ISSN: 0975-6825

INDIAN JOURNAL OF BUSINESS ADMINISTRATION (IJBA)

A National Peer Reviewed Refereed Journal
Vol. 18 | Issue 2| July-December,2025

EDITORIAL BOARD

INDIAN JOURNAL OF BUSINESS ADMINISTRATION (IJBA)

(A National Peer Reviewed Refereed Journal) ISSN :- 0975-6825

(w.e.f Jan 2025)

Chief Editor

Dr Asha Rathi

Head

Department of Business Administration,

Faculty of Commerce

Jai Narain Vyas University, Jodhpur (Raj.) 342001

Website:-www.busadmjnvu.org,

Email ID:-hod@busadmjnvu.org, headbusadm@gmail.com,

M:- 9461270131, *Ph:- 0291 2513004*

Managing Editor

Dr Ashok kumar

Assistant Professor

Department of Business Administration,

Faculty of Commerce

Jai Narain Vyas University, Jodhpur (Raj.) 342001

Email ID:-ak.badmin@jnvu.edu.in, ashokkumarhatwal@gmail.com,

M:-9829545411

Associate Editors

EDITORIAL BOARD / ADVISORY BOARD / REVIEWER BOARD

The Editorial Board of the "INDIAN JOURNAL OF BUSINESS ADMINISTRATION" is not responsible for any kind of views expressed by the authors and reviewers.

Website:- www.busadmjnvu.org

E-mail:- indianjournalbusadmjnvu@gmail.com

Indian Journal of Business Administration

(National Peer Reviewed Refereed Journal)

The Indian Journal of Business Administration a national peer reviewed refereed journal is an official organ of the Department of Business Administration, Faculty of Commerce and Management Studies, Jai Narain Vyas University, Jodhpur (Raj.) publishing in the month of June and December every year. Since from starting issue of our departmental journal in year 1994-95, we aims at bringing and providing the surface to original studies - papers, research notes, reviews of literature - in different areas of Commerce & Business Administration, made by academicians, practitioners and independent thinkers having genuine concern with the theory and practice of Business Administration, for the purpose of fuller appreciation of the manifold dimensions of the subject that may lead to more effective and meaningful management of operations. Previously, it was yearly journal of Department but due to the huge academic demand the frequency of our journal has been changed as two issues for every year in the month of June and December and now it called as Biannual (half-yearly) journal.

The findings, interpretations and conclusions expressed in this journal are solely those of the authors and should not be attributed, in any manner, to the Department of Business Administration.

 All communications, including contributions, literature for review and correspondence regarding subscription, advertisements, etc. should be addressed to the **Chief Editor**, **The Indian Journal of Business Administration, Department of Business Administration, Jai Narain Vyas University, Jaswant Campus, Jodhpur- 342001 (INDIA).**

Periodicity : Biannual (June and December)

Publication Fee:- Nil

Annual Subscription:-	**INDIAN**	**FOREIGN**
Individual	2,000/-	$100
Institutional	3,000/-	$200

Yearly subscription order should be accompanied by Bank Draft in favor of the 'Chief Editor, The Indian Journal of Business Administration', C/o The Head, Department of Business Administration, Jai Narain Vyas University, Jaswant Campus, Jodhpur-342001 (India), payable at Jodhpur or by online fund transfer only after taken the written permission from Chief Editor, IJBA.

To be cited as IJBA Vol:-14, Issue:- 01 Jodhpur (Raj.) India.

Published by :

Dr Asha Rathi

Chief Editor, IJBA

& Head, Department of Business Administration, FCMS,

JNV University, Jodhpur (Raj.)

0291- 2513004

A PROFILE OF THE DEPARTMENT

The Jai Narian Vyas University was established on 2nd June 1962 as 'The University of Jodhpur'. Later on, it was renamed as 'Jai Narain Vyas University.' The University has a residential character. The erstwhile 'Faculty of Commerce' of the university was restructured into four separate teaching departments, viz The Department of Accounting, The Department of Business Finance and Economics, The Department of Business Administration, and the Department of Management Studies in the year 1990 with a new umbrella name of 'Faculty of Commerce and Management Studies.'

The Department of Business Administration came into existence on 3rd Feb.1990 and since then it has grown both academically and professionally, With Prof. P.N. Saxena as its first and founder Head of the Department, we have had a long journey of two decades. Prof. Saxena is both satisfied and happy to see the Department growing for his successors Dr. D.P.Ghiya, Mrs. Asha Malhotra, Dr. A. B. L. Mathur, Dr. R. R. Lodha, Dr. L. C. Bhandari, Dr. Rajan Handa, and Dr R.C.S. Rajpurohit, all have taken the department to greater heights over the years.

The Department offers M.Com., Ph.D, and D.Litt in Business Administration. At the undergraduate level, the Department offers B.Com (Hons.), B.Com and BBA Degree courses in combination with sister departments. Two separate Post Graduate Diploma courses, namely Post Graduate Diploma in Marketing and Sales Management and Post Graduate Diploma in Human Resource Management have been successfully running on self-financing basis. Both the diplomas have proved quite useful as professional job oriented courses for past many years.

The M.Com. Program offers specialization in four different areas: The Human area, The Marketing area, The Finance area, and The Institutional area. Currently, teaching is provided in Marketing and Human areas. The Department is staffed with and enriched by Seven Assistant Professors. Since the creation of the Department to till date, regular research as good number of PhD degrees have been awarded and numerous of PhD researches are in progress thereby usefully contributing to Research for advancement of knowledge in the domain of business administration. Several of our graduates have been very well placed in different organizations both in India and Abroad. The Department is also contributing by working on major and minor Research projects undertaken by its faculty members. The department successfully organized various UGC Refresher Course, Workshops, National Seminar and Conferences sponsored by UGC, New Delhi.

