Extent of Data Sophistication used in HR Analytics: A Comparative Study of Banking and Telecommunication Industry

Simran Sethi
Amity Business School,
Amity University, Noida
Simran.sethi1@s.amity.edu

Dr Vijit Chaturvedi
Amity Business School,
Amity University, Noida
vchaturvedi@amity.edu
ORCID-https://orcid.org/
0000-0001-6757-1340

Dr. Pushpa Kataria
Doon Business School - Global,
Dehradun
Uttarakhand.pushpakataria@
doonbusinessschool.com

Dr. R.S.V. Rama Swathi
Business School, Koneru Lakshmaiah
Education Foundation,
Green Fileds, Vaddeswaram, A.P.
swathi.rampalli1@gmail.com

Sohaib Alam*
College of Sciences and Humanities,
Prince Sattam Bin Abdulaziz University,
Kingdom of Saudi Arabia
s.alam@psau.edu.sa
https://orcid.org/0000-0002-9972-9357
Corresponding Author

Abstract

The strategic use of data in human resources (HR) management has become essential for organizational performance in today's economic environment. This research explores the field of HR analytics and focuses on how sophisticated the data is in two important industries: banking and telecoms. By combining quantitative surveys and qualitative interviews, a mixed-method research methodology is used in this study to investigate the many applications of HR analytics across industries. Data-driven decision-making in HR operations is crucial, and the research emphasizes this by carefully evaluating the corpus of existing literature and developing a comprehensive methodology.Utilizing primary data gathered from HR managers and professionals in banking and telecom firms, the study evaluates the degree of data sophistication applied to HR analytics tools and methodologies. Comparative study reveals trends, obstacles, and best practices unique to a given industry.

The findings demonstrate that both industries employ HR analytics to accelerate hiring processes, increase worker satisfaction, and predict changes in the labor market. There are differences, nevertheless, in the level of data sophistication, which are influenced by industry-specific elements such technical improvements, organizational structures, and regulatory limitations. The importance of this study rests on what it has to offer both academia and business. Industry-specific insights enhance the knowledge of HR analytics from an academic perspective, and industry professionals can benefit from the practical counsel it provides. Gaining a competitive edge in the dynamic business landscape, optimizing workforce initiatives, and cultivating a happy work environment are all made possible for companies by being able to make more informed decisions thanks to an understanding of the subtleties of data complexity in HR analytics.

Keywords: Data Sophistication, HR Analytics, Banking Industry, Telecommunication Industry.

Introduction:

Data-driven decision-making has become critical in today's business environment, particularly in the field of human resources (HR)

management. The use of data analysis and processing in HR operations, or HR analytics, is transforming workforce management for businesses. Employing advanced data analytics technologies in HR procedures has emerged as a vital tactic for companies looking to obtain a competitive advantage. This study examines the intriguing topic of HR analytics, focusing on how it's applied in two significant sectors: banking and telecommunications.

The banking and telecommunications sectors, which employ millions of people globally, are the foundation of any country's economy. Effective HR management is essential in various industries for maintaining operational efficiency, improving client experiences, and maintaining internal harmony. Advanced analytics has replaced traditional HR procedures by utilizing a variety of employee-related data to help with decision-making. Knowing how sophisticated the data is in HR analytics across various industries is crucial to understanding the trends in the market and possible areas for development.

The amount of data generated by enterprises is growing tremendously as the digital era progresses. HR professionals now have a unique opportunity to predict labor trends, improve employee engagement, and optimize personnel management. The degree of data complexity and how it is used in HR analytics, however, may differ greatly throughout industries. Given its strict laws and hierarchical structures, the banking sector may adopt distinct strategies compared to the telecommunications sector, which is frequently characterized by swift technical progress and a workforce that is more dynamic. This study examines various businesses to find best practices and possible roadblocks when applying advanced data analytics in HR services.

Significance of the Study

The implications of this finding for academics and industry are enormous. From an academic perspective, it adds to the expanding corpus of knowledge about HR analytics by illuminating the practical applications and obstacles that many sectors encounter. The study will offer industry professionals useful information on the best practices and possible areas for development when it comes to using data analytics for HR functions. HR specialists can enhance the efficacy of their strategies and establish a more positive work environment with the aid of this study's findings.

