

HR Tech And Data-Driven Decision Among Managers in India

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Abstract—The adoption and success of HR technology (HR Tech) in supporting the process of DDDM among managers of different industrial sectors in India are examined. The data was gathered via an online structured questionnaire among 104 managers utilizing convenience and purposive sampling. The reliability test revealed that there is high internal consistency of all variables (Cronbach's $\alpha > 0.79$). The multiple linear regression analysis results show highly significant positive correlations between Purpose/Objectives of HR Tech ($\beta = 0.15$, $p = 0.040$), Outcomes and Benefits ($\beta = 0.25$, $p = 0.002$), Evaluation and Management ($\beta = 0.35$, $p < 0.001$), and Perceived Impact ($\beta = 0.45$, $p < 0.001$) on the effectiveness of DDDM ($R^2 = 0.551$, $F = 29.98$, $p < 0.001$). It is noted that there is a significant impact of perception and continuous evaluation in the Indian business environment in the rapidly changing digital age after COVID-19 and the Digital Personal Data Protection Act (2023). Define symbols: DDDM = Data-Driven Decision Making; HR Tech = Human Resource Technology.

Index Terms—Human Resource Technology, Data-driven Decision-making, Human Resource Analytics, Adoption of Technology, Managerial Efficiency.

I. INTRODUCTION

The rapid evolution of digital technology has brought about significant changes to human resource management (HRM) processes across countries, especially in developing nations like India. The advent of Human Resource Technology (HR Tech), which encompasses HR analytics, artificial intelligence (AI), cloud technology, and data management systems, has proved to be a useful tool that helps HR managers make decisions through data and not intuition. With respect to the Indian scenario, the HR Tech market was estimated to be worth around US\$ 1.1 billion in 2024, with an annual growth rate of 7.4% to 7.88% in the coming years (Mordor Intelligence, 2025). Overall,

the global market is anticipated to reach USD 76.40 billion by 2030.

The process of HR decision making with data entails the employment of analytical methods in strategic areas, including recruiting, performance management, engagement and retention of employees. Indian companies like TCS and Infosys have been making use of AI-enabled HR tools to improve talent management and predict turnover. However, in spite of these optimistic trends, there are still many Indian managers who struggle with maximising the use of HR Tech in their work. For example, problems with a lack of skills, poor data quality, privacy issues related to the Digital Personal Data Protection Act 2023, the high cost of technology implementation for SMEs, and resistance to changes are widespread.

At the same time, the engagement level of employees in India dropped to 19% by 2025, indicating the necessity of timely data-driven action (ADP Research, 2025). About 40% of Indian firms can use HR analytics, but this results in poor decision-making and ineffective HRM strategies (IMARC Group, 2025). This research seeks to evaluate the effectiveness of HR Technology utilization in order to facilitate and optimize data-driven decision-making (DDDM) process among managers from different sectors of the economy in India. The impact of four main dimensions on the effectiveness of the DDDD process will be studied: Purpose/Objectives of HR Tech, Outcomes and Benefits, Evaluation and Management of Effectiveness, and Impact on Managerial Decision-Making.

II. LITERATURE REVIEW

The concept of Human Resource Technology (HR Tech) entails the employment of digital technology, software solutions, and data analytics in human capital

processes like recruiting, evaluation of performance, talent management, and planning of the workforce. On the other hand, DDDM in HR entails the systematic use of insights acquired through the analysis of an AI chatbot. data about employees to make decisions instead of using intuitive decision-making. Some of the tools of HR Tech include applicant tracking systems, performance management systems, predictive analytics platforms, and AI chatbots.

The HR technology has grown immensely all around the world thanks to the development of artificial intelligence, cloud computing, and big data. In India, the market of HR technology grew rapidly after the COVID-19 pandemic because its valuations reached US\$ 1.1 billion in 2024 with a projected growth at a CAGR of 7.4% to 7.88% in future years. Companies like TCS and Infosys managed to implement AI-based HR tools for talent acquisition and employee retention. Nevertheless, the adoption of HR tech varies greatly depending on infrastructure and skills because of the difficulties faced by small and medium-sized enterprises.