I must say that we in the department have always worked with a team-spirit and therefore whatever we have achieved so far, it is the gainful result of that. For all communications, following is the address of the Department:

Dr. Asha Rathi

Head of the Department & Chief Editor, IJBA

The Department of Business Administration Faculty of Commerce

Jai Narain Vyas University, Jaswant Campus, Jodhpur 342 001 Rajasthan, India

Dr Asha Rathi
Chief Editor
Indian Journal of Business Administration
(A Nation Peer Reviewed Refereed Journal)
ISSN: - 0975-6825

MESSAGE

I feel a sense of satisfaction in bringing out this current volume of our Departmental Nation Peer Reviewed Refereed Journal in my ex-officio capacity as the Chief Editor, as **first of all I would say thanks to almighty God** then I share my feeling that we could not have reached this milestone without contributions and cooperation received at all levels of the editorial efforts and valuable authors who have contributed to our growing and continued success.

The Journal explores subjects of interest to academicians, practitioners and others involved in the field of business. Our goal is to promote awareness, provide a research outlet for the students and faculty, and increase educational exchange. Through earlier articles, and those in this issue, we have explored a broad range of topics including: instructional improvement, methods for delivery of course material, performance measures, learning approaches in new business environment. Our contributors have written their papers in the fields of Artificial Intelligence, Banking, Finance, Management, Marketing, Business Education, and many more.

I must express my sincere thanks to our Dean of faculty respected Prof. (Dr) Sunil Mehta and all my fellow Teachers, Scholars, Friends and Non-teaching / Ministerial staff members in the department as well as in the faculty of Commerce and Management studies for their affectionate and supportive behavior. We are still learning, still experimenting and still attempting to improve our process and product as per the current norms of University Grant Commission, New Delhi to render our best to the society. We would appreciate your feedback and suggestions because this will defiantly provides the additional and valuable assistance to the editorial board to improve the overall quality of our departmental journal.

अशा राठी

[DR. ASHA RATHI]

Dr. Ashok Kumar
Managing Editor, IJBA &Assistant Professor Department of Business Administration, FOC, Jai Narain Vyas University, Jodhpur(Raj.)

EDITORIAL

The "Indian Journal of Business Administration" is a National peer reviewed referred journal of the Department of Business Administration. Although, it is only a small star in the galaxy of learners, it has been doing its humble bit in bringing to the surface, some of the relevant issues in the realm of Commerce and Management, along with necessary and even implicit non-business orientations towards a wide range of public and offering possible tips or clues to the academician, readers and managers for multiplying managerial/organizational effectiveness in general towards enhancing their quality of business as well as a successful life.

The current edition of the journal encompasses and touches several research areas which includes Sustainable innovation, Microfinance in Indian Economy, Startup success, Competency based model to create a high performing organization, Analysis of stock market, Women in Rural Economy. The present volume is a modest and honest attempt to bring to light contemporary Researches to solve social and industrial problems, in the fervent hope that the exercise would help one have a better appreciation of the issues that matter. In the expectation that these expert studies, in their own right and limits, would help stimulate the thinking of the readers and generate responses, possibly helping in ways more than one.

This current issue would not have been possible had we not received encouragement and support from our academic leaders. We are thankful to our Hon'ble Vice Chancellor Professor (Dr.) Kanhaiya Lal Srivastava for all his inspiration and kind assistance that enabled the present volume to see the light of the day. We would also like to extend our sincere gratitude to Professor (Dr.) Sunil Mehta, Dean, Faculty of Commerce and Management Studies for his precious support and blessings.

The Department has potential drive and each of the members hold the key to open up the pathway to excellence. The members involved in this have done appreciable work and unless members participate wholeheartedly, improvements would remain elusive. The success of the journal will depend upon the deep involvement of the members of the department as a family and the kind support from the Faculty of Commerce and Management Studies as well as our University administration too.

Although a significant attempt has been made in the improvement, quality being elusive as to its boundary limits, the subsequent issues would be further developed for which an evaluated feedback from the readers would be of immense help. The Editorial Board will focus on professionalizing these management circles. It is believed that the patronage and co-operation extended by contributors and readers would enable the department to improve the quality of the journal as a continuous process in its value growth. We are looking forward to valuable comments from readers and contributors for the true improvement in the quality of our Departmental Journal.

Dr. Ashok Kumar

ISSN : 0975-6825

INDIAN JOURNAL OF BUSINESS ADMINISTRATION (IJBA)

(A National Peer Reviewed Refereed Journal)

Volume:-18 Issue:-2 July-December: -2025

CONTENTS

Indian Journal of Business Administration (IJBA)
(A National Peer Reviewed Refereed Journal)
ISSN: 0975-6825, Volume 18, Issue 2, July-December 2025, pp. 01- 08

EQUITY, INCLUSION, AND SOCIAL JUSTICE IN THE VISION OF VIKSIT BHARAT @2047

Dr. Parvez Ali*

Abstract:

India's ambitious vision of Viksit Bharat @2047 aims to transform the nation into a developed, inclusive, and equitable society by the centenary of its independence. At the core of this vision lie the principles of equity, inclusion, and social justice, which are essential to ensuring that development reaches the most marginalized sections of society. This paper examines how these principles are currently reflected in national development strategies, using a secondary data-based approach. Drawing upon official government sources such as the Census of India, National Family Health Survey (NFHS-5), UDISE+, the SDG India Index, and reports from NITI Aayog and the Ministry of Social Justice, the study assesses progress across key sectors—education, healthcare, livelihood, and welfare. Data is analyzed through comparative tables and thematic frameworks to identify gaps, disparities, and successful interventions. The research highlights persistent inequalities in access to resources for SC/ST communities, women, persons with disabilities, and economically weaker sections. It also evaluates the policy mechanisms that promote affirmative action and inclusive growth. The findings underscore the importance of strengthening data-driven policymaking and ensuring that the path to a developed India is grounded in justice, dignity, and equal opportunity for all.

