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A Study on the Adoption of Human Resource Analytics Among Employees

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ABSTRACT:

The increasing prevalence of Human Resources Analytics (HRA) in modern organizations promises improved decision-making and workforce management. This study evaluates HRA adoption among Larsen and Toubro Construction employees, focusing on its impact on performance and productivity. It aims to gauge employees' perception of HR tools' usefulness and their intention to use them, correlating this with actual tool usage. Surveys were conducted among 196 employees, employing SPSS 29.0 for data analysis. Findings are anticipated to inform strategies enhancing employee performance and productivity, aiding the effective integration of HR analytics tools.

Index Terms **–** Human Resources Analytics.

I. INTRODUCTION

HR analytics involves collecting and analyzing data to enhance decision-making regarding employees, encompassing aspects like behavior, performance, and productivity. It aids in making informed choices about hiring, firing, and organizational promotion strategies. Additionally, it facilitates performance improvement by assessing employees' capabilities and potential.

There are various types of HR analytics, including descriptive, diagnostic, predictive, and prescriptive analytics. Descriptive analytics focuses on past data, aiding in understanding historical patterns and trends. Diagnostic analytics identifies the causes of problems, such as high turnover rates, enabling targeted interventions. Predictive analytics forecasts future events, like employee turnover, assisting in proactive planning. Lastly, prescriptive analytics recommends actions based on predictive insights, guiding strategic decision-making to improve organizational outcomes. These analytics tools, coupled with effective workforce planning and management, contribute to organizational competitiveness and success.

II. NEED OF THE STUDY

The study endeavors to scrutinize the efficacy of HR analytics adoption within Larsen and Toubro Construction Limited, focusing on employees' perceived performance and effort expectancies towards HR analytics tools. Understanding these perceptions is pivotal for optimizing tool utilization within the organization. Additionally, the study aims to investigate social influences on HR analytics adoption, acknowledging the role of organizational culture and peer influence. It also seeks to assess facilitating conditions for adoption, identifying factors that either support or impede implementation. Furthermore, the study aims to address concerns regarding data privacy and protection in HR analytics adoption, emphasizing the need to instill trust and ensure compliance among employees. By achieving these objectives, the study aims to offer insights for enhancing HR analytics adoption and application at Larsen and Toubro Construction Limited, ultimately bolstering organizational performance and fostering employee satisfaction.

III. OBJECTIVES

PRIMARY OBJECTIVE:

- To assess the effectiveness of HR analytics adoption among employees in Larsen and Toubro Construction Limited.

SECONDARY OBJECTIVES:

- To examine the perceived performance expectancy of HR analytics tools among employees.

- To evaluate the perceived effort expectancy of HR analytics tools among employees.
- To investigate the influence of social factors on the adoption of HR analytics tools among employees.
- To assess the facilitating conditions for HR analytics adoption among employees.
- To explore the concerns and measures related to data privacy and protection in the adoption and application of HR analytics.

IV. SCOPE OF THE STUDY

The study will focus on employees at Larsen and Toubro Construction, encompassing various job roles for diverse representation. It aims to assess the factors influencing HR analytics tool adoption, exploring employees' perceptions, experiences, and attitudes based on the Unified Theory of Acceptance and Use of Technology (UTAUT) model. Key variables such as perceived performance expectancy, effort expectancy, social influence, and facilitating conditions will be examined to understand their impact on employees' intention to adopt HR analytics tools and the resulting organizational outcomes. The study seeks to provide actionable insights and recommendations to enhance the adoption and utilization of HR analytics tools. These recommendations will address identified barriers and facilitators, emphasizing organizational support, training, resources, and fostering a culture of data-driven decision-making.

V. LIMITATIONS

The study faces limitations due to its reliance on self-reported data, which may introduce response bias and affect the accuracy of participants' perceptions and experiences with HR analytics adoption. The focus on employees within a specific organization or industry may limit the generalizability of the findings to broader contexts. Participants might provide socially desirable responses rather than their true attitudes and behaviors, leading to biased results. Additionally, the measurement of variables based on the UTAUT model, such as perceived usefulness and perceived ease of use, may be subject to measurement error or subjectivity, impacting the reliability of findings and hypothesis testing.