Review of Literature

HR analytics, the application of advanced data analytics to human resources management has emerged as a crucial field for both practice and research. The degree to which this data expertise is applied in HR analytics differs across industries as companies struggle with enormous volumes of data.

This overview of the literature examines the findings and studies that have been done on the use of data sophistication in HR analytics, with a particular emphasis on the banking and telecom industries.

Evolution of HR Analytics: There is ample documentation on the progression of HR analytics from simple reporting to complex predictive analytics. outhitt & Mondore,013) have published roundbreaking publications that highlight the shift in HR practices from reactive to proactive, made possible by the use of sophisticated data technologies. This development represents a paradigm shift in HR management, where sophisticated data is essentl to making well-informed strategic decisions.

Data Sophistication in HR Analytics : There application of data analytics to HR management has drawn a lot of attention in recent years. Scholars have emphasized how important sophisticated data is to HR analytis. According to arler Boudreau,2017) HR may become a strategic partner instead of just a cost center with the help of modern analytics. The significance of predictive analytics in talent management is emphasized.

Challenges in Data-Driven HR : Althoug HR analytics offers a lot of potential, implementing it can be challenging. The major obstacles to using data analytics in HR are covered by avenport 018These include worries about data quality, privacy, and the requirement for HR workers who are nowledgeable with data.

HR Analytics in Banking Industry: HR analytics has made major strides in the banking industry, where data security and regulatory compliance are critical. (Falletta,

2014) carried out a thorough investigation on predictive analytics' application in banking HR.Their research indicates that predictive analytics can be used to support succession planning, which aligns workforce plans with business objectives, in addition to talent acquisition.

The banking industry has been in the forefront of implementing data-driven HR strategies. (Mankin & Gales, 2018) discuss how banking institutions use HR data to enhance employee performance, reduce staff turnover, and increase customer service. The study done by (Ferris et al.,2007) clarified the tools and techniques banks employ for HR analytics.

HR Analytics in Telecommunications : The telecommunications industry has unique challenges due to the rapid advancement of technology. Researchers like (Lengnick-Hall &Lengnick-Hall, 2019) have looked into how HR analytics are used in this dynamic industry. They discuss the use of analytics in workforce planning and talent recruiting. On the other hand, the telecom sector, which is distinguished by quick technological advancements and a heterogeneous labor force, has particular difficulties when it comes to data use. In their discussion of these difficulties, (Davenport & Harris, 2018) drew attention to problems with data integration, quality, and the requirement for HR professionals to upgrade their skills. Their study emphasizes how critical it is to deal with these issues in order to fully utilize the potential of data sophistication in HR analytics in the telecom industry.

Comparative Studies in HR Analytics: Studies that compare the level of data sophistication in different industries are few but very important. A comparison between the manufacturing and healthcare industries was done by (Smith & Johnson, 2019), who emphasized the need for industry-specific HR analytics techniques. Their research provides a methodological foundation for comparative studies that can be used in our study even if it is unrelated to telecoms and banking.

Impact on Organizational Performance: The effect of data sophistication on organizational performance is a critical component of HR analytics. A thorough investigation spanning several industries was carried out by (Bersin, 2020), who showed a positive association between organizational performance measurements and data-driven HR policies. The industry-specific study (Mondore et al.,(2011) showed the potential benefits that might be realized in the banking and telecommunications sectors by effectively utilizing data sophistication in HR analytics.

The effects of data-driven HR on organizational outcomes have been the subject of several studies. Advanced HR analytics can boost employee engagement and organizational performance, especially in the banking industry, according to a study by(Rasmussen & Ulrich, 2015).

Research gap

The literature that is now available emphasizes how HR analytics, with its application in the banking and telecommunications industries, can revolutionize these industries. It draws attention to the benefits for organizational performance, the difficulties in implementing data-driven HR, and the use of predictive analytics in talent management. However, it is evident that further comparative research is needed on this topic. By shedding light on the varying degrees of data sophistication in two important industries, the proposed study seeks to close this knowledge gap and provide actionable advice for both researchers and HR practitioners.

Although a number of studies have examined HR analytics inside particular businesses, there aren't many comparison studies like the one that is being suggested. A greater knowledge of how industry-specific factors affect data sophistication in HR analytics is made possible by comparative study.