Keywords: *Viksit Bharat @2047, Social Justice, Inclusion, Equity, Government Policy*

INTRODUCTION

"The soul of India lives in its villages, but the spirit of India thrives in its diversity." – Adapted from Mahatma Gandhi

As India charts its course toward becoming a developed nation by 2047, it must ensure that the journey is not just about economic growth but also about inclusion, equity, and justice. A truly *Viksit Bharat* cannot be achieved if large sections of the population remain excluded from progress. Development must be rooted in dignity, fairness, and opportunity for all—especially for those who have historically been marginalized. India's visionary initiative, Viksit Bharat @2047, aspires to transform the country into a fully developed, inclusive, and equitable nation by the centenary of its independence in 2047. This long-term developmental blueprint envisions a nation where prosperity is shared, governance is participatory, and every citizen, irrespective of their background, enjoys equal opportunities. Central to this vision are the principles of equity, inclusion, and social justice, which serve as both moral imperatives and practical necessities in a diverse democracy like India (NITI Aayog, 2023). Equity emphasizes fair access to resources and opportunities, while inclusion calls for proactive measures to integrate marginalized and disadvantaged groups into the mainstream. Social justice, as a broader framework, ensures that societal structures and policies correct historical injustices and reduce disparities in power, wealth, and access (Sen, 2009).

India's socio-economic landscape, marked by persistent inequalities related to caste, gender, disability, and region, demands a development model that addresses systemic exclusion and empowers vulnerable communities (Damodar, 2022). In this context, Viksit Bharat @2047 is not just a developmental goal but a transformative commitment to uphold the constitutional values of justice, liberty, equality, and fraternity. The alignment of this vision with Sustainable Development Goals (SDGs) further strengthens its global relevance, particularly SDG 10 (Reduced Inequalities) and SDG 16 (Peace, Justice, and Strong Institutions) (UNDP India, 2021). A nation can only truly be developed when development reaches the last mile—those who are historically left behind.

* Assistant Professor, Economics, Government Veerbala Kalibai Girls College, Dungarpur

The purpose of this paper is to critically examine how the principles of equity, inclusion, and social justice are embedded within India's developmental vision of Viksit Bharat @2047. It seeks to evaluate the extent to which current government policies and programs address the needs of marginalized communities, including Scheduled Castes (SCs), Scheduled Tribes (STs), women, persons with disabilities, and economically weaker sections. The study employs a secondary data-based approach to assess progress across key sectors—education, healthcare, livelihood, and welfare—using sources such as the Census of India, NFHS-5, UDISE+, and NITI Aayog reports. The scope of the paper includes identifying structural gaps, measuring the effectiveness of affirmative action, and suggesting data-driven strategies to ensure inclusive growth aligned with constitutional and Sustainable Development Goals.

METHODOLOGY

This study employs a secondary data-based approach to analyze the integration of equity, inclusion, and social justice into the developmental framework of Viksit Bharat @2047. By using authoritative national datasets and policy reports, the paper evaluates disparities across key social indicators and the effectiveness of interventions aimed at marginalized groups such as Scheduled Castes (SCs), Scheduled Tribes (STs), women, persons with disabilities, and economically weaker sections.

The following national-level sources form the backbone of the analysis:

1. **Census of India (2011)** – Offers disaggregated data on caste, disability, literacy, and housing conditions.
2. **National Family Health Survey (NFHS-5, 2019–21)** – Provides health, nutrition, sanitation, and gender-specific data.
3. **UDISE+ (2021–22)** – Reports educational infrastructure, enrollment, and dropout statistics.
4. **SDG India Index (2023)** – Tracks national and state-wise progress on Sustainable Development Goals (SDGs), including indicators related to equality and justice.
5. **Policy Reports from NITI Aayog and Ministry of Social Justice** – Provide updates on targeted government schemes and inclusive policy frameworks.

Table 1: Selected Indicators from NFHS-5, UDISE+, and Census

Indicator	Group/Category	Data Value	Source
Female Literacy Rate (Age 15+)	National Average	71.50%	NFHS-5 (2021)
School Gross Enrollment Ratio (Primary)	SC vs. General	SC: 94.2%, General: 97.8%	UDISE+ (2022)
Access to Improved Sanitation Facilities	Scheduled Tribes	36.80%	NFHS-5 (2021)
Disability Prevalence	National (All Age Groups)	2.21% of population	Census (2011)
Institutional Delivery (Health Facilities)	Rural vs. Urban	Rural: 88.5%, Urban: 94.2%	NFHS-5 (2021)
Gender Equality Index Score	National Average (0–100 scale)	48	SDG India Index (2023)
States with >50% SC/ST Welfare Budget Spent	Government Implementation	12 of 28 states	NITI Aayog (2022)

These data points highlight key disparities in educational attainment, health access, and sanitation among disadvantaged communities. For example, the female literacy rate of 71.5% reflects gendered inequities in educational access, especially in rural and tribal regions (IIPS & ICF, 2021). Similarly, only 36.8% of Scheduled Tribe households have access to improved sanitation, indicating infrastructural neglect (NFHS-5, 2021). In education, while gross enrollment is high overall, SC students still lag behind their general category counterparts, underscoring the need for targeted interventions (UDISE+, 2022). The use of multiple validated data sources enables a cross-sectoral, comparative, and policy-relevant analysis aligned with the goals of inclusive development and social justice under Viksit Bharat @2047.

CONCEPTUAL FRAMEWORK

The concepts of equity, inclusion, and social justice are foundational to the vision of Viksit Bharat @2047, providing a moral and operational compass for India's developmental journey. Although often used interchangeably, each principle holds a distinct yet interconnected meaning within the broader framework of rights-based and participatory governance. **Equity** refers to the fair and just distribution of resources, opportunities, and support based on the specific needs of individuals or groups. Unlike equality, which treats everyone the same, equity acknowledges structural disadvantages and provides differentiated support to enable similar outcomes (UNESCO, 2017). For instance, educational equity may require additional provisions for tribal or differently-abled children to ensure parity in learning outcomes.

Inclusion entails the proactive effort to bring historically marginalized or excluded groups—such as Scheduled Castes (SCs), Scheduled Tribes (STs), women, persons with disabilities, and religious minorities—into the mainstream of political, economic, and social life (UNDP, 2020). It requires removing physical, institutional, and attitudinal barriers that prevent full participation and belonging.

