR activities and achieve quick returns on the investments made. With the help of empirical evidence, the current study aims to investigate how an organization's RoI and decision-making capabilities can be improved by adopting HR analytics for process performance and strategy delivery. The results of the study can be used to encourage HR professionals to adopt HR analytics for making key decisions.

REVIEW OF LITERATURE

HR analytics have been implemented across various HR processes and has been found to have enhanced the effectiveness of those processes. For instance, in a study conducted by Sharma and Sharma (2017), it was found that the utilization of HR analytics in the Performance Appraisal (PA) system positively affected the satisfaction of employees which in turn increased their willingness to achieve high performance. Thus, it was implied that employee performance can be increased by utilizing HR analytics in the PA system. Momin and Mishra (2015) also found evidence for how HR analytics used for planning workforce can minimize attrition rate and add more value to the training culture of an organization. The study suggested that organizations must adopt HR analytics in order to align its HR strategies with its overall business goals and to sustain in the market against its competitors. Yet another study by Momin (2015) also found evidence for HR analytics enhancing the performance of the work force of an organization. This in turn resulted in improved productivity and revenue generation for the organization. In a similar vein, Muscalu and Șerban (2014) also found that employing HR analytics for human resource management can help organizations improve its performance and the productivity of its various processes. Rajbhar et al., (2017) also conducted a study on the impact of HR analytics on HR management and found similar results, i.e. HR analytics facilitated the performance of workers which in turn increased the overall performance of the organization and its revenue. In this line, Narula (2015) also studied the usage and application of analytics in the HR field. A survey was conducted on various forms and uses of HR analytics and it was found that HR analytics improved the individual as well as organizational performance of firms.

HR analytics was successfully adopted for predicting various business outcomes as well. According to Fred and Kinange (2015), HR analytics help organizations gain competitive advantages by transforming their workforce. Their study reported that analytics can be adopted by HR leaders to predict business outcomes and improve employee engagement. Harris, et al. (2011) identified some of the HR analytical tools used by organizations to achieve higher RoI

and improved business performance. These tools include “*employee databases; segmentation of talent; targeted investments; customization of the employee value proposition; long-term workforce planning; and talent supply chains.*” These tools were found to help the HR leaders manage HR and direct programs towards the long-term needs of business. Further, *Lochab, Kumar and Tomar (2018)* conducted a literature review on the effectiveness of HR analytics on the performance and functioning of an organization. The results of the review showed that HR analytics is an important tool employed by organizations to make people-related decisions.

Evidences for the impact of HR analytics on decision-making and RoI of organizations can also be found in literature. Mishra, Lama and Pal (2016) reported that HR predictive analytics has been employed to enhance the performance of organizations and help them achieve better return on investment through data-based decision-making. Based on these results, the researchers emphasized the need to adopt HR predictive analytics in areas of human resource management for optimizing business performance. Witte (2016) studied the role of HR analytics as a strategic partner of organizations. The results of his study show that HRA supports their business in a better way and helped them achieve their long-term business goals. The study also reported that factors like “HRA maturity, the decision-making culture in a company, support for HRA in a company” (p.5) have an impact on the adoption of HRA to become a better strategic partner.

The impact of HR analytics on the performance of supply chain was studied by *Trkman, McCormack, De Oliveira and Ladeira (2010)*. The results of the study show that analytical capabilities and performance are directly and significantly related to each other. Further, the relationship was found to be moderated by factors like information system support and business process orientation. Some of the other moderating factors of HR analytics reported by various researchers include analytical skills of HR professionals (Mondore, et al. 2011; Marler & Boudreau, 2017), *business understanding of HR managers* (Rasmussen & Ulrich, 2015), management buy-in (Coco, 2011; Marler & Boudreau, 2017), data collection (Pape, 2016), effective use of data (Levenson, 2013), and *HR information technology* (Aral, Brynjolfsson, & Van Alstyne, 2012; Lawler III, Levenson & Boudreau, 2004).