The existing literature highlights the transformative potential of data sophistication in HR analytics. The banking and telecoms sectors will both profit, but there are certain issues that need to be resolved for each industry. This assessment, which emphasizes the need for industry-specific strategies and deliberate measures to effectively exploit data sophistication in HR analytics in the banking and telecom industries, serves as the foundation for our comparison study.

Objectives

1. To study Extent of Data Sophistication used in HR Analytics of Banking Industry
2. To study Extent of Data Sophistication used in HR Analytics of Telecommunication Industry
3. To Compare the Extent of Data Sophistication used in HR Analytics of Banking and Telecommunication Industry

Hypothesis

1. There is no significant difference in Extent of Data Sophistication used in HR Analytics of Banking and Telecommunication Industry
2. Extent of Data Sophistication used in HR Analytics is indifferent with respect to the respondents' experience of using HR analytics software's.

Research Methodology

Research Design: The research is intended to study the Extent of Data Sophistication used in HR Analytics so descriptive research design was used.

Sampling: The population frame included all the HR professionals working in the banking and telecommunications industries in India. To serve the objectives 59 HR professionals of banking industry and 44 HR professionals of telecommunication industry were selected. In total 103 HR professional were included in sample.

Data Collection Tool: Structured questionnaire was designed to collect data from HR professionals of banking and telecommunication industry.

Data Analysis Tool: The collected data was coded into MS Excel and then same was imported in SPSS 21.0. To serve the objectives of research mean, standard deviation, coefficient of variation, independent two sample t-test and chi-square test were used.

Analysis of Data

Job Profile of Respondents

The first part of the questionnaire collected information about respondents' job profile, and the data pertaining to same is presented in table 1.

Position in HR department: In banking sector majority of respondents (32.20%) were HR assistant followed by Asst. Manager (27.12%) and Sr. Manager (18.64%). Whereas in telecommunication sector maximum number of respondents were Asst. Manager (34.09%) followed by Manager (25%) and HR Assistants (25%)

Experience of Using HR Analytical Software: In banking as well as in telecommunication industry majority of respondents were having the experience of 3 to 6 years of using HR analytical software's. A significant number of respondents indicated 1 to 3 years of experience with HR analytical software followed by the experience of 6 to 9 years. Very few banking (3.39%) and telecommunication (4.85%) HR professionals were having more than 9 years of experience with HR analytical software's.

Table 1: Job Profile of Respondents

Position in HR Dept	Banking		Telecommunication		Total	
	N	Percentage	N	Percentage	N	Percentage
HR Assistant	19	32.20	11	25.00	30	29.13
Asst. Manager	16	27.12	15	34.09	31	30.10
Manager	9	15.25	11	25.00	20	19.42
Sr. Manager	11	18.64	5	11.36	16	15.53
HR Director	4	6.78	2	4.55	6	5.83
Total	**59**	**100**	**44**	**100**	**103**	**100**

Experience of Using HR Analytical Software	Banking		Telecommunication		Total	
	N	Percentage	N	Percentage	N	Percentage
Less than 1 Year	3	5.08	7	15.91	10	9.71
1 to 3 Years	17	28.81	10	22.73	27	26.21
3 to 6 Years	25	42.37	15	34.09	40	38.83
6 to 9 Years	12	20.34	9	20.45	21	20.39
More than 9 Years	2	3.39	3	6.82	5	4.85
Total	**59**	**100**	**44**	**100**	**103**	**100**

Extent of Data Sophistication used in HR Analytics

The major objective of this research is to study the Extent of Data Sophistication used in HR Analytics of selected industries.In order to achieve the goal, participants were asked, on a five-point rating system that ranged from basic to optimization, how much they have used analytics in various HR domains. The scale items were described as follows: -

1. Basic: The HR department is generating routine reports. Analytics is limited to do data entry and generation of frequency tables.
2. Exploratory: Respondents are using descriptive statistics i.e., graphs, measures of central tendency, measures of dispersion etc.
3. Predictive: The statistical tools are being used for prediction of future results like regression, trend analysis etc.
4. Prescriptive: HR professionals are doing business value analysis by using decision models and simulation techniques.
5. Optimization: Automated, beyond the prescriptive level, matching prescription outcome data and further improvements are being done by HR department.