Social justice represents a broader ethical and legal framework aimed at ensuring the protection of rights, elimination of discrimination, and the dismantling of systemic inequalities. It integrates both equity and inclusion by demanding that institutions and laws actively correct imbalances created by history, culture, and politics (Rawls, 1999; Sen, 2009). These three principles are deeply interconnected. Equity is the operational approach, inclusion is the participatory goal, and social justice is the normative ideal. Together, they form a triadic foundation for democratic governance—where public policies are not only efficient but also fair, representative, and transformative. In a developmental context, their integration ensures that economic growth does not come at the cost of deeper societal divides but instead fosters dignity, opportunity, and voice for all (World Bank, 2013).

SECTORAL ANALYSIS

Table 2: Sectoral Analysis of Equity, Inclusion, and Social Justice in India

Sector	Key Issues/Indicators	Findings & Disparities	Government Initiatives	Challenges	Sources
a. Education	Literacy rates & enrollment	Female literacy: 71.5%; SC literacy: 66.1%; ST literacy: 59.0%	*Samagra Shiksha*, *NEP 2020* promote inclusive and flexible learning pathways	High dropout among SC/ST girls in secondary education; limited access to digital infrastructure	IIPS & ICF (2021); UDISE+ (2022); MoE (2020)
	Gender & caste disparity	Gender Parity Index (GPI) > 1.0 at primary level, but drops in higher secondary	Reservation in higher education (15% SC, 7.5% ST)	Intersectional data on disability and caste is limited	MoE (2022); UGC (2021)

b. Healthcare	Access to healthcare services	Rural institutional delivery: 88.5%; Urban: 94.2%	*Ayushman Bharat*, *National Health Mission*	Regional disparity in maternal care and immunization (e.g., Bihar vs. Kerala)	NFHS-5 (2021); MoHFW (2022)
	Health indicators	ST women: 27.8% undernourished; IMR in SC/ST higher than national avg	Janani Suraksha Yojana (JSY); Mission Indradhanush	Lack of SC/ST health workforce representation	NFHS-5 (2021); NITI Aayog (2022)
c. Livelihood & Employment	Labor force participation	Female LFPR: 37.0% (PLFS 2022); SC/ST overrepresented in informal jobs	*MGNREGA*, *Skill India Mission*, *Stand Up India*	Low skilling among rural women; wage disparity persists	NSSO (2022); MoRD (2023); Ministry of Labour (2022)
	Urban vs. rural employment	Urban unemployment higher: ~6.5% vs. rural ~4.4%	Urban Livelihood Mission (NULM)	Informal sector lacks job security and benefits	PLFS (2022); NULM (2023)
d. Social Welfare & Protection	Social security access	83% SC/ST households use PDS; 46% elderly women lack pension	*National Social Assistance Programme (NSAP)*, *PM Ujjwala Yojana*, *PM Jan Dhan Yojana*	Implementation gaps in remote and tribal areas	NSSO (2022); MoSJ&E (2023)
	Financial inclusion	Jan Dhan accounts: 56% held by women; ~23 crore accounts linked to DBT	Direct Benefit Transfer (DBT), PMJDY, PMKISAN	Poor internet/connectivity affects DBT reach	NITI Aayog (2022); RBI (2023)

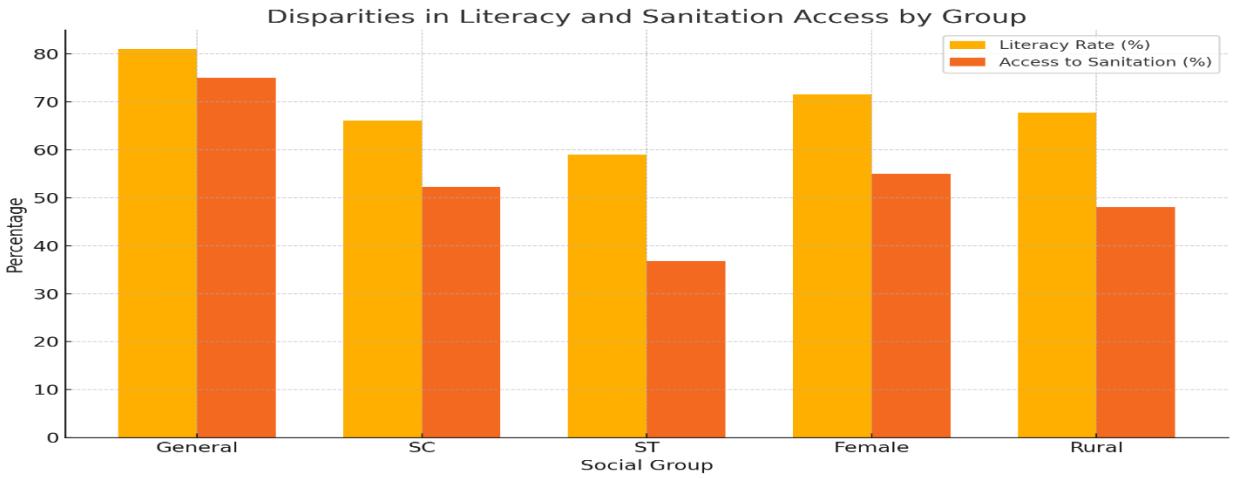


Figure 1. Disparities in literacy rates and access to sanitation facilities by social group. This bar graph compares literacy rates and access to improved sanitation across different social groups in India, highlighting inequalities faced by Scheduled Castes (SC), Scheduled Tribes (ST), females, and rural populations. Data reflects patterns observed in NFHS-5 (2019–21) and Census 2011.

Key Challenges Identified

Despite progressive policies and targeted welfare schemes, persistent inequalities continue to shape access to education, healthcare, livelihood, and social protection in India. Marginalized groups such as Scheduled Castes (SCs), Scheduled Tribes (STs), women, persons with disabilities, and religious minorities often face structural and systemic barriers that limit their ability to benefit fully from development initiatives. For instance, NFHS-5 data indicates that undernutrition and maternal health indicators remain significantly poorer among ST populations compared to the national average (IIPS & ICF, 2021). Similarly, SC and ST students continue to experience higher dropout rates, indicating a gap between access and educational outcomes (UDISE+, 2022).

