Adopting HR Analytics: Factors influencing Human Resource Professionals

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ABSTRACT

Speeding Digitalization of business has been affecting all the functional areas since last decade rapidly. HR Function is not untouched with it, digital reforms, especially Human Resource Analytics is being adopted by the organizations to understand the effective utilization of their key assets: their employees. This shift in the working pattern of the HR Department needs professionals who are well versed with nuances of HR Analytics. Absorbing this change in the working pattern requires mindset development of the HR Professionals. The current research focuses on understanding the various factors which support or hinder the adoption of HR Analytics by HR Professionals working in India.

The researcher underwent a deep study of Technology Adoption Models to predict the Factors which would contribute towards Adoption of HR Analytics. Based on identified factors a questionnaire consisting of 29 items was created to gauge the contribution of identified Individual, Social and Organizational Factors towards adoption of HR Analytics by HR Professionals. The researcher circulated a Google Forms consisting of the questionnaire and basic demographic information to more than 200 HR Professionals of India, was able to generate usable information from 180 respondents.

The study used JMOVI Software and conducted Exploratory Factor Analysis for development Scale on HR Analytics Adoption. The scale was found reliable as Cronbranch's Alpha was found above 0.70 for all the dimensions. SEM was utilised to determine the contribution of sub factors on level of HR Analytics Adoption by HR Professionals in India. R^2 value computed for HRA Adoption Intention considering Learning Ease, Social Impel, Analytical efficacy, Organization Facilitation and Outcome Expectancy as predictor dimensions explains a 41.3% variance which is a highly significant contribution. The research has contributed in development of a Measurement Model for determining the acceptability of HR Analytics by the HR workforce in organizations functional in India.

Key Words: HR Analytics, Adoption, HR Professionals

1. INTRODUCTION

With constant updates in technologies most of the companies are forced to move towards digital transformation. The Human Resource function is also facing lots of digital facelifts, adoption of HR Analytics being the most prominent of them all. Making evidence based factual decisions related to HR domain is need of the hour. HR analytics is a software tool which helps HR professional garner real-time, metrices based insights for effective decision making. Adoption of HR Analytics will provide competitive advantage to organization and help them recruit and retain the best talent available in the employment market. Implementation of HR Analytics, at Indian Industries is currently in its infant stage and therefore its essential to research about the roadblocks that may hinder its implementation and suggest strategical measures to overcome them.

It has been predicted in recent studies that introduction of new technologies introduces feelings of uncertainty and resistance, because of the lack of competences and lack of trust (Li. et al. 2008; Gefen et al., 2003; Pavlou & Gefen, 2004). The current study focused on understanding the factors which may help in building the trust towards the usage of HR Analytics by people working in HR Domain.

1.1 Rationale

Lot of previous researches have emphasised on the role of HR Analytics in improving decision-making and managing, among other functions (Wandhe, 2020; Mohammed & Quddus, 2019). Despite the perceived benefits, the adoption of HRA among HR professionals remains sluggish (Vargas et al., 2018; Marler & Boudreau, 2017), primarily due to the adoption barriers of technology. Therefore, it becomes essential to understand the factors which hinder or support adoption behaviour of HR professionals towards HR Analytics.

1.2 Objectives

The aim of the study was to explore various reasons that hinder the usage of HR Analytics and to gain insights about the factors that would contribute towards better adoption of HR Analytics by HR Professionals. To achieve the same following objectives were set

- To explore the factors that may contribute towards adoption of HR Analytics by HR Professionals.
- To develop a predictor model for understanding the relationship between identified dimensions and HR Analytics Adoption Intention of HR Professionals.

2. LITERATURE REVIEW

2.1 HR Analytics Adoption Factor

It can be noted that some organizations do not consider individual intention and behaviour while implementation of HRA, which may lead to adverse effect on adoption of HRA by the employees. For successful adoption of HRA, study of individual behaviour of employees and support from organization both are required. Most of the studies have referred UTAUT model to study individual user behaviour and Intention to implement HRA.

2.1.1 Effort Expectancy

Davis (1989), defined Effort Expectancy as "the degree to which a person believes that using a particular system would be free of effort". It can be understood as perceived ease of use. Previous studies supported that an individual's belief towards ease of use regarding HRA will affect the intention to adopt HRA. In various studies, the direct impact of effort expectancy on behavioural intention on users to adopt technology has been seen (Venkatesh et al., 2012; Kabra et al., 2017).