Table 2 is showing the count and percentages of sophistication levels for each HR domain of banking industry; further table 3 is presenting the mean, standard deviations and coefficient of variations for each functional area. From the mean score it can be inferred that HR professional of banking industry are using predictive statistical tools for HR planning, strategic planning, selection, diversity, performance management, career planning, succession planning, layoff and organizational development. On the other side Banking HR professional are using decision making models and simulation techniques for the data related to recruitment, compensation, training, employee attitude and promotion.

Table 2: Frequency Distribution of Extent of Data Sophistication in Banking Industry

Proficiency Level	Basic		Exploratory		Predictive		Prescriptive		Optimization	
Items	N	%age	N	%age	N	%age	N	%age	N	%age
HR Planning	2	1.69	10	8.47	25	21.19	8	6.78	14	11.86
Strategic Planning	4	3.39	12	10.17	23	19.49	5	4.24	15	12.71
Recruitment	3	2.54	9	7.63	20	16.95	10	8.47	17	14.41
Selection	5	4.24	8	6.78	22	18.64	7	5.93	17	14.41
Diversity	9	7.63	10	8.47	29	24.58	11	9.32	0	0.00
Compensation	4	3.39	7	5.93	24	20.34	9	7.63	15	12.71
Training	2	1.69	5	4.24	28	23.73	6	5.08	18	15.25

Proficiency Level	Basic		Exploratory		Predictive		Prescriptive		Optimization	
Items	**N**	**%age**	**N**	**%age**	**N**	**%age**	**N**	**%age**	**N**	**%age**
Performance Management	3	2.54	8	6.78	27	22.88	8	6.78	13	11.02
Career Planning	6	5.08	9	7.63	26	22.03	9	7.63	9	7.63
Promotion	1	0.85	10	8.47	21	17.80	10	8.47	17	14.41
Succession Planning	2	1.69	12	10.17	22	18.64	12	10.17	11	9.32
Layoff	3	2.54	8	6.78	27	22.88	11	9.32	10	8.47
Employee attitude Survey	2	1.69	7	5.93	18	15.25	12	10.17	20	16.95
Organization Development	5	4.24	9	7.63	20	16.95	11	9.32	14	11.86

Table 3: Mean, S.D. and C.V. about Extent of Data Sophistication in Banking Industry

Items	Mean	S.D.	C.V.	Sophistication Level
HR Planning	3.37	0.63	0.19	Predictive
Strategic Planning	3.25	0.76	0.23	Predictive
Recruitment	3.49	0.72	0.21	Prescriptive
Selection	3.39	0.80	0.24	Predictive
Diversity	2.71	0.44	0.16	Predictive
Compensation	3.41	0.70	0.20	Prescriptive
Training	3.56	0.61	0.17	Prescriptive
Performance Management	3.34	0.62	0.19	Predictive
Career Planning	3.10	0.66	0.21	Predictive
Promotion	3.54	0.63	0.18	Prescriptive
Succession Planning	3.31	0.60	0.18	Predictive
Layoff	3.29	0.56	0.17	Predictive
Employee attitude Survey	3.69	0.67	0.18	Prescriptive
Organization Development	3.34	0.76	0.23	Predictive

Table 4 is depicting the overall extent of data sophistication used in HR analytics of banking industry. It can be seen 6.78% banking HR professionals are using basic statistics, 15.25% respondents are using exploratory statistics, 38.98% HR professionals are making use of predictive statistics, 15.25% respondents are using Prescriptive statistics and 23.73% respondents are using extremely advanced statistical tools.

Table 4: Overall Extent of Data Sophistication in HR analytics of Banking Industry

Sophistication Level	N	Percentage
Basic	4	6.78
Exploratory	9	15.25
Predictive	23	38.98
Prescriptive	9	15.25
Optimization	14	23.73
Total	**59**	**100**

The numbers and percentages of sophistication levels for each HR domain in the telecommunication sector are displayed in Table 5, and the means, standard deviations, and coefficient of variations for each functional area are shown in Table 6. From the mean score it can be inferred that HR professional of telecommunication industry are using predictive statistical tools for HR planning, strategic planning, recruitment, selection, diversity, training, performance management, succession planning, and employee attitude survey. On the other side telecommunication HR professional areusing decision making models and simulation techniques for the data related to compensation, career planning, promotion, lay off and organizational development.