Regional disparities also present a major hurdle. States like Kerala and Himachal Pradesh perform well on health, education, and gender parity metrics, whereas Bihar, Jharkhand, and Uttar Pradesh lag significantly behind (NITI Aayog, 2023). This uneven progress complicates the implementation of national schemes and calls for more localized policy adaptations. In addition, the digital divide—especially in rural and tribal areas—limits access to essential services, including digital education, telemedicine, and online banking. According to a report by the Internet and Mobile Association of India (IAMAI, 2022), only about 37% of rural India has regular access to the internet, severely constraining the effectiveness of digital public infrastructure. Further, bureaucratic hurdles, such as delays in benefit disbursal, corruption at the grassroots level, and rigid eligibility norms, reduce the efficacy of social welfare schemes. A significant concern is the lack of intersectional data—disaggregated by gender, caste, disability, and region—which hampers evidence-based policy design and impact evaluation. Most national surveys report aggregate outcomes, leaving gaps in understanding how multiple vulnerabilities interact and compound exclusion (World Bank, 2013; UNDP, 2020). Without resolving these systemic issues, the goal of building a truly inclusive and equitable Viksit Bharat remains aspirational.

POLICY AND PROGRAMMATIC INTERVENTIONS

India has implemented a robust set of policy and programmatic interventions to promote equity, inclusion, and social justice, particularly for marginalized communities. Central to these efforts are affirmative action policies, including constitutionally mandated reservations in education, government jobs, and political representation for Scheduled Castes (SCs), Scheduled Tribes (STs), and Other Backward Classes (OBCs). These measures aim to correct historical injustices and ensure proportional access to opportunities. For example, Article 15 and Article 16 of the Indian Constitution guarantee affirmative protections in public employment and education (Government of India, 1950). Additionally, targeted programs such as the *Post-Matric Scholarship Scheme*, *Stand-Up India*, and *National Overseas Scholarship* provide financial and institutional support to underrepresented groups (Ministry of Social Justice & Empowerment, 2023).

A strong legal framework underpins India's commitment to social justice. Laws such as the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989, the Rights of Persons with Disabilities Act, 2016, and the Protection of Women from Domestic Violence Act, 2005 reinforce the state's obligation to protect vulnerable populations from discrimination, violence, and exclusion. These legal safeguards are critical in institutionalizing justice and enabling legal recourse for the aggrieved. India's development strategy also aligns closely with the Sustainable Development Goals (SDGs). Key government missions—such as the Beti Bachao Beti Padhao, Swachh Bharat Abhiyan, National Health Mission, and Skill India Mission—address multiple SDG targets, including gender equality (SDG 5), reduced inequalities (SDG 10), and decent work and economic growth (SDG 8). The SDG India Index, published by NITI Aayog, tracks progress across states and facilitates outcome-oriented planning (NITI Aayog, 2023). While these interventions reflect a comprehensive approach, their effectiveness depends on timely implementation, cross-sectoral coordination, and the empowerment of local governance institutions.

RECOMMENDATIONS

To realize the inclusive and equitable vision of Viksit Bharat @2047, India must adopt a forward-looking and systemic approach that goes beyond programmatic implementation and addresses the root causes of exclusion. First, there is an urgent need to strengthen data-driven policymaking. Government bodies and institutions should invest in real-time, disaggregated data systems that capture indicators across gender, caste, region, disability, and income. Such data should not only inform national and state policies but also be made publicly accessible for independent monitoring and academic research. Second, promoting intersectional and participatory approaches is essential for ensuring that no community is left behind. Policies must recognize and address the overlapping vulnerabilities that arise when individuals belong to multiple marginalized groups—for example, a rural disabled woman from a Scheduled Tribe. In addition, planning processes should be participatory, allowing local communities, civil society organizations, and grassroots leaders to co-create solutions that reflect lived realities and local needs. Third, enhancing accountability and transparency mechanisms is vital for building public trust and ensuring the efficient delivery of welfare schemes. This can be achieved through decentralized monitoring systems, citizen feedback loops, and digital grievance redressal platforms. Independent social audits and regular evaluations should be institutionalized to assess policy impact and course-correct promptly. Ultimately, inclusive governance requires a shift from top-down policy imposition to bottom-up empowerment and democratic engagement.

CONCLUSION

As India moves toward the ambitious goal of Viksit Bharat @2047, the true measure of progress will lie not merely in economic growth but in how effectively the nation uplifts its most marginalized communities. This paper has examined how the principles of equity, inclusion, and social justice are central to this developmental vision, highlighting sectoral disparities, evaluating policy interventions, and identifying structural challenges. While government schemes, legal safeguards, and SDG-aligned missions demonstrate a strong policy intent, persistent inequalities, regional imbalances, and data gaps continue to hinder inclusive progress. Realizing a just and equitable India will require sustained political will, data-informed planning, participatory governance, and robust accountability mechanisms. Only through such holistic and rights-based development can India ensure that every citizen, regardless of caste, gender, ability, or geography, has the opportunity to thrive with dignity and equal opportunity by the centenary of its independence.