VI. REVIEW OF LITERATURE

Ahmad Muktamar, Nurnaningsih A (2024) The Integration of HR Analytics and Decision Making: This study examines the integration of HR Analytics into organizational decision-making, analyzing key determinants and impacts on performance. Factors like data collection, technology, managerial skills, and policies are crucial, with a research gap identified in strategic decision-making.

Soni Rathi, Praveen Kumar (2024) Role of Human Resource (HR) Analytics and Metaverse in Employee Engagement and Turnover Intention: This study reviews the role of HR analytics and the metaverse in HR practices, noting their benefits in employee engagement and turnover. The theoretical analysis explores their significance, showing how they revolutionize workforce performance and efficiency.

Karin Sanders C, Janet H. Marler (2024) Determinants of effective HR analytics Implementation: This study explores HR analytics implementation through an analysis of 89 peer-reviewed studies over two decades. It presents a dynamic framework using adaptive structuration theory to guide effective HR analytics implementation and proposes a research agenda for future inquiry.

Nishad Nawaz, Hemalatha Arunachalam, Barani Kumari Pathi, Vijayakumar Gajenderan (2024) The adoption of artificial intelligence in human resources management practices: This study examines AI's impact on HR practices, highlighting benefits like accuracy and personalization. Data from 274 IT employees in Chennai City reveal that certain AI aspects significantly influence time and cost savings, suggesting a unique research framework.

Vidhu Gaur (2024) The Effect of HR Analytics Competency Model on Managerial Decision Making and Business Results: This study highlights the evolving use of HR analytics in organizations, emphasizing its role in aligning HR with financial objectives. It explores how HR analytics competencies impact business outcomes and decision-making, particularly in Indian organizations.

Sridevi S, Dr. M. Christopher (2023) A Study on Impact of HR Analytics in HR Decision Making in Large and Medium Organizations: This study examines HR analytics' role in corporate strategy and value addition. It evaluates the preparedness of SME IT companies in Indore for HR analytics, emphasizing the need for HR professionals to have analytical and decision-making skills.

Dr. Gargi Chaudhary (2023) HR Analytics role in Business Organization: This study explores how HR analytics aids decision-making in talent management and recruitment. By analyzing HR data, organizations enhance workforce productivity and make informed decisions, contributing to HR analytics' adoption and theoretical understanding.

Ghulam Muhammad (2023) Role of External Factors in Adoption of HR Analytics: Does Statistical Background, Gender and Age Matters?: This study investigates external factors influencing HR analytics adoption, focusing on variables like gender, age, and statistical background. Social influence and statistical background significantly affect HR analytics uptake, with practical and academic implications discussed.

Felix Wirges, Anne-Katrin Neyer (2022) Towards a process-oriented understanding of HR analytics: implementation and application: This study highlights firms' challenges in leveraging HR analytics for strategic advantages. It suggests a process-oriented strategy involving collaboration between HR departments and analytics functions, proposing a managerial process model for HR analytics implementation.

Harshita Agarwal, V John Paul Raj (2022) Adoption of Human Resource Analytics in Information Technology and Information Technology Enabled Services Industry in India: This study examines HR analytics adoption in Indian IT and ITES organizations. It identifies factors influencing acceptance of HR analytics and explores their impact on organizational HR practices.

Martin R. Edwards, Andy Charlwood, Nigel Guenole, Janet Marler (2022) HR analytics: An emerging field finding its place in the world alongside simmering ethical challenges: This study highlights HR analytics as an emerging field, focusing on high-quality projects and techniques. It discusses challenges like the lack of a recognized keyword and ethical dilemmas in HR analytics implementation.

Susmita EKKA, Punam SINGH University (2022) Predicting HR Professionals Adoption of HR Analytics: An Extension of UTAUT Model: This study uses UTAUT to investigate HR analytics adoption among HR professionals, finding positive impacts of performance expectancy and social influence. Organizational culture moderates adoption intention, providing insights for managers and policymakers.

VII. RESEARCH METHODOLOGY

The methodology section outlines the plan and method that how the study is conducted. This includes Universe of the study, sample of the study, Data and Sources of Data, study's variables and analytical framework. The details are as follows;

7.1 Population and Sample

This study employs probability sampling, specifically simple random sampling, ensuring each member of the population has an equal chance of selection. Simple random sampling involves selecting a sample where every individual and combination has an equal probability of being chosen, ensuring unbiased representation.