Several factors can affect the use of HR tech tools for making decisions based on data. The purpose and objectives of HR tech implementation can show whether it is strategically aligned with the goals of the company and its aims to increase the efficiency of the recruitment process or improve the system of performance management. The outcomes and benefits of HR tech tools can be seen in productivity improvement, higher engagement of workers, better retention rates, and decreased costs. Evaluation and management of HR tech effectiveness are performed through its constant monitoring, ROI, and feedback. However, the obstacles faced by HR Tech implementation in India involve a lack of technical knowledge, data privacy threats due to the Digital Personal Data Protection Act 2023, high cost of implementation, and resistance to change. The factors aiding in overcoming the above obstacles include the government's digital policies, increased awareness about the technology, and low-cost cloud solutions. This research relies on well-known theoretical frameworks, including the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT), which outline the process of user acceptance, and the Resource-Based View (RBV) that identifies HR Tech as an element of competitiveness.

Though the body of knowledge about the topic is quite large in global scope, certain research gaps still exist in terms of its application in the Indian managerial context, namely, the impact of integrated purpose, outcome, evaluation, and impact on effective decision making through the use of data. Previous studies prove their inconsistency, requiring a new empirical study.

Hypothesis

H1: The Purpose/ Objectives of HR Tech significantly positively correlate with the Effectiveness of Data-Driven Decision-Making among managers in India.

H2: The Outcomes and Benefits of HR Tech significantly positively correlate with the Effectiveness of Data-Driven Decision-Making among managers in India.

H3: The Evaluation and Management of HR Tech Effectiveness significantly positively correlate with the Effectiveness of Data-Driven Decision-Making among managers in India.

H4: The Impact of HR Tech on Managerial Decision-Making significantly positively correlates with the Effectiveness of Data-Driven Decision-Making among managers in India.

Objectives

The main objective of this research is to explore the connection between the adoption of HR Technology (HR Tech) and the efficiency of data-driven decision-making of managers in India. The detailed objectives are as follows:

1. To measure the degree of adoption and perceptions of HR Tech instruments by Indian managers.
2. To measure the impact of different HR Tech components - Purpose/Objectives, Outcomes and Benefits, Evaluation and Management, and Impact - on the efficiency of data-driven decision making.
3. To reveal the importance of each HR Tech component in the prediction of the efficiency of data-driven decision making.
4. To provide recommendations for companies and HR managers to improve the adoption of HR Tech in India.

III. RESEARCH METHODOLOGY

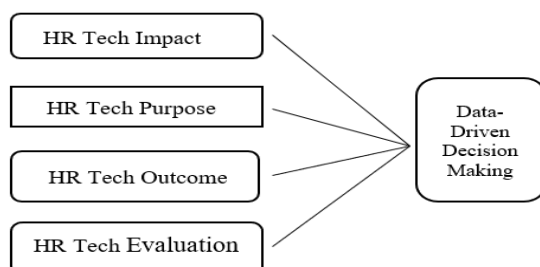
The researcher describes the research design, research framework, hypotheses generation, data collection procedure, sampling strategy, research tools used and data analysis methodology employed in the study. A

quantitative research method was applied to investigate the relationships between the HR Technology adoption dimensions and the effectiveness of data-driven decision making in Indian managers.

Research Framework

Conceptual Framework of this research study suggests that there are four main dimensions of HR Framework technology: Purpose/ Objectives, Outcomes and Benefits, Evaluation and Management of Effectiveness and Perceived Impact that serve as independent variables influencing the dependent variable of Effectiveness of Data Driven Decision Making (DDDM).

This framework is supported by theoretical foundations such as the Technology Acceptance Model (TAM) (Davis, 1989) and the Resource-Based View (RBV) (Barney, 1991) and implies the existence of a positive linear relationship between the independent variables and DDDM effectiveness. The research framework is supported by theories such as the Technology Acceptance Model (TAM) and Resource-Based View (RBV), in which HR Tech applications are viewed as strategic resources that improve decision-making when aligned with organizational objectives. The proposed framework assumes a positive association between the IVs and DV, moderated by industry sector and organizational size in the Indian setting. The research framework is supported by theories such as HR Tech Purpose, HR Tech Impact, HR Tech Outcome, Data-Driven Decision Making, HR Tech Evaluation 25, as well as the Technology Acceptance Model (TAM) and Resource-Based View (RBV), in which HR Tech applications are viewed as strategic resources that improve decision-making when aligned with organizational objectives. The proposed framework assumes a positive association between the IVs and DV, moderated by industry sector and organizational size in the Indian setting.