References

- Damodar, V. (2022). The grammar of caste: Economic discrimination in contemporary India. *International Journal of Innovative Research in Science, Engineering and Technology, 9*(1), 35–42.
- Sen, A. (2009). *The idea of justice*. Harvard University Press.
- NITI Aayog. (2023). *Viksit Bharat @2047: Vision document*. Government of India. https://www.niti.gov.in
- UNDP India. (2021). *India and the Sustainable Development Goals: Partnership in action*. United Nations Development Programme. https://www.in.undp.org/
- Census of India. (2011). *Data on disability and social groups*. Office of the Registrar General & Census Commissioner, India. https://censusindia.gov.in
- International Institute for Population Sciences (IIPS) & ICF. (2021). *National Family Health Survey (NFHS-5), 2019–21: India fact sheet*. http://rchiips.org/nfhs
- Ministry of Education. (2022). *UDISE+ 2021–22 report*. Government of India. https://udiseplus.gov.in
- NITI Aayog. (2022). *Annual progress report on SC/ST welfare budget utilization*. https://www.niti.gov.in
- NITI Aayog. (2023). *SDG India index & dashboard 2023–24*. https://sdgindiaindex.niti.gov.in
- Rawls, J. (1999). *A theory of justice* (Rev. ed.). Belknap Press of Harvard University Press.
- United Nations Development Programme (UNDP). (2020). *Human development report 2020: The next frontier – Human development and the Anthropocene*. http://hdr.undp.org
- UNESCO. (2017). *A guide for ensuring inclusion and equity in education*. https://unesdoc.unesco.org
- World Bank. (2013). *Inclusion matters: The foundation for shared prosperity*. https://openknowledge.worldbank.org
- International Institute for Population Sciences (IIPS) & ICF. (2021). *National Family Health Survey (NFHS-5), 2019–21: India fact sheet*. http://rchiips.org/nfhs
- Ministry of Education. (2020). *National Education Policy 2020*. Government of India. https://www.education.gov.in
- Ministry of Education. (2022). *UDISE+ report 2021–22*. https://udiseplus.gov.in
- Ministry of Health and Family Welfare (MoHFW). (2022). *Ayushman Bharat Mission annual report*. https://www.abdm.gov.in
- NITI Aayog. (2022). *SDG India index & dashboard 2022–23*. https://www.niti.gov.in
- Ministry of Rural Development (MoRD). (2023). *MGNREGA dashboard reports*. https://nrega.nic.in
- National Statistical Office (NSO). (2022). Periodic Labour Force Survey annual report 2021–22. https://mospi.gov.in
- Ministry of Social Justice and Empowerment (MoSJ&E). (2023). Annual report 2022–23. https://socialjustice.gov.in

- Reserve Bank of India (RBI). (2023). Financial inclusion dashboard. https://www.rbi.org.in
- International Institute for Population Sciences (IIPS) & ICF. (2021). National Family Health Survey (NFHS-5), 2019–21: India fact sheet. http://rchiips.org/nfhs
- Ministry of Education. (2022). UDISE+ report 2021–22. https://udiseplus.gov.in
- Internet and Mobile Association of India (IAMAI). (2022). Internet in India report 2022. https://www.iamai.in
- World Bank. (2013). Inclusion matters: The foundation for shared prosperity. https://openknowledge.worldbank.org
- United Nations Development Programme (UNDP). (2020). Human development report 2020. http://hdr.undp.org
- Government of India. (1950). Constitution of India. https://legislative.gov.in
- Ministry of Social Justice and Empowerment. (2023). Annual report 2022–23. https://socialjustice.gov.in
- Ministry of Law and Justice. (2016). Rights of Persons with Disabilities Act, 2016. https://legislative.gov.in
- Ministry of Home Affairs. (1989). Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act. https://www.indiacode.nic.in
- Ministry of Women and Child Development. (2005). Protection of Women from Domestic Violence Act, 2005. https://wcd.nic.in

Indian Journal of Business Administration (IJBA)
(A National Peer Reviewed Refereed Journal)
ISSN: 0975-6825, Volume 18, Issue 2, July-December 2025, pp. 09-18

EXPLORING TRADITIONAL HEALING PRACTICES AS DRIVERS OF SUSTAINABLE WELL-BEING AND STRESS REDUCTION

Dr. Vandana Yadav*
Ms. Sangeeta Yadav**

ABSTRACT:

Stress has become a critical public health and organisational challenge, affecting individuals across diverse cultural and occupational contexts. This study explores the role of traditional healing practices in stress reduction and their contribution to sustainable well-being. Findings reveal that most participants perceive traditional healing methods—such as Ayurveda, Yoga, meditation, and indigenous therapies—as more effective and culturally resonant than conventional approaches. Respondents emphasised that these practices provide holistic relief, foster resilience, and promote ecological and lifestyle harmony, thereby extending benefits beyond individual health to organisational vitality and societal sustainability. While challenges such as the need for professional guidance, standardisation, and integration with modern healthcare systems were acknowledged, the overall evidence suggests that traditional healing holds significant promise as a sustainable, culturally embedded strategy for managing stress. This study underscores the importance of structured implementation and evidence-based validation to maximise the potential of traditional healing in advancing both personal and collective well-being.

Keywords: Stress Reduction, Traditional Healing, Sustainable Well-being, Ayurveda, and Yoga.

INTRODUCTION

In recent decades, the global health discourse has increasingly recognised the value of traditional healing practices as complementary approaches to modern medicine. Rooted in indigenous knowledge systems, these practices—ranging from Ayurveda, Traditional Chinese Medicine, and herbal remedies to meditation, yoga, and ritual healing—offer holistic frameworks that emphasise balance between mind, body, spirit, and environment. Unlike conventional biomedical models that often focus narrowly on symptom management, traditional healing emphasises interconnectedness, prevention, and long-term resilience. Stress has emerged as one of the most pressing public health and organisational challenges of the 21st century, affecting individuals across diverse professions and cultures. Rapid globalisation, technological advancement, and shifting work environments have intensified psychological and physiological demands on employees, making stress a pervasive concern in both developed and developing nations. Scholars emphasise that unmanaged stress contributes not only to reduced productivity and job dissatisfaction but also to serious health outcomes such as cardiovascular disease, anxiety, and depression. The growing prevalence of stress-related disorders, anxiety, and burnout in contemporary societies has intensified interest in these practices as sustainable pathways to well-being. Stress, often described as the "health epidemic of the 21st century," demands solutions that extend beyond pharmacological interventions. Traditional healing modalities provide culturally embedded, low-cost, and ecologically sustainable strategies for stress reduction, such as mindfulness rituals, breathing techniques, plant-based therapies, and community-centred practices.