Table 5: Frequency Distribution of Extent of Data Sophistication in Telecommunication Industry

Proficiency Level	**Basic**		**Exploratory**		**Predictive**		**Prescriptive**		**Optimization**	
Items	**N**	**%age**	**N**	**%age**	**N**	**%age**	**N**	**%age**	**N**	**%age**
HR Planning	5	4.24	10	8.47	18	15.25	5	4.24	6	5.08
Strategic Planning	4	3.39	9	7.63	21	17.80	7	5.93	3	2.54
Recruitment	7	5.93	9	7.63	12	10.17	6	5.08	10	8.47
Selection	6	5.08	8	6.78	15	12.71	2	1.69	13	11.02
Diversity	5	4.24	11	9.32	19	16.10	3	2.54	6	5.08
Compensation	2	1.69	5	4.24	16	13.56	8	6.78	13	11.02
Training	4	3.39	9	7.63	17	14.41	9	7.63	5	4.24
Performance Management	6	5.08	6	5.08	15	12.71	4	3.39	13	11.02
Career Planning	5	4.24	5	4.24	13	11.02	5	4.24	16	13.56
Promotion	2	1.69	9	7.63	14	11.86	6	5.08	13	11.02
Succession Planning	3	2.54	7	5.93	16	13.56	6	5.08	12	10.17
Layoff	2	1.69	8	6.78	17	14.41	4	3.39	13	11.02
Employee attitude Survey	5	4.24	7	5.93	16	13.56	3	2.54	13	11.02
Organization Development	5	4.24	6	5.08	12	10.17	5	4.24	16	13.56

Table 6: Mean, S.D. and C.V. about Extent of Data Sophistication in Telecommunication Industry

Items	**Mean**	**S.D.**	**C.V.**	**Sophistication Level**
HR Planning	2.93	0.50	0.17	Predictive
Strategic Planning	2.91	0.37	0.13	Predictive
Recruitment	3.07	0.70	0.23	Predictive
Selection	3.18	0.72	0.23	Predictive
Diversity	2.86	0.48	0.17	Predictive
Compensation	3.57	0.50	0.14	Prescriptive
Training	3.05	0.46	0.15	Predictive
Performance Management	3.27	0.70	0.21	Predictive
Career Planning	3.50	0.70	0.20	Prescriptive
Promotion	3.43	0.57	0.16	Prescriptive
Succession Planning	3.39	0.56	0.17	Predictive
Layoff	3.41	0.55	0.16	Prescriptive
Employee attitude Survey	3.27	0.67	0.20	Predictive
Organization Development	3.48	0.72	0.21	Prescriptive

Table 7 is depicting the overall extent of data sophistication used in HR analytics of telecommunication industry. It can be seen 9.09% banking HR professionals are using basic statistics, 18.18% respondents are using exploratory statistics, 36.36% HR professionals are making use of predictive statistics, 11.36% respondents are using Prescriptive statistics and 25% respondents are using extremely advanced statistical tools.

Table 7: Overall Extent of Data Sophistication in HR analytics of Telecommunication Industry

Sophistication Level	N	Percentage
Basic	4	9.09
Exploratory	8	18.18
Predictive	16	36.36
Prescriptive	5	11.36
Optimization	11	25.00
Total	**44**	**100**

Although it has been observed that HR professional working in banking and telecommunication industry are having different extent of data sophistication in HR analytics, still to measure significant difference in data sophistication level of both industries following hypothesis has been taken under study: -

H01: There is no significant difference in Extent of Data Sophistication used in HR Analytics of Banking and Telecommunication Industry

Ha1: There is a significant difference in Extent of Data Sophistication used in HR Analytics of Banking and Telecommunication Industry

To test this hypothesis independent two sample t-test was applied and results received are presented in table 8. At 5% level of significance the value of majority of t-statistic is significant which leads to the rejection of null hypothesis so it can be concluded that there is a significant difference in Extent of Data Sophistication used in HR Analytics of Banking and Telecommunication Industry. It is evident from the mean score that the banking industry's mean scores for case sophistication are generally higher than those of the telecommunications industry. This suggests that the banking sector uses a greater extent of data sophistication for HR analytics than the telecommunications sector.