The current body of knowledge on HR analytics mostly address how HR analytics function (Marler & Boudreau, 2017) and what are the factors affecting it. It can be observed from the review that there exists a dearth of research on how the outcomes of HR analytics can be used to improve Business Outcomes. Further, there exists a predominance of non-quantitative empirical evidence on the effectiveness of HR analytics. There still exists much room for academic researchers to add to the HR analytics literature. Hence, the current study was carried out to augment the current body of knowledge about HR analytics. In addition to this, the mediating influence of the outcomes of HR analytics on the direct effects of HR analytics on Business Outcomes was not explored earlier. The current study, therefore, strives to bridge this gap in the extant literature on HR analytics. Accordingly we predict as follows:

Research hypothesis: The utilization of competency outcomes mediates the relationship between existing HRA competency and business outcomes.

The hypothesis was tested using the data collected and presented in forthcoming sections.

RESEARCH DESIGN AND METHOD

Sample Selection and Collection of Data

The study adopted a cross-sectional research design with survey questionnaires administered to 180 HR professionals who employ HR analytics to make strategic decisions. The

samples were selected randomly from the sample frame to avoid biased responses. Among the study participants 55% were males, 47% belonged to the age group between 31 and 40 years, and 80% had completed post-graduation. A majority of the participants worked in MNCs (39%) and other large companies that employed more than 1000 employees (34%). The HR participants of the study also had sufficient experience. More than 50% of the participants have more than 5 years of experience in the HR field. Overall, the demographic analysis shows a good fit of the sample population to the general population studied.

Study Constructs and Measures

In the present study, the HR competencies of the professionals were measured in terms of Understanding of data, Analytical skills and Interpretation skills. Utilization of HR analytics outcome was measured in terms of Process Performance and Strategies. Business Outcomes was measured in terms of Return on Investments and Decision-making process. In order to study the mediating influence of Utilization of HR analytic outcomes between HR analytic competencies and Business Outcomes, Hayes and Preacher's method of mediation analysis was adopted. PROCESS macro in SPSS v24 was employed for conducting the mediation analysis. The results are discussed in the ensuing section.

Results and Discussion

The HR analytical competencies possessed by the employees was found to have a significant impact ($t=7.513$, $p<0.001$) on the Business Outcomes of an organization (i.e. RoI and decision-making power). The R^2 value, which expresses the explanatory power of independent variable on the dependent variable, shows that 24% variance in Business outcomes, can be explained by HR analytic competencies. Thus, with the help of HR analytics, improved decisions that can be substantiated with evidence can be made and returns on the investments made can be achieved. Our result supports the earlier findings made by Reddy and Lakshmikeerthi (2017) who pointed out that evidence-based HR analytics practices can help organizations maintain quality data to justify their RoI on HR investments and make informed decisions. Similarly, Momin and Mishra (2015) also found that HR analytics help organizations make strategic decisions regarding workforce planning; thereby, add value to the organization.

The HR analytic competencies have a significant influence on the outcomes of its utilization for process performance and strategy results ($t=11.516$, $p<0.001$). The analytical competencies possessed by the HR professionals enable them to improve the effectiveness and performance of various processes and strategies related to HR functions. Our finding can be corroborated with an earlier finding made by Levenson (2018) which stated that workforce analytics can enhance the execution of certain strategies; thereby, improve organizational performance.

The outcomes of Utilization of HR analytics for enhancing the performance of various processes like compensation analysis, recruitment analysis, performance assessment, labor compliance, etc. as well as of strategies like change management, manpower planning, etc. have been found to have significant influence on the RoI and decision-making power of the organization (Business outcomes) ($t=3.149$, $p<0.001$). The outcomes of Utilization of HR analytics for Process Performance and Strategies will be improved processes and strategies which in turn will have a remarkable influence on the organization's business outcomes. A study by Mishra, Lama and Pal (2016) also implied that HR predictive analytics adopted to optimize

the performance of HR management processes produced better ROI for the organization through data-based decision-making. In addition to this, Sharma and Sharma (2017) also found evidence for the positive impact of HR analytics in the performance appraisal system on employees’ willingness to improve their performance. Thus, it is evident that Utilization of HR analytics for enhancing various process performances improves organizational outcomes.