Moreover, the sustainability dimension of traditional healing lies not only in its reliance on natural resources but also in its promotion of lifestyle practices that foster harmony with the environment. By integrating ecological awareness, spiritual grounding, and social cohesion, these practices contribute to a more comprehensive understanding of health—one that aligns with global goals of sustainable development and mental well-being.

* Assistant Professor, Department of Business Administration, Jai Narain Vyas University, Jodhpur
** Research Scholar, Department of Business Administration, Jai Narain Vyas University, Jodhpur

This paper explores how traditional healing practices function as drivers of sustainable well-being and stress reduction. It examines their cultural significance, therapeutic mechanisms, and potential integration into modern health systems. By bridging ancient wisdom with contemporary challenges, the study highlights the transformative potential of traditional healing in cultivating resilience, reducing stress, and promoting holistic sustainability in human health.

REVIEW OF LITERATURE

Greenhaus & Parasuraman (2014) Researchers highlight the need for integrative paradigms to understand the links between stressors, stress, and strains across work and nonwork domains. Workplace demands such as workload and role ambiguity often spill into personal life, while nonwork responsibilities like caregiving can intensify occupational stress. This intersection of roles, explained through role theory, shows how competing demands and limited resources heighten strain. Literature documents the psychological, physical, and social consequences of work–nonwork stress, including burnout, health problems, and relationship conflict. To address these outcomes, organisational strategies such as flexible work arrangements and wellness programs, along with individual techniques like mindfulness and boundary-setting, have been proposed. Despite these efforts, scholars continue to call for future research that refines integrative frameworks and examines how evolving work structures reshape stress experiences. **Greenberg et al., (2002)** conceptualize stress as actual or perceived environmental changes that activate adaptive responses through neuronal and endocrine systems. Their work shows that acute stress prompts catecholamine release within the sympathetic and central nervous systems, while prolonged stressors engage the hypothalamic–pituitary–adrenal (HPA) axis in interaction with intrinsic rhythms. The literature further emphasises that an organism's appraisal of its coping capacity influences variability in stress responses, shaping affect, motivation, and cognition, and thereby altering relationships with social and environmental stimuli. Recent advances underscore the importance of examining how adaptive response patterns are assembled, how environmental stimuli modulate autonomic and neurohormonal reflexes, and how elements of the stress response become integrated into species' life cycles. **Longenecker et al., (2006)** highlight that careers in information technology (IT) are often associated with significant stress due to factors such as extended working hours, pressure to meet tight or arbitrary deadlines, and the challenge of keeping pace with rapidly evolving technologies and shifting consumer demands. The literature emphasises that workplace stress, while prevalent in IT professions, can be effectively managed and reduced when its underlying causes are clearly identified. Recognising these stressors is therefore considered a critical first step in developing both organisational and individual strategies for stress management and resilience among IT professionals. **Quick et al., (2014)** observe that careers in information technology (IT) are often accompanied by considerable stress, stemming from long working hours, pressure to meet arbitrary deadlines, and the challenge of keeping pace with rapidly changing technologies and consumer demands. The literature emphasizes that workplace stress, while common in IT professions, can be effectively managed when its underlying causes are identified. Recognizing these stressors is therefore regarded as a crucial step toward developing organizational strategies, such as workload regulation and supportive leadership, as well as individual approaches like time management and resilience-building, to reduce stress and enhance well-being among IT professionals. **Garcia (2025)** notes that organizations increasingly prioritize employee well-being in response to evolving work modes, particularly the rise of remote and hybrid arrangements. Research indicates that inclusive and sustainable workplace policies—such as flexible schedules, mental health support programs, and inclusive practices—significantly enhance employee satisfaction, productivity, and engagement. These approaches not only benefit individuals but also strengthen organizational viability and align with global Sustainable Development Goals, especially SDG 3 on health and well-being.

Supporting evidence from Madero-Gómez et al. (2023), Singh et al. (2019), and Abid et al. (2020) underscores the role of sustainable human resource management (HRM) practices in fostering employee well-being while minimising environmental impacts, creating mutual benefits for both employees and organisations. Literature further suggests that investments in well-being initiatives improve workplace culture, support long-term business success, and provide a competitive edge in the post-pandemic environment, positioning organizations for growth, innovation, and adaptability. **Helne & Hirvilammi (2015)** argue that although the concept of "sustainable development" has been central to political discourse for nearly three decades, genuine progress toward sustainability remains limited. Much of the literature reflects a bias toward economic dimensions, with dominant values failing to shift meaningfully. This weak interpretation of sustainability is rooted in a paradigm of human exceptionalism that overlooks the interdependence of ecological vitality and human well-being. Furthermore, well-being—the ultimate goal of sustainable development—has often been narrowly defined in economic terms. To address these limitations, Helne and Hirvilammi propose a relational, multifaceted, and needs-based conception of well-being that integrates ecological health with human flourishing. They contend that such a paradigm offers significant potential for advancing sustainability research and policy by reframing well-being as inseparable from ecological systems. **Ali et al., (2024)** investigated the relationship between burnout syndrome, occupational stress, and employee well-being among Saudi Arabian medical professionals. Their study examined the moderating role of wellness in clarifying how stress contributes to burnout, while also identifying key stressors and predictors of burnout to support staff health in alignment with organizational Sustainable Development Goals (SDGs). Using a diverse sample of 300 medical professionals selected through convenient random sampling, data were collected with standardized instruments such as the Employee Wellbeing Survey Questionnaire, Maslach Burnout Inventory, and Occupational Stress Index. Statistical analyses conducted through SPSS and AMOS revealed that occupational stress had a direct and significant impact on burnout, while emotional wellness moderated this relationship, reducing negative outcomes. The findings underscore the importance of managing workplace stress and burnout to enhance employee wellness and promote organizational sustainability. Tailored interventions that address specific stressors and burnout predictors are recommended to strengthen employee well-being and ensure long-term organizational growth. **Holman et al., (2018)** provide an overview of stress management interventions (SMIs) and review evidence regarding their impact on worker stress and well-being. They propose a typology that categorises SMIs by level—individual or organisational—and by focus, distinguishing between primary interventions aimed at altering sources of stress and secondary or tertiary interventions designed to reduce stress itself. Evidence is strongest for primary organisational-level SMIs, such as job redesign and adjustments to work schedules, and for secondary individual-level SMIs, including mindfulness training, cognitive-behavioural therapy, and relaxation techniques. Both approaches demonstrate significant effectiveness in reducing stress and enhancing well-being. However, the authors emphasize the need for more rigorous methodological designs, such as randomized controlled trials and comprehensive evaluations of intervention processes, as well as deeper insights into the contexts, populations, and long-term outcomes where SMIs are most effective. **Chaughule (2023)** emphasises that stress has become a pervasive health concern in modern society, affecting both mental and physical well-being. The literature highlights integrative approaches to stress reduction, combining physical therapy with Ayurvedic practices. Ayurveda offers individualized treatments such as *Shirodhara* (oil flow therapy), *Abhyanga* (oil massage), and herbal remedies designed to restore balance and calm the mind. Complementing these, physical therapy addresses the physiological manifestations of stress—such as muscle tension and poor