The questionnaire is distributed in person as forms to randomly selected employees. Sample size determination utilizes Morgan's table, ensuring a representative sample size of 196, maintaining statistical reliability and facilitating accurate generalizations to the entire population. This method ensures equitable inclusion of all population members, enhancing the study's validity and allowing for confident extrapolations.

7.2 Data and Sources of Data

Data collection in research involves systematically gathering information relevant to the study's objectives through methods like surveys, interviews, or observations. It serves as the basis for analysis and drawing conclusions, with primary and secondary data being the two types collected. Primary data is gathered firsthand, such as through distributing questionnaires in person to employees, comprising Likert scale, dichotomous, close-ended, and ranking questions. Likert scale questions gauge agreement levels, dichotomous questions offer binary choices, close-ended questions provide predefined options, and ranking questions prioritize items. Secondary data collection involves obtaining information from company-related journals and websites, supplementing primary data with additional insights.

7.3 Theoretical framework

Variables of the study contains dependent and independent variable. The study used UTAUT model for the selection of independent variables.The independent variables used in this includes performance expectancy, effort expectancy, social influence, facilitating conditions and data privacy. The study used the employees adoption towards HR analytics as dependent variable. Employees perception is collected through the questionnaire.

7.4 Statistical tools

The statistical tools used in this study is

- U-Test
- H-Test
- Chi-square Test and
- Correlation.

7.4.1 Mann-Whitney U-Test

	PERFORMANCE EXPECTANCY	**EFFORT EXPECTANCY**	**SOCIAL INFLUENCE**	**FACILITATING CONDITIONS**	**DATA PRIVACY**
Mann-Whitney U	3608.000	3824.000	3648.000	3152.000	3808.000
Wilcoxon W	5688.000	5904.000	5728.000	11930.000	5888.000
Z	-1.686	-1.097	-1.575	-2.935	-1.135

Asymp. Sig. (2-tailed)	.092	.273	.115	.003	.256

a. Grouping Variable: Gender

FINDINGS

From the above table it is found that p (Sig.) > 0.05 for performance expectancy, effort expectancy, social influence and data privacy. P (Sig.) < 0.05 for facilitating conditions.

INFERENCE

- Performance Expectancy – Null Hypothesis (Ho) is accepted. There is no significance difference between Performance Expectancy and Gender.
- Effort Expectancy - Null Hypothesis (Ho) is accepted. There is significance no difference between Effort Expectancy and Gender.
- Social Influence - Null Hypothesis (Ho) is accepted. There is significance no difference between Social Influence and Gender.
- Facilitating Conditions – Alternative Hypothesis (H1) is accepted. There is significance difference between Facilitating Conditions and Gender.
- Data Privacy - Null Hypothesis (Ho) is accepted. There is no significance difference between Data Privacy and Gender.

7.4.2 Kruskal Wallis H - Test

	PERFORMANCE EXPECTANCY	**EFFORT EXPECTANCY**	**SOCIAL INFLUENCE**	**FACILITATING CONDITIONS**	**DATA PRIVACY**
Kruskal-Wallis H	15.477	2.766	7.294	21.505	23.369
df	3	3	3	3	3
Asymp. Sig.	.001	.429	.063	<.001	<.001

a. Kruskal Wallis Test

b. Grouping Variable: Age

FINDINGS

From the above table it is found that p (Sig.) > 0.05 for effort expectancy, social influence. p (Sig.) < 0.05 for facilitating conditions and performance expectancy.

INFERENCE

- Performance Expectancy – Alternative Hypothesis (H1) is accepted. There is significance difference between Performance Expectancy and Age.
- Effort Expectancy - Null Hypothesis (Ho) is accepted. There is significance no difference between Effort Expectancy and Age.
- Social Influence - Null Hypothesis (Ho) is accepted. There is significance no difference between Social Influence and Age.
- Facilitating Conditions – Alternative Hypothesis (H1) is accepted. There is significance difference between Facilitating Conditions and Age.
- Data Privacy - Null Hypothesis (Ho) is accepted. There is no significance difference between Data Privacy and Age.

7.4.3 Chi-square Test

PERFORMANCE EXPECTANCY * Department

	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	165.945[a]	21	<.001
Likelihood Ratio	169.945	21	<.001
Linear-by-Linear Association	58.311	1	<.001
N of Valid Cases	196		

a. 16 cells (50.0%) have expected count less than 5. The minimum expected count is .65.