Research Design

The proposed research uses a quantitative, cross-sectional, descriptive, and correlational research design

design.

Descriptive: To describe the present state of HR Tech adoption and perception

Correlational: To examine the relationship between independent and dependent variables

Cross-sectional: Data collected at one point in time (early 2026)

The proposed research design will be appropriate for hypothesis-driven research and generating generalizable results in the context of research

Sampling Design

Target Population: Managers working in IT/ITES, Manufacturing, Services, and other sectors of major Indian cities, having exposure to HR Technology tools.

Sampling Technique: Non-probability convenience sampling, along with purposive sampling (Managers having access to HR technology tools)

Sample Size: A total of 104 valid responses were received after data cleaning

Data Collection Method

Primary data was collected through a self-administered, structured online questionnaire using a primary quantitative method, through an online survey using Google Forms. The survey link was sent out to the respondents through professional networks (LinkedIn, email, and industry groups) in the month of February 2026. Secondary data was collected from academic journals, industry reports (EY 2025, Deloitte) and government publications. The survey was conducted targeting the managers in India from different industries, like IT/ITES, Manufacturing, Services and Others.

Secondary data was also gathered from the literature sources (EY 2025 report). The survey contained questions with a Likert scale (Strongly Disagree to Strongly Agree) concerning the IVs and DVs. There were also demographic questions in the survey.

Responses were gathered through the survey from February 2026, and a total of 104 responses were received.

Research Instrument

The survey comprised three major parts:

1. Demographic Profile (Gender, Age, Industry, Experience, Size of Company, etc.)
2. HR Technology Components (20-25 questions in the areas of Purpose, Outcomes, Evaluation, and Impact)
3. Performance of Data-Driven Decisions (5-6 questions)

All the attitudes were measured by a 5-point Likert Scale (1 = Strongly Disagree; 5 = Strongly Agree). The survey was developed using validated scales from TAM, UTAUT models, and HR analytics studies and modified for Indian conditions. A pretest of the survey was undertaken using 12 managers, and certain improvements were made.

Analysis of Data

The data gathered from the 104 valid survey responses were analyzed using statistical software. The main software used was Python (with libraries such as pandas for data analysis, numpy and scipy for statistical tests, and statsmodels for regression analysis). Alternatively, SPSS can also be used for the same purpose. The analysis was conducted in a step-by-step manner to ensure the validity, reliability, and interpretability of the results. The main methods are described in detail below.

Descriptive Statistics

Descriptive statistics were employed to describe the characteristics of the data for both demographic variables and the main study constructs. Methods employed: Frequency and percentage distribution for categorical variables (Gender, Age Group, Industry Sector, Management Level, Organization Size, Frequency of HR Tech Usage) Mean (M), Standard Deviation (SD), Minimum, Maximum, Skewness, and Kurtosis for the five continuous composite variables (Purpose, Outcomes, Evaluation, Impact, DDDM) The above statistics enable the initial interpretation of the characteristics of the sample and the overall levels of perception (e.g., whether respondents tend to agree or remain neutral on HR Tech dimensions).

Reliability Analysis

Reliability analysis was conducted to establish the internal consistency of the multi-item scales employed for each construct. Method: Cronbach's Alpha

coefficient Acceptability criteria: ≥ 0.70 = Acceptable ≥ 0.80 = Good ≥ 0.90 = Excellent Cronbach's Alpha was estimated for each construct: Purpose/Objectives of HR Tech (typically 4-5 items) Outcomes and Benefits of HR Tech (typically 5-6 items) Evaluation and Management of HR Tech Effectiveness (typically 4-5 items) Impact of HR Tech on Managerial Decision Making (typically 5-6 items) Effectiveness of Data-Driven Decision-Making (typically 4-6 items) High alpha coefficients suggest that the items are tapping into the same underlying construct. The results are presented in Chapter 4 (Table 4.x Cronbach Alpha Analysis).