posture—through evidence-based techniques including diaphragmatic breathing, relaxation exercises, and therapeutic stretches. Together, these modalities provide a holistic framework for stress management, enhancing emotional resilience, improving quality of life, and demonstrating practical applications of traditional and modern healthcare systems in contemporary contexts. **Khumalo (2025)** highlights the growing prevalence of stress-related illnesses such as anxiety, depression, and psychosomatic disorders in contemporary society. The literature points to Ayurveda and Yoga—two complementary traditions rooted in Indian philosophy and science—as offering holistic strategies for managing these conditions. Integrative approaches combine Ayurvedic therapeutics, herbal remedies, and Rasāyana treatments with Yogic practices including pranayama, meditation, and asanas. Scholars emphasise that lifestyle regimens such as Din Acharya (daily routines) and Ritucharya (seasonal practices) further strengthen psychosomatic balance and mental resilience. Evidence suggests that when customised and professionally guided, these integrative methods hold significant promise for treating stress-related illnesses, offering a comprehensive framework for well-being that bridges traditional knowledge and modern healthcare. **Dev (2025)** examined the effectiveness of combining Ayurvedic herbal formulations with yoga practices in reducing stress and anxiety among adults. The study compared a control group receiving standard therapy with an intervention group that practiced daily yoga (including asanas, pranayama, and meditation) and consumed Ayurvedic herbs such as Brahmi, Ashwagandha, and Jatamansi over a 12-week period. Using outcome measures including serum cortisol, heart rate variability (HRV), the Hamilton Anxiety Rating Scale (HAM-A), and the Perceived Stress Scale (PSS), results demonstrated significant improvements in the intervention group, including reduced cortisol levels, enhanced HRV, and lower anxiety and stress scores. Participants also reported better sleep, improved focus, and greater emotional resilience. The findings suggest that integrative approaches combining yoga and Ayurveda are safe, effective, and complementary, supporting their incorporation into holistic healthcare strategies for stress and anxiety management. **Sharma (2013)** identifies stress as a major global public health concern and explores yoga as a potential strategy for stress reduction. Reviewing quantitative studies published between 2011 and May 2013 across multiple databases, the analysis included 17 studies conducted in diverse countries such as the United States, India, the United Kingdom, Australia, Brazil, Germany, Iraq, Sweden, and Taiwan. Findings revealed that twelve of these trials reported improvements in psychological or physiological outcomes related to stress, suggesting yoga's promise as an effective intervention. However, limitations such as small sample sizes, non-standardized interventions, varied durations, and the absence of randomized controlled designs in some studies highlight the need for more rigorous research. Overall, the literature positions yoga as a promising but still developing approach to stress management. **Nortje (2016)** highlights that traditional healers constitute a significant portion of the global mental health workforce, yet their effectiveness in treating psychological distress and mental illness remains underexplored. Reviewing 32 studies across 20 countries, the analysis found diverse outcomes, with some evidence suggesting that traditional healers can alleviate discomfort and improve minor symptoms of common mental disorders such as anxiety and depression. However, the literature indicates limited evidence of their impact on severe conditions like psychotic disorders and bipolar disorder. Nortje emphasises that qualitative changes—often overlooked by conventional rating scales—may be as important as quantitative outcomes. The review concludes by underscoring the methodological challenges in assessing traditional healers' effectiveness, while recognising their potential role as psychosocial resources in mental health care. **Johnson et al., (2024)** assessed the impact of an eight-week Mindfulness-Based Stress Reduction (MBSR) program on the mental health of college students. Using surveys administered before, during, and after the program, data from 90 participants were analysed through pairwise comparisons and repeated measures ANOVA, while thematic analysis of open-ended responses from 115 students provided qualitative insights. Results indicated significant improvements in psychological distress, perceived stress, mindfulness, and life satisfaction from pre- to post-program,

with the exception of satisfaction with life, which showed no notable change. Participants reported high levels of program satisfaction, though busy schedules were identified as barriers, while program structure, perceived benefits, and group settings facilitated engagement. Overall, the findings support MBSR as an effective group-based public health intervention for enhancing student mental health and fostering supportive campus environments.

CONCEPTUAL FRAMEWORK
Traditional Healing, Stress Reduction, and Sustainable Well-Being

This framework highlights the multidimensional pathways through which these practices contribute to holistic health.

1. Core Dimensions of Traditional Healing

- **Holistic Health Orientation**: Focus on mind–body–spirit balance rather than isolated symptoms.
- **Community and Cultural Embeddedness**: Practices are rooted in collective rituals, social support, and cultural identity.
- **Ecological Sustainability**: Reliance on natural resources (herbs, plants, rituals tied to seasons) promotes environmental harmony.

2. Mechanisms of Stress Reduction

- **Physiological Regulation**: Techniques like yoga, meditation, and breathing exercises reduce cortisol levels and improve autonomic balance.
- **Psychological Resilience**: Rituals, storytelling, and spiritual practices foster meaning-making and emotional regulation.
- **Social Cohesion**: Community-based healing strengthens belonging, reducing isolation and stress.