2.1.2 Performance Expectancy

Performance expectancy is considered similar to perceived usefulness, and, Davis (1989), defines it as "the degree to which a person believes that using a particular system would enhance his or her job performance" (p. 320). HRA can be considered as a strong pillar which strengthens the skills of employee, enhance decision-making process and overseeing other jobs. Earlier studies revealed the influence of performance expectancy in order to adopt the technology (Venkatesh et al., 2012).

2.1.3 Social Influence

Social influence is defined as the extent to which members of a social group influence one another's behaviour in adoption (Konana & Balasubramanian, 2005; Talukder & Quazi, 2011). Previous researches found that an individual would lean towards adopting the technology if colleagues and co-workers influence him to (Kabra et al., 2017). Studies have revealed that social influence significantly influences HRA adoption (Jeyaraj & Sabherwal, 2008; Kabra et al., 2017; Vargas et al., 2018.

2.1.4 Tool Availability

Tool availability is defined as having the appropriate updated systems and software, as well as having the skill sets necessary to understand what data is needed and having the ability to analyze and interpret the data. Studies have found that a major reason for poor performance is the lack of or inadequate resources (SuccessFactors, 2013).

2.1.5 Data Availability

Data availability is defined as the accumulated information residing within the HR department and the organization as a whole. Reporting and benchmarking are the two HR activities most often used where metrics and workforce analytics are concerned in terms of administrative process efficiency (Carlson & Kavanagh, 2011).

2.1.6 Fear Appeals

Fear appeals involve "communicating in a persuasive manner to motivate a behavioral change and having the individual perceive a threat and tapping into 35 the individual's emotion of fear" (Johnston, 2006, p. 27). Data analysis requires skills in understanding statistical measures as well as problem solving; however, a great majority of HR professionals have not yet acquired these skills, leaving organizations the option of finding individuals with such skills (Bersin, 2013b). Hence, HR professionals may fear the loss of their position to a more qualified individual with a statistical background.

2.1.7 Self-Efficacy

Bandura's (1977) theory of self-efficacy is based on an individual's belief of his or her capability to succeed and attain a given level of performance. Thus, HR professionals' acceptance and use of HRA would be dependent upon their perception of their capabilities. prior studies found that people with higher level of self-efficacy learn fast and have a propensity to contribute better on activities for which they achieved knowledge and understanding (Zimmerman, 2000; Schunk, 2009; Ozgen, 2013).

2.2 Established Framework for HR Analytics Adoption

Agarwal H, Raj VJP. 2022, conducted a study with prime objective to find out if the factors of change: Self Efficacy, Social Influence, Tool Availability, Data Availability, Fear Appeals, Effort Expectancy, Performance Expectancy have an impact on the adoption tendency of employees towards HR Analytics. The results depict those six out of the seven factors: self-efficacy of the employees, social influence of colleagues on the employees; tools availability to utilize, data availability to feed the system, the kind of effort employee thinks he is required to put in, the kind of performance the employee thinks he is expected to deliver do have an impact on the adoption tendency of HR Analytics.

A study by Meenal Arora, Anshika Prakash, and Amit Mittal identifies the lagging rate in the adoption using extended UTAUT2. The study collected responses from 387 HR employees of BFSI sector working in Metropolitan cities of India. The result findings show that performance expectancy, hedonic motivation and data availability have an influence on intention to use HR analytics. In contrast, the study showed that effort expectancy, social influence, quantitative self-efficacy and habit have no effect on behavioural intention towards adoption of HR Analytics. The researchers suggest that a focus on factors that affect adoption intention of HR analytics, can help firms strengthen a robust employee relationship and in turn help in promoting acceptance of HR analytics among HR professionals.

Rimsha Ameer & Pratibha Garg, 2022 in their study aspired to explore the behavioural intention towards adoption of HR Analytics in India. Structural equation modelling (SEM) was employed for the purpose of validating the model which was based on data collected using questionnaire method from 302 HR professionals in India. The results validated a major positive impact of performance expectancy, facilitating condition, social influence and effort expectancy on behavioural intention towards the use of Human Resource Analytics whereas fear appeals negatively impact HRA adoption intention. The study expanded the explanatory perspective of UTAUT and provides viability for the organizations to direct HR professionals for adopting Human Resource Analytics.