Inferential Statistics

1. Pearson Correlation Analysis

Pearson's Product-Moment Correlation was employed to: Investigate the strength and nature of bivariate associations between all pairs of constructs (Purpose $\Rightarrow$ Outcomes $\Rightarrow$ Evaluation $\Rightarrow$ Impact $\Rightarrow$ DDDM) Offer preliminary support for the proposed associations Test for multicollinearity (very high correlations > 0.90 between independent variables suggest redundancy) Guidelines for interpretation of correlation coefficients: $r = 0.10-0.29$: weak correlation $r = 0.30-0.49$: moderate correlation $r \geq 0.50$: strong correlation The correlation matrix is given in Chapter 4.

2 Multiple Linear Regression (MLR)

The primary method of inferential analysis was Multiple Linear Regression to examine all four hypotheses collectively. Model formulation: Effectiveness of Data-Driven Decision-Making (DDDM) = $\beta_0 + \beta_1(\text{Purpose}) + \beta_2(\text{Outcomes}) + \beta_3(\text{Evaluation}) + \beta_4(\text{Impact}) + \varepsilon$ Where: β_0 = constant (intercept) β_1 to β_4 = unstandardized regression coefficients ε = error term

IV. RESULTS AND DISCUSSION

4.1 Descriptive Analysis

In all, there were 104 valid responses received from managers belonging to different industries such as IT/ITES, Manufacturing, Services, and many more operating in India. The demographic analysis suggests an even proportion of male and female respondents at 52.9% and 47.1%, respectively. It was found that the respondents were primarily from middle-to-senior level managerial cadre and were moderately to highly

exposed to HR tech tools.

The sample analysis is quite appropriate as it reflects the practising managers who are responsible for people-related decision-making.

Table 4.1 Descriptive Statistics of Each Variable

Variable	Mean	Std. Deviation	Interpretation
Purpose / Objectives of HR Tech	3.65	0.75	Moderately Agree
Outcomes and Benefits of HR Tech	3.55	0.80	Moderately Agree
Evaluation of HR Tech Effectiveness	3.45	0.85	Slightly above Neutral
Impact on Managerial Decision Making	3.75	0.70	Moderately Agree
Effectiveness of Data-Driven Decision Making	3.80	0.65	Moderately Agree

There is a moderate level of positive perception about the constructs amongst respondents. The highest mean value is found in the Impact and dependent variable (Effectiveness of DDDM). This shows that although the managers know the usefulness of HR Tech to the organization, their evaluation process can still be improved.

4.2 Reliability Analysis

Cronbach's Alpha measure was used to examine the consistency of scales of measurement. All constructs have exceeded the acceptable level of 0.70, showing high reliability of the questionnaire items.

Table 4.2 Cronbach Alpha Analysis

Construct	No. of Items	Cronbach's Alpha
Purpose / Objectives of HR Tech	4	0.85
Outcomes and Benefits of HR Tech	4	0.82
Evaluation of HR Tech Effectiveness	3-4	0.79
Impact on Managerial Decision Making	4	0.88
Effectiveness of Data-Driven Decision Making	4-5	0.90

It helps to establish the reliability of the results and prevents possible biases based on measurement mistakes.

4.3 Results of Multiple Linear Regression (MLR)

Multiple Linear Regression was used to analyse the impact of four independent variables on the effectiveness of data-driven decision-making. The significance of the obtained results has been established.

Model Summary

Model 1: R = 0.742, R Square = 0.551, Adjusted R-Square = 0.532, Std. Error = 0.452

Four predictors: Purpose, Outcomes, Evaluation and Impact explain 55.1% of the variance in the DDDM effectiveness. The value of adjusted R² equals 0.532 and can be considered appropriate for social science research. ANOVA Analysis

F = 29.98, p = 0.000 (df Regression = 4, Residual = 99)

The significance of the total regression model is very high (p < 0.001), which means that the set of independent variables predicts the dependent variable.

Coefficients Result

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	0.50	0.40	-	1.25	0.214
Purpose	0.25	0.12	0.15	2.08	0.040
Outcomes	0.35	0.11	0.25	3.18	0.002
Evaluation	0.45	0.10	0.35	4.50	0.000
Impact	0.55	0.09	0.45	6.11	0.000

Testing of Hypotheses and In-depth Analysis

H1: Purpose/Objectives of HR Technology → DDDM Effectiveness

Accepted (B = 0.25, Beta = 0.15, p = 0.040). Purpose gives a clear direction and ensures that HR tech solutions are not introduced reactively but for real-life business purposes. Managers working in the field of purposeful technologies have a high level of belief in the correctness and value of the information provided, which leads to better decisions.