The results of mediation analysis show that the inclusion of the mediator (Utilization of HR analytics outcomes) only increased the explanatory power of HR competencies on Business outcomes to a small extend (refer the R² values in Table 1). The Utilization of HR analytics outcomes only partially mediated the effect of HR analytic competencies on Business outcomes, since both the direct and indirect effects were found to be significant. Hence, the proposed hypothesis has been partially accepted. It can be implied from the results that Utilization of HR analytics outcomes can enhance the direct positive effects of HR analytics competencies on Business outcomes. Overall, the analysis shows that HR analytic competencies must be applied to improve various HR processes and strategies and the outcomes then realized can be effectively used for achieving return on investments and making informed decisions Table 1.

Table 1
UTILIZATION OF HR COMPETENCY OUTCOMES AS A MEDIATOR BETWEEN EXISTING HR COMPETENCIES AND BUSINESS OUTCOMES

	Coeff	SE	t	p	LLCI	ULCI	Decision
HRC→UCO	0.756	0.066	11.516	0.000	0.626	0.885	Supported
UCO→BO	0.173	0.055	3.149	0.002	0.065	0.282	Supported
HRC→BO(Direct effect)	0.371	0.049	7.513	0.000	0.273	0.468	Supported
HRC→UCO→BO (Indirect effect)	0.131	0.030			0.078	0.192	Partially Supported

SE-Standard error, LLCI-Lower Limit Confidence Interval, ULCL-Upper Limit Confidence Limit. Indirect effects were tested using the bootstrapping procedure with 5000 bootstrap samples Figure 1 & Table 2.

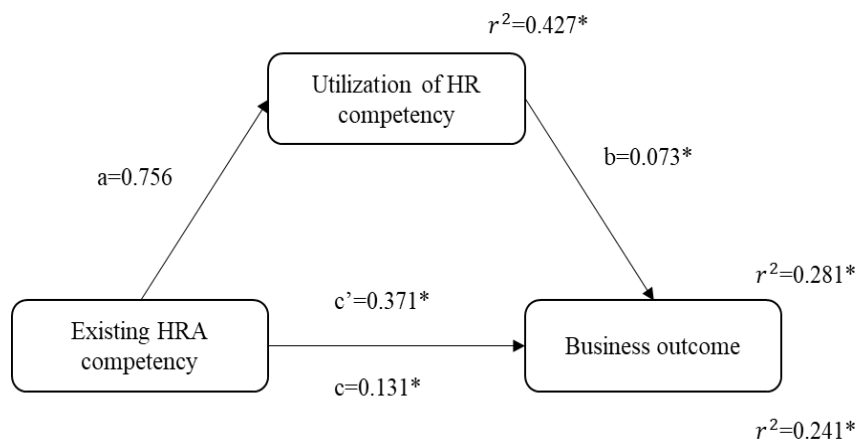


FIGURE 1
MEDIATING INFLUENCE OF UTILIZATION OF HR COMPETENCY OUTCOMES

	R	R-sq	MSE	F	df1	df2	p
HRC→UCO	0.653	0.427	0.449	132.621	1	178	0.000
HRC→BO	0.491	0.241	0.254	56.450	1	178	0.000
HRC→UCO→BO	0.530	0.281	0.242	34.597	2	177	0.000

Conclusion

The study was conducted to analyze the impact of HR analytics on Business Outcomes. It was found that the analytical competencies possessed by HR professionals significantly influenced the decision-making power of the organization and RoI. In addition to this, it was also found that the outcomes of utilizing HR analytics on process performance and strategies partially mediated the effects of HR analytics on Business Outcomes. HR professionals must apply analytics for improving the performance of various HR processes and strategies, which in turn will improve the Business Outcomes of their organization. In future, the impact of HR analytics on other business outcomes like productivity, sales, etc. can be studied.

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