EFFORT EXPECTANCY * Department

	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	113.187[a]	18	<.001
Likelihood Ratio	115.408	18	<.001
Linear-by-Linear Association	25.904	1	<.001
N of Valid Cases	196		

a. 10 cells (35.7%) have expected count less than 5. The minimum expected count is .65.

SOCIAL INFLUENCE * Department

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	119.290[a]	21	<.001
Likelihood Ratio	121.204	21	<.001
Linear-by-Linear Association	16.285	1	<.001
N of Valid Cases	196		

a. 13 cells (40.6%) have expected count less than 5. The minimum expected count is .65.

FINDINGS

From the above tables it is found that p (Sig.) < 0.05 for all the independent variables such as performance expectancy, effort expectancy, social influence, facilitating conditions and data privacy.

INFERENCE

- Performance Expectancy – Null Hypothesis (Ho) is accepted. There is no association between Performance Expectancy and Department.
- Effort Expectancy - Null Hypothesis (Ho) is accepted. There is no association between Effort Expectancy and Department.
- Social Influence - Null Hypothesis (Ho) is accepted. There is no association between Social Influence and Department.
- Facilitating Conditions – Null Hypothesis (Ho) is accepted. There is no association between Facilitating Conditions and Department.
- Data Privacy - Null Hypothesis (Ho) is accepted. There is no association between Data Privacy and Department.

FACILITATING CONDITIONS * Department

	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	91.195[a]	24	<.001
Likelihood Ratio	89.787	24	<.001
Linear-by-Linear Association	.940	1	.332
N of Valid Cases	196		

a. 21 cells (58.3%) have expected count less than 5. The minimum expected count is .65.

DATA PRIVACY * Department

	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	111.627[a]	24	<.001
Likelihood Ratio	121.620	24	<.001

Linear-by-Linear Association	18.022	1	<.001
N of Valid Cases	196		

a. 21 cells (58.3%) have expected count less than 5. The minimum expected count is .65.

7.4.4 Correlation

PERFORMANCE EXPECTANCY * Work Experience (Designation)

		Value	Asymptotic Standard Error[a]	Approximate Tb	Approximate Significance
Interval by Interval	Pearson's R	-.046	.072	-.637	.525[c]
Ordinal by Ordinal	Spearman Correlation	-.128	.075	-1.798	.074[c]
N of Valid Cases		196			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

EFFORT EXPECTANCY * Work Experience (Designation)

		Value	Asymptotic Standard Error[a]	Approximate Tb	Approximate Significance
Interval by Interval	Pearson's R	-.091	.069	-1.272	.205[c]
Ordinal by Ordinal	Spearman Correlation	-.081	.070	-1.129	.260[c]
N of Valid Cases		196			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

SOCIAL INFLUENCE * Work Experience (Designation)

		Value	Asymptotic Standard Error[a]	Approximate Tb	Approximate Significance
Interval by Interval	Pearson's R	.097	.066	1.351	.178[c]
Ordinal by Ordinal	Spearman Correlation	.077	.070	1.077	.283[c]
N of Valid Cases		196			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

FACILITATING CONDITIONS * Work Experience (Designation)

		Value	Asymptotic Standard Error[a]	Approximate Tb	Approximate Significance
Interval by Interval Ordinal by Ordinal	Pearson's R	-.376	.052	-5.645	<.001[c]
	Spearman Correlation	-.370	.058	-5.547	<.001[c]
N of Valid Cases		196			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

DATA PRIVACY * Work Experience (Designation)

		Value	Asymptotic Standard Error[a]	Approximate Tb	Approximate Significance
Interval by Interval	Pearson's R	-.137	.070	-1.925	.056[c]
Ordinal by Ordinal	Spearman Correlation	-.117	.073	-1.641	.102[c]
N of Valid Cases		196			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

FINDINGS

From the above table it is found that p (Sig.) > 0.05 for Performance expectancy, Effort expectancy, Social influence and Data privacy. P (Sig.) < 0.05 for Facilitating conditions.

INFERENCE

- Performance Expectancy – Alternative Hypothesis (H1) is accepted. There is monotonic relationship between Performance Expectancy and Work Experience (Designation).