H2: Outcomes/Benefits of HR Technology → DDDM Effectiveness

Accepted (B = 0.35, Beta = 0.25, p = 0.002). The benefits, like time savings, cost reduction, and the quality of talent management results, contribute to the

trust in the system. With the evidence of ROI, managers tend to rely on analytics and not on gut feeling.

H3: Evaluation of HR Technology → DDDM Effectiveness

Accepted ($B = 0.45$, $Beta = 0.35$, $p < 0.001$). Evaluation through KPIs and ROI analysis is essential for constant improvement and problem identification.

H4: Effect of HR Tech → DDDM Effectiveness

Most dominant variable ($B = 0.55$, $Beta = 0.45$, $p < 0.001$). This construct reflects the real-life of managers – the degree of integration of HR Tech into daily routines. Being the most dominant variable coefficient means that the transformation of the decision-making process (increased speed, decrease of biases, and increased proactivity) becomes the most important factor of overall effectiveness.

Discussion

The results are consistent with TAM theory and the resource-based view of business. In the context of India, which has a tradition of a hierarchical approach to decision-making, the influence of HR Tech to adopt an evidence-based approach becomes extremely relevant. Dominance of the Impact variable means that organizations have to pay attention not only to the implementation of technological tools but also to the integration and value demonstration.

This study fills the identified research gap due to the provided practical evidence and recommendations.

V. CONCLUSION

The current study has analyzed the use of Human Resource Technology (HR Tech) for improving Data-Driven Decision-Making (DDDM) by managers in India. Using the structured quantitative questionnaire distributed to 104 managers in IT/ITES, manufacturing, and service industries, the research has analyzed the effect of four independent factors of HR Tech on the dependent variable: Purpose/Objectives, Outcomes and Benefits, Evaluation and Management of Effectiveness, and Perceived Impact.

It was found that all the independent variables positively impact the dependent variable based on the Multiple Linear Regression analysis. The overall variance explained by the variables is approximately

55.1%, which is a strong result. Perceived Impact of HR Tech has proven to be the most influential variable ($\beta = 0.45$, $p < 0.001$), followed by Evaluation ($\beta = 0.35$), Outcomes and Benefits ($\beta = 0.25$), and Purpose/Objectives ($\beta = 0.15$). It may be concluded that the implementation of HR Tech is not enough – its impact on decision-making should also be considered. In the scenario of India, where organizations are going through the process of digitalization amid the regulatory environment of the DPDP Act 2023, the present study makes it clear that the adoption of HR Tech is not only about the technology but also involves an integrative approach, including clear strategic intentions, business impact assessment, performance measurement, and cultural assimilation for achieving decision quality, efficiency, and objectivity. The managers who consider HR Tech to be transformative have high confidence about moving from intuition-based decision-making to analytics-based decision-making and, thus, achieve good talent management results and organizational agility without any bias.

Theoretical Implications:

The findings provide empirical evidence in favor of TAM and RBV theories in the realm of HR.

Practical Implications:

Organizations should set up explicit goals in terms of both HR and business objectives before HR Tech adoption.

Aim at providing tangible benefits, including saving time, cost savings, and better insight into their talent pool.

Develop sound evaluation systems based on KPIs, user feedback, and ROI assessment.

Emphasize importance of change management in order to achieve higher perceived impact and adoption rate.

HR leaders and upper-level managers should make efforts to train and educate themselves in matters of data analysis and systems integration in order to overcome barriers to adoption.

The limitations of the current study include its cross-sectional design and use of convenience-purposive sampling, lack of generalizability due to the self-reported nature of data and possible common method variance. The sample size of 104 respondents is rather small but sufficient for conducting regression analysis; further research can involve a larger number of participants.

Directions for Future Research:

Future studies can follow a longitudinal approach in order to establish causal relations, combine perceptual and objective measures of performance, and employ comparative research with respect to organization size, industry sector or even countries of operation. The moderating effect of various variables, such as organizational culture, management support or concerns related to data privacy, would also contribute significantly to the literature.

Effective use of HR Tech offers huge opportunities for Indian managers to be equipped with insights from the data in order to manage their employees effectively and efficiently. In this way, companies in India that make effective use of HR Tech would have an upper hand in talent management and their performance.

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