Chapter 44
Application of Statistics in Human Resource Management

Roma Puri
International Management Institute Kolkata, India

Pooja Sengupta
International Management Institute Kolkata, India

ABSTRACT

The chapter gives an outline of the shift in HRM from being intuitive to quantitative in its decision making and overall functioning. The role of HRM is transforming with application of statistical techniques that make HR more evidence based and accountable. The chapter will discuss some successful applications of statistical techniques, basic and, in HRM by renowned organizations worldwide as well as elucidate upon some of the most applied statistical techniques. After reading this chapter learner will appreciate the need for applying Statistics in HRM, have an understanding of the avenues for application of statistical tools and get an outline of the various statistical techniques that are appropriate for different HR functions.

INTRODUCTION

HRM departments, since inception have been a hub for employee data as information has to be captured from the entry to exit for all the employees in organizations. Setting up of HRIS was an advancement over maintenance of a simple database. Unfortunately, the rich base of information was not put to good use. HR professionals were not aware of applications or tools to exploit this data for informed decision-making. Historically, HR decision were based more on personal judgment, intuition and experience and hence were very subjective in nature.

Although there were significant innovations in the realm of HRM in terms of the processes and practices over the last few decades, HRM could not establish its credibility or gain recognition for its contribution to the organizational value chain. HR witnessed a significant shift in its responsibilities from "doable" to "deliverable" (Ulrich, 2013), hence the focus not on outcomes rather than actions. HR

DOI: 10.4018/978-1-6684-3873-2.ch044

Copyright © 2022, IGI Global. Copying or distributing in print or electronic forms without written permission of IGI Global is prohibited.

initially grappled with its role as strategic partner as HR needed analytic and databased decision making competencies to mesh HR practices and processes with business strategy. For a fairly long time it lacked the right metrics and analytical models (Lawler, et al., 2004). HRM investments were seen as wasteful and it was imperative for HR to enhance efficiency in its systems and derive metrics for their optimum functioning. The targeted areas initially were refining workforce planning and recruitment, reducing recruitment and retention costs and retaining critical talent (Narula, 2015).

This led to the emergence of HR metrics, dashboards and the HR Scorecard (Becker, Ulrich and Huselid, 2001). Organizations utilized different arrays of metrics to assess the effect of HR initiatives in terms of efficiency, effectiveness and impact on business strategy and business performance (Boudreau ad Ramstad, 2005). These metrics reflected current scenarios but failed to provide pointers or projections needed for strategic alignment of HR.

Earlier numerical analysis entailed usage of basic visualization tools such as bars and charts to depict trends and patterns of HR data. The emergence of quantification of decisions in different fields of management called for rigorous use of numerical data (Pfeffer & Sutton, 2006 and King, 2016). Researchers emphasized upon the need for HRM to become more evidence based with application of appropriate numerical rigour in their work (Lawler, 2007). It was felt that metrics by themselves were not adequate and there was a need for application of sophisticated statistical tools but in most cases the process of utilization of numerical data had been elementary (Mondore, Douthitt and Carson, 2011; Lawler, Levenson and Boudreau, 2004). This led to the re-emergence of analytics in the field of HRM. The concept of analytics was not new to HR, the very basic application began with statistical analysis of training investments (Fitz-Enz, 2010). Fitz-enz in 1978 had advocated the use of analytics proposing that HR initiatives and their linkages with the bottom-line should be explored but this new idea did not find any takers at that time (Handa and Garima- 2014). During present times, application of quantitative techniques in HR has been triggered by the datafication of HR (Bersin, 2013), evidence based HR (Lawler, 2007) and use of big data in management (George, Haas and Pentland, 2014).

HR analytics includes the application of statistics, research design, identifying meaningful questions, using appropriate data, applying scientific standards to evaluate the results into meaningful business reports (Narula, 2015 and Levenson, 2005). KPMG's (2013) definition of HR Analytics states that it is the application of statistical techniques (e.g. factor analysis, regression and correlation) and the synthesis of multiple sources to create meaningful insights (factors X & Y predicting employee performance or turnover). HR analytics, hence, is understood to be the application of mathematical, statistical and data mining techniques to human resources and business data to explore concepts and ideas and solve or respond to HR related business problems HR analytics warrants for processing of HR data with advanced algorithms as well as statistics to get meaningful interpretation of existing data.

There is no inclusive definition of HR analytics, what is important is the process to affect the overall role of HR in an organization (Mondore, Douthitt and Carson, 2010). The use of analytics has aided in demonstrating the impact of HR on business results. Statistical techniques and experimental approaches have successfully anchored the causality between particular HR initiatives and outcome measures such as customer satisfaction, sales per employee and the profitability of business activities (Heskett and Schlesinger, 2008).

The benefits of a meaningful analysis of HR data using appropriate statistical tools would be:

- Channeling resources towards favorable employee initiatives
- Calculating the return on such investments via their impact on top and bottom line

18 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:
www.igi-global.com/chapter/application-of-statistics-in-human-resource-management/295377

Related Content

Strategies for Harnessing the Changing Nature of Human Resources With a Special Focus on Diversity
Betty Sibiland Celina Joy (2021). *Critical Issues on Changing Dynamics in Employee Relations and Workforce Diversity (pp. 1-17).*
www.irma-international.org/chapter/strategies-for-harnessing-the-changing-nature-of-human-resources-with-a-special-focus-on-diversity/269351

Innovative Technology and Human Resource Management
Sachin Soonthoduand Susheela Shetty (2022). *Research Anthology on Human Resource Practices for the Modern Workforce (pp. 606-618).*
www.irma-international.org/chapter/innovative-technology-and-human-resource-management/295365

Analysis of Strategic Human Resource Management Practices in Small and Medium Enterprises of South Asia
A. Anjum, X. Mingand Lilian Consuelo Mustelier Puig (2022). *Research Anthology on Human Resource Practices for the Modern Workforce (pp. 1021-1039).*
www.irma-international.org/chapter/analysis-of-strategic-human-resource-management-practices-in-small-and-medium-enterprises-of-south-asia/295387

Ignoring Commitment of Labor's Welfare: Evidence in State-Owned Enterprise Cement Holding of PT Semen Indonesia (Persero) Tbk
Effnu Subiyanto (2021). *Critical Issues on Changing Dynamics in Employee Relations and Workforce Diversity (pp. 90-108).*
www.irma-international.org/chapter/ignoring-commitment-of-labors-welfare/269355

Transformational and Authentic Leadership in Telework
Paula Cristina Nunes Figueiredo, Sandrina Encarnação Leal, Inês Lopes, A. Ferreira Cascãoand Patricia Gomes (2022). *Handbook of Research on Challenges for Human Resource Management in the COVID-19 Era (pp. 243-268).*
www.irma-international.org/chapter/transformational-and-authentic-leadership-in-telework/308340