It is very weakly positively correlated.

- Effort Expectancy - Alternative Hypothesis (H1) is accepted. There is monotonic relationship between Performance Expectancy and Work Experience (Designation).

It is moderately positively correlated.

- Social Influence - Alternative Hypothesis (H1) is accepted. There is monotonic relationship between Performance Expectancy and Work Experience (Designation).

It is moderately positively correlated.

- Facilitating Conditions – Null Hypothesis (Ho) is accepted. There is no monotonic relationship between Data Privacy and Work Experience (Designation).

It is positively correlated.

- Data Privacy - Alternative Hypothesis (H1) is accepted. There is monotonic relationship between Performance Expectancy and Work Experience (Designation).

It is weakly positively correlated.

VIII. FINDINGS AND SUGGESTIONS

The majority of respondents, 51%, are in the age group of 18-25 years, and 67% are female. A significant portion of responses, 35%, came from the Talent Development department, with 31% of respondents being trainees. Nearly half of the respondents, 49%, strongly agree that HR analytic tools will improve their job performance, and 92% agree that these tools are involved in HR decision-making. Responses regarding the use of HR analytics tools were predominantly from the Talent Development and Talent Management departments, each contributing 27%. Additionally, 37% strongly agree that HR analytic tools are user-friendly and easy to learn, while 76% find the training provided by Larsen and Toubro Construction to be adequate. Self-learning and trial and error were the primary methods for learning to use these tools for 31% of employees. Moreover, 29% of respondents consider the opinions of colleagues, 55% heed recommendations from HR professionals, and 37% follow the instructions of Head HR regarding HR analytic tools. However, 31% disagree that there are sufficient resources available for adopting these tools. On the positive side, 90% agree that there is IT support to assist in using HR analytic tools, with 37% considering this support strong. Data privacy elicited a neutral response from 24% of respondents, but 76% agree there are proper policies and procedures to protect data privacy, and 33% agree on the existence of secure data storage solutions within the organization.

To enhance the adoption and utilization of HR analytic tools at L&T Construction, targeted training programs should be developed and hosted on the company's LMS platforms. These programs should be tailored to the

needs of trainees and young employees, focusing on the user-friendliness and practical applications of various HR analytic tools. E-learning courses should be used to deliver this content conveniently. Increasing awareness is crucial, and information about available resources should be disseminated through the company's network infrastructure, with leadership involvement via emails, town hall meetings, and intranet announcements. Enhanced IT support services are necessary to assist employees in effectively using HR analytic tools, ensuring stable internet access and prompt resolution of technical challenges.

To address data privacy concerns, workshops and e-learning courses should be conducted to educate employees on data protection measures. A feedback mechanism via LMS platforms should be established to collect employee suggestions for improving the tools and their implementation. Promoting collaboration among employees and HR professionals is essential, fostering knowledge sharing and mutual support through collaborative projects and discussion forums on the LMS. Regular updates about advancements in HR analytic tools should be communicated through emails and intranet announcements. Clear policies on data privacy must be communicated and accessible to all employees, reinforcing the organization's commitment to data protection.

Regular assessments should be conducted to gauge the effectiveness of training programs and the adoption of HR analytic tools, with necessary adjustments made based on feedback. Leadership involvement is critical, with leaders, including the Head HR, promoting the importance of HR analytic tools in decision-making processes and participating actively in training sessions. By implementing these strategies, L&T Construction can improve the adoption and utilization of HR analytic tools, leading to enhanced decision-making, job performance, and organizational outcomes.

IX. CONCLUSION

The research at L&T Construction offers valuable insights into how employees, particularly young trainees perceive and utilize HR analytic tools. The majority of respondents, mainly female and aged 18 to 25, believe these tools can significantly enhance job performance and HR decision-making. Despite recognizing strong IT support, there is a perceived lack of resources for adopting these tools, highlighting the need to increase awareness. While training is generally seen as adequate, it should be better tailored to the specific needs of young employees, and data privacy education needs enhancement. The study also reveals a collaborative culture, with employees open to considering colleagues' and HR professionals' recommendations. Overall, by refining training programs, raising awareness, enhancing IT support, and reinforcing data privacy policies, L&T Construction can further optimize the use of HR analytic tools, leading to better decision-making and improved job performance.

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