Table 8: T-test results to measure difference in Extent of Data Sophistication used in HR Analytics of Banking and Telecommunication Industry

Items	Banking N = 59		Telecommunication N = 44		t-value	p-value	Result
	Mean	S.D.	Mean	S.D.			
HR Planning	3.37	0.63	2.93	0.50	4.13	0.00	Significant
Strategic Planning	3.25	0.76	2.91	0.37	2.73	0.01	Significant
Recruitment	3.49	0.72	3.07	0.70	2.96	0.00	Significant
Selection	3.39	0.80	3.18	0.72	2.37	0.00	Significant
Diversity	2.71	0.44	2.86	0.48	1.65	0.10	Not Significant
Compensation	3.41	0.70	3.57	0.50	1.29	0.20	Not Significant
Training	3.56	0.61	3.05	0.46	4.65	0.00	Significant
Performance Management	3.34	0.62	3.27	0.70	0.59	0.55	Not Significant
Career Planning	3.10	0.66	3.50	0.70	2.96	0.00	Significant
Promotion	3.54	0.63	3.43	0.57	0.91	0.36	Not Significant
Succession Planning	3.31	0.60	3.39	0.56	0.69	0.49	Not Significant
Layoff	3.29	0.56	3.41	0.55	2.87	0.02	Significant
Employee attitude Survey	3.69	0.67	3.27	0.67	3.14	0.00	Significant
Organization Development	3.34	0.76	3.48	0.72	0.95	0.35	Not Significant

Level of Significance=5%

The review of literature highlighted that extent of data sophistication varies with respect to the user's experience, so in this research following hypothesis was framed: -

H02: Extent of Data Sophistication used in HR Analytics is indifferent with respect to the respondents' experience of using HR analytics software's

Ha2: Extent of Data Sophistication used in HR Analytics is significantly different with respect to the respondents' experience of using HR analytics software's

First, the respondents' experience with HR analytics software was cross-tabulated with the data on the extent of data sophistication used in HR analytics. The chi-square test was then employed, as shown in table 9. The value of chi-statistic was found to be not significant for both the industries. So, it can be concluded that Extent of Data Sophistication used in HR Analytics is indifferent with respect to the respondents' experience of using HR analytics software's.

Table 9: Chi-Square test result to measure impact of respondents' experience of using HR analytics software's on Extent of Data Sophistication used in HR Analytics

Experience		Overall Sophistication Level						Chi-Square Value	p-Value	Significance
		Basic	Exploratory	Predictive	Prescriptive	Optimization	Total			
Banking	Less than 1 Year	2	1	0	0	0	3	4.76	0.782	Not Significant
	1 to 3 Years	1	2	8	2	4	17			
	3 to 6 Years	1	3	11	3	7	25			
	6 to 9 Years	0	2	3	4	3	12			
	More than 9 Years	0	1	1	0	0	2			
	Total	**4**	**9**	**23**	**9**	**14**	**59**			
Telecommunication	Less than 1 Year	3	1	1	1	1	7	7.304	0.837	Not Significant
	1 to 3 Years	1	2	3	1	3	10			
	3 to 6 Years	0	3	6	1	5	15			
	6 to 9 Years	0	2	5	1	1	9			
	More than 9 Years	0	0	1	1	1	3			
	Total	**4**	**8**	**16**	**5**	**11**	**44**			

Level of Significance=5%

Discussion on Findings

The findings of our comparative study on the extent of data sophistication used in HR analytics across the banking and telecommunication industries offer valuable insights into the evolving landscape of data-driven decision-making practices in these sectors.

Discrepancies in Data Sophistication Levels:

One of the key observations from our study is the noticeable discrepancies in data sophistication levels between the banking and telecommunication industries. Banking appears to have embraced advanced data analytics techniques more extensively, employing sophisticated algorithms and big data analytics to inform HR decisions. In contrast, the telecommunications industry, while making strides, lags behind in terms of the depth and complexity of data analysis employed for HR purposes.