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3. RESEARCH METHODOLOGY

3.1 Research Design

The current study adopted exploratory method of researching. Information pertaining to history, evolution, adoption factors of HRA was studied from existing literature in detail. Researcher studied various technology adoption models used by previous researcher to understand the factors which influence the adoption status of HRA. Based on the findings the study proposed a Theoretical Model which elaborates Social, Organizational and Individual Factors which would have an effect on the HRA adoption levels of HR Professionals working in India.

3.2 Sample Design

The study was an attempt to empirically examine the behavioural inclination towards adoption of HR analytics. The research was focused towards the HR Professionals, to enrol them for research Judgmental Sampling and Snowballing was used. Link of google form was circulated on LinkedIn, SurveyCircle.com, WhatsApp groups and other social media platforms to generate a total of 180 responses from our Research Population. Researcher concentrated on gathering data from HR Professionals who have had formal training in HR Analytics or are enrolled for the same.

46.3% population belonged in the age bracket of 31 to 40 years. 92.5% HR Professionals were Post Graduate and 7.5% had attained Doctorate Degrees. Majority of them which is 38.8% were involved in Recruitments followed by 15% in Training and Development, all other functional areas of HR had a share of 7.5% each from the population. 30% of the respondents belonged to IT Sector, followed by 22.5% from Banking & Insurance.

3.3 Data Collection Tool

The google form used for primary data collection comprised of demographic information pertaining to their Age, Gender, Functional HR domain, Tenure spent in HR, exposure to HR Analytics were asked.

The survey also included 25 questions framed to understand the respondent's perception regarding his Capability, confidence, Mindset and Influence for use of HR Analytics. Few questions also accessed the response towards organizational support for HR Analytics in terms of Culture, Training, Structure and Systems. The responses were to be delivered on a 5-point Likert scale range from Strongly Disagree to Strongly Agree. The questionnaire also had 4 questions to measure Individual's HRA Adoption Intention. A 7-point Likert Scale, with the anchors strongly agree and strongly disagree, developed by Venkatesh et al. (2003) and Johnston and Warkentin (2010) with a Cronbach's alpha of 0.90, was used for the same. (Sample questions: I am beginning to explore using HR Analytics. I am interested in using HR Analytics. I am recommending my company invest in HR Analytics. I use HR Analytics for some specific tasks.)

3.4 Measurement Model

The research wanted to identify subdimensions which were responsible for Individual Level Adoption of HR Analytics and therefore factorization was applied on 25 questions that were assumed to have an impact on adoption of HR Analytics. Exploratory factor analysis with Varimax factor rotation was conducted using JAMOVI. To ensure reliability and consistency of the model, instrument items, which did not load properly, were removed. Based on the results the study was able to identify five subfactors, which were then named by the researcher on the basis of relevance. The model was found to have good fitness indicators and an overall reliability of 0.824 Cronbanch's Alpha. The identified five dimensions were named: Organizational

Facilitation, Analytical Efficacy, Effort Expectancy, Outcome Expectancy and Social Influence. The reliability of Individual Sub Dimensions was also checked and found to be above 0.70 for all. Question number 3 and 12 were deleted to get better reliability of the overall scale. (I can handle critical and unexpected problems without getting into trouble, my knowledge of HR Analytics will make me valuable for current and future organizations.) The questions did not have strong factor loading in any of the sub dimensions. The table shows the detail of Factor Loadings and the nomenclature used by the researcher along with its reliability statistics.

Factor Name	Question	Factor Loadings				
		F1	F 2	F3	F4	F5
Organizational Facilitation (Cronbach's Alpha=0.843)	10. My organization supports the use of HRA	0.67				0.42
	13. My organization facilitates me solve any difficulty that I face in HRA	0.52		0.33	0.39	0.55
	14. I can easily access by organization's database for retrieving relevant data to be used in HRA	0.56		0.37	0.37	
	15. HR system at my organization collects data for all HR Interactions	0.82				
	16. My Organization provides me training and learning avenues to revamp my HRA Skills	0.83				
	17. My Organization has placed policies to promote the use of HRA	0.94				
Outcome Expectancy (Cronbach's Alpha=0.884)	21. Use of HRA will improve my job performance		0.87			
	22. Adoption of HRA will speed up my Career Growth		0.75			
	23. Getting Trained in HRA may result in Salary Hikes		0.56			
	24. Use of HRA will provide me better control over my work		0.86			
	25. Use of HRA will improve the credibility of my decisions		0.90			
Analytical Efficacy (Cronbach's Alpha=0.796)	1. I am able to solve problems without investing much efforts	0.41		0.60	0.39	
	2. I can find several solutions for a problem at hand without much difficulty	0.40	0.34	0.58	0.32	
	4. Use of Mathematical and statistical tools fascinate me			0.81		
	5. I have strong mathematical and statistical abilities			0.73		
	6. Use of mathematical and statistical measures is not challenging for me			0.87		
Learning Ease (Cronbach's Alpha=0.819)	18. I will be able to understand HRA tools with ease				0.94	
	19. Becoming skillful at HRA will not require much efforts				0.76	0.44
	20. Use of HRA will enable me to complete my tasks earlier				0.80	
Social Impel (Cronbach's Alpha=0.813)	7. Valuable people in my life influence me to use HRA		0.38			0.64
	8. I want to learn HRA because of peer pressure	0.37	0.36		0.36	0.59
	9. My seniors have helped me learn the importance of HRA					0.92

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11. I get motivated to use HRA because of other HR Professionals	0.44			0.80

Table 1: Factor Loadings and Reliability Statics of Identified Dimensions.

3.5 Predictor Model

The identified factors and their relationship with Individual's HRA Adoption Intention was hypothesised by the researcher based on logic and findings of similar studies. Figure 1 depicts the hypothesised study model for the current study. A total of 5 dimensions were considered as facilitators of HRA Adoption Intention of HR Professionals.
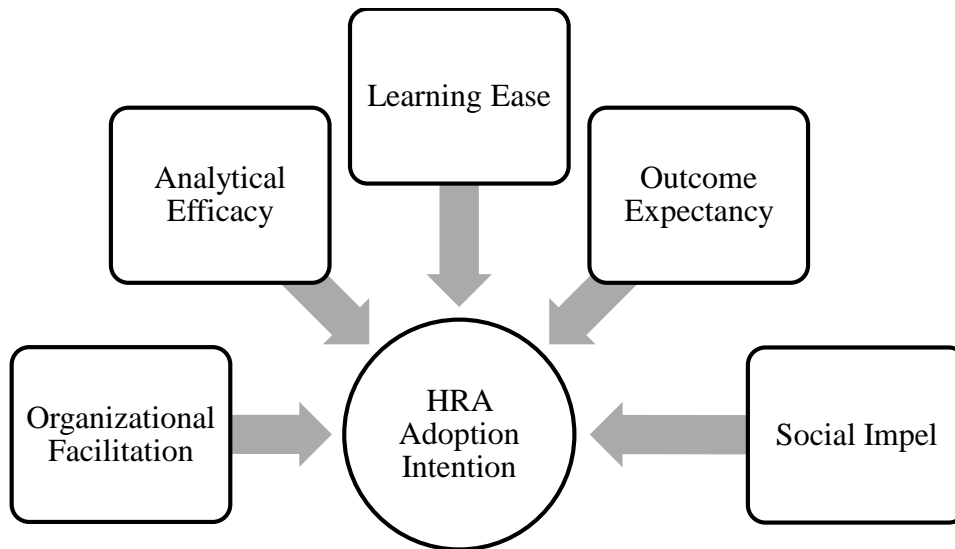
*Figure1: Proposed Predictor Model for HR Analytics Adoption Intention*

The researcher had drafted definitions of the Dimensions crafted during Factor Analysis, which is presented in Table 2, along with the proposed hypothesis regarding relationship of each dimension with HRA Adoption Intention.

Dimension	Definition	Hypothesis
Organizational Facilitation	Support provided by the organization in terms of training, tool availability, data availability, policy to promote the use of HR Analytics.	Ha1: Organizational facilitation is positively related with HRA Adoption Intention.
Analytical Efficacy	Degree to which an individual is confident in self's analytical skills.	Ha2: Analytical Efficacy is positively related with HRA Adoption Intention.
Learning Ease	Assumption of an individual regarding ease in learning HR Analytics.	Ha3: Analytical Efficacy is positively related with HRA Adoption Intention.
Outcome Expectancy	Individual's expectations in terms of career advancement, salary hike, productivity enhancement etc after learning HR Analytics.	Ha4: Outcome Expectancy is positively related with HRA Adoption Intention.
Social Impel	Influence of HR community on an individual for using HR Analytics.	Ha5: Social Impel is positively related with HRA Adoption Intention.

Table 2: Dimensions of HR Analytics Adoption Intention

4. ANALYSIS

A multivariate analysis approach, that is, Structure Equation Modelling was employed to verify the proposed predictive model (Figure 1.) It is considered the most suitable method for a small sample size with no multivariate homogeneity and normality requirements on data (Hair et al., 2017). The analysis was conducted using JAMOVI software for Path Analysis with bootstrapping, and 1000 resamples were used to measure the path coefficient and significance level. All the Goodness of Fit indices were well under the threshold limit with Chi Square 42.6 significant at $p<0.001$, $RMSEA<0.05$, CFI tending to 1. The computed model with estimates is presented in the Figure 2. All the paths were found to be significant at $p<0.05$, and all the hypothesis were accepted.
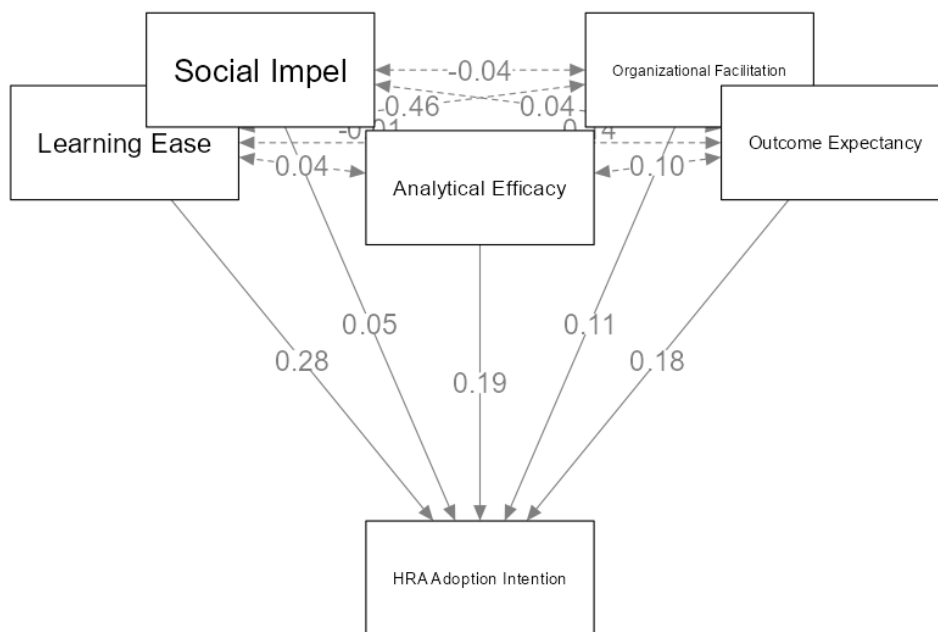
Figure2: Computed Model for HR Analytics Adoption Intention

R^2 value computed for HRA Adoption Intention considering Learning Ease, Social Impel, Analytical efficacy, Organization Facilitation and Outcome Expectancy as predictor dimensions explains a 41.3% variance which is a highly significant contribution. The figures in Table 3 show the ranking in terms of importance. Learning Ease ranks the highest in terms of importance, followed by Analytical Efficacy and Outcome Expectancy. Organizational facilitation also affects HRA Adoption intention but not as much as others. It was found that Social Impel plays least important role in contribution towards HRA Adoption Intention.

Dependent	Predictor	Estimate	p	Hypothesis	Rank
HRA Adoption Intention	Organizational Facilitation	0.1116	0.042	Ha1: Accepted	4th
HRA Adoption Intention	Outcome Expectancy	0.1836	0.030	Ha2: Accepted	3rd

Dependent	Predictor	Estimate	p	Hypothesis	Rank
HRA Adoption Intention	Analytical Efficacy	0.1915	0.020	Ha3: Accepted	2nd
HRA Adoption Intention	Learning Ease	0.2763	0.034	Ha4: Accepted	1st
HRA Adoption Intention	Social Impel	0.0546	0.008	Ha5: Accepted	5th

Table 3: Impact and contribution of the variables to HRA Adoption Intention.

The results clearly indicate that for the sample under study Individual Dimensions: Learning Ease, Analytical Efficacy & Outcome Expectancy play a major role in adoption of HR Analytics for HR Professionals in India. The data was collected from HR Professionals who have had formal training in HRA, and must have found the tools of HRA easy to use and comprehend. Results clearly indicate that HR Professionals with high confidence in their analytical abilities tend to adopt HRA earlier than the others. As learning HRA results in career advancement in terms of promotions, salary hike, etc it has strong corelation with HRA Adoption Intention. Analysis clearly indicate that Organization Facilitation had a lesser role to play, which may be a case specific to the population in the study as these HR Professionals have learned HR Analytics irrespective of their organizational requirement. Results indicate use of HRA by co-workers, seniors, peers has a weaker contribution in making HRA look attractive to an HR Professional and hence Social Impel shares a weak correlation with HRA Adoption Intention.

5. CONCLUSION

5.1 Discussions

The purpose of this study was to gain insight about the dimensions which could lead HR professionals towards adopting HRA to improve organizational performance. This research addresses the gap in individual-level adoption of technological innovation and the HR professional's adoption of the use of HRA in the field of human resource management (HRM).

A finding of this study is that HR professionals' perception of how easy it is to use HRA positively impacts their decision to adopt its use. When HR professionals have the expectation that HRA is easy to use, there is a likelihood they will use or attempt to use HRA. Organizations must therefore focus on building awareness regarding the same.

Based on a finding of this study, if HR professionals believe they are not capable of performing at their best using HRA, they will not be agreeable to its use. Results are fairly indicative that HR Professionals who are using Metrices, and quantitative analysis during strategic decision making in HR will be able to adopt HRA better then the HR professionals who are dealing primarily with Soft Skills. Individuals with the necessary skill sets are an important factor, as they will need to know what data is needed, how to analyse the data, and how to interpret the data for reporting purposes and decision making (Carlson & Kavanagh, 2011). Therefore it becomes essential for educational institutes providing formal education in HRM, to include Quantitative Abilities and Analytics in syllabi.

Perception of HR professionals regarding enhancement of Job Performance by using HRA may lead to promotions and hikes, are more likely to adopt HRA. The results are similar with prior studies that state that when individuals assume use of technology, will help achieve improvements in job performance, it has a significant impact on one's intention to use the technology (Venkatesh et al., 2003).

Without support and resources from the organization, the individual would be less likely to use HRA.

However, it is important to note that HRA is a more recent type of measurement for HR professionals, and it would be beneficial for those who do not have the necessary skills to use HRA to work with early adopters of HRA, in an effort to gain the confidence to use the new innovation. Organizations can remove the barriers that might exist by providing their HR staff with opportunities to network with other HR professionals and be exposed to HRA champions.

The study indicates the influence of a person's social group has a positive impact on an individual's adoption of HRA. Colleges and universities can also influence adoption of HRA by promoting and communicating the importance of using HRA in their courses. As long as the individual believes adopting would be beneficial for their careers, the individual may emulate the influencer and adopt the innovation (Frambach & Schillewaert, 2002). HR analytics champions should encourage other HR professionals and HR associations, through local, national, global and social media networks to use HRA.

5.2 Implications

HR professionals should take note of the latest trends in analytics and begin to consider using HRA, if they seek to become a true strategic partner of the organization and earn a seat at the executive table. HR professionals enrolled in colleges and universities should consider taking courses geared towards analytics, even if it is an elective. Similarly, those HR professionals not enrolled in an academic institution should, at a minimum, attend continuing education, training workshops or webinars on the use of HRA.

More senior HR professionals also should begin to encourage and collaborate with their junior counterparts, who may have some quantitative and software skills knowledge and together create a professional learning community within their organizations and networks. Actively seeking opportunities to learn or improving how to use HRA would be beneficial to the HR profession.

HR professionals must avoid lagging behind in adopting HR metrics. Otherwise, they risk becoming irrelevant in the corporate decision-making process. Executive-level HR professionals should become knowledgeable in the area of HRA. A vested interest in the decision-making efforts in determining the appropriate software and tools vendors have to offer is paramount to the success of transitioning to this type of measurement tool and the acceptance of this innovation by the rest of the HR staff. The decision-making process should include costs, ease of use for the HR staff, training on the software, and its compatibility with their current technological systems.

6. LIMITATION & SCOPE FOR FUTURE RESEARCH

The research was cross-sectional in nature and therefore cannot evaluate changes occurring in adoption levels of HRA. Longitudinal study conducted over a period of time can overcome this limitation by accessing the progress in HRA Adoption. The research incorporated self-report measure for data collection, which is prone to have biases as people would try to showcase a positive portrayal of self. The sample size of the study was small and hence cannot be generalised for all the sectors. In future similar study with greater sample size can be replicated to generate robust results. This study can also be replicated at the organizational level, to determine the most effective way for the organization to support the adoption of HRA and HR professionals. The study focused on gathering data from professionals who have already shown interest in HR Analytics, further research on non-adopters is recommended. Although there is extensive research on the adoption of innovation, there is a lack of research on the reasons for non-adoption.

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