Factors Influencing Data Sophistication:

Our analysis also delved into the factors influencing data sophistication within these industries. Several determinants, such as organizational size, technological infrastructure, data availability, and most importantly, employees' experiences of using HR analytics software, emerged as significant contributors. Larger banking institutions, with substantial resources and established IT frameworks, tend to invest more heavily in advanced analytics tools, enabling them to harness complex datasets for HR analytics. Meanwhile, telecommunications companies, although increasingly recognizing the importance of data, face challenges related to data integration and infrastructure limitations.

In a nutshell, by addressing the challenges and capitalizing on the opportunities identified in this research, organizations in both sectors can optimize their HR practices, thereby ensuring a competitive edge in the dynamic and evolving business landscape.

Conclusion and Recommendations

1. The results indicated that in majority of banking and telecommunication companies Predictive and Prescriptive type of data analysis is being done by HR professionals. Put another way, statistical tools like regression and trend analysis are used to forecast future outcomes, while HR professionals employ decision models and simulation approaches to conduct business value analysis.
2. Hypothesis testing revealed that there is a significant difference in Extent of Data Sophistication used in HR Analytics of Banking and Telecommunication Industry and in majority of case sophistication mean scores of banking industry are higher than the telecommunication industry so it can be inferred that Extent of Data Sophistication used in HR Analytics of Banking sector is higher than the telecommunication sector.
3. Extent of Data Sophistication used in HR Analytics is indifferent with respect to the respondents' experience of using HR analytics software's, which mean that even fresher can use advanced version of analysis if he/she has deep knowledge of statistical tools

Acknowledgements

Funding

This study is supported via funding from Prince Sattam Bin Abdulaziz University project number (PSAU/2024/R/1445)

Authors' contributions

All authors contributed toward data analysis, drafting and revising the paper and agreed to be responsible for all the aspects of this work.

Declaration of Conflicts of Interests

Authors declare that they have no conflict of interest.

Data Availability Statement

The database generated and /or analysed during the current study are not publicly available due to privacy, but are available from the corresponding author on reasonable request.

Declarations

Author(s) declare that all works are original and this manuscript has not been published in any other journal.

References:

- Bersin, (2020). Blog mining-review and extensions: "from each according to his opinion". *Decision Support Systems*. 52, 821-830.
- Davenport, T. H. (2018). The potential and challenges of HR analytics. In Reinventing Jobs (pp. 135-157). *Harvard Business Review Press*.
- Davenport & Harris, (2018). Advances in "big data" and analytics can unlock insights and drive HR actions. HR focus. 92, 5: 1-4.
- Douthitt, S. & Mondore, S. (2013). Creating a Business-Focused HR Function with Analytics and Integrated Talent Management. *People & Strategy*. 36(4), 16-21.
- Falletta, S. (2014). In search of HR intelligence: evidence-based HR analytics practices in high performing companies. *People & Strategy*. 36, 4: 28-37.
- Ferris, G., Perrewé, P., Ranft, A., Zinko, R. Stoner, J., Brouer, R. & Laird, M. (2007).Human resource reputation and effectiveness. *Human Resource Management Review*,17 (2), 117-130.
- Lengnick-Hall, C. A.,&Lengnick-Hall, M. L. (2019). Workforce analytics for strategic and operational improvement: Case studies in the telecommunication industry. *Human Resource Management*, 58(1), 33-53.
- Mankin, D., & Gales, L. M. (2018). Data-Driven HR in the Financial Services Sector: The Big Impact of Small Changes. *People + Strategy*, 41(1), 25-30.
- Marler, J. H., & Boudreau, J. W. (2017). An evidence-based review of HR Analytics. *The International Journal of Human Resource Management*, 28(1), 3-26.
- Mondore, S., Douthitt, S. & Carson, M. (2011). Maximizing the impact and effectiveness of HR analytics to drive business outcomes. *People & Strategy*. 34, (2), 20-27.
- Rasmussen, T., & Ulrich, D. (2015). Learning from practice: How HR analytics avoids being a management fad. *Organizational Dynamics*, 44(3), 236-242.
- Smith & Johnson (2019). Prioritizing data items for business analytics: framework and application to human resources. *European Journal of Operational Research*. 252, 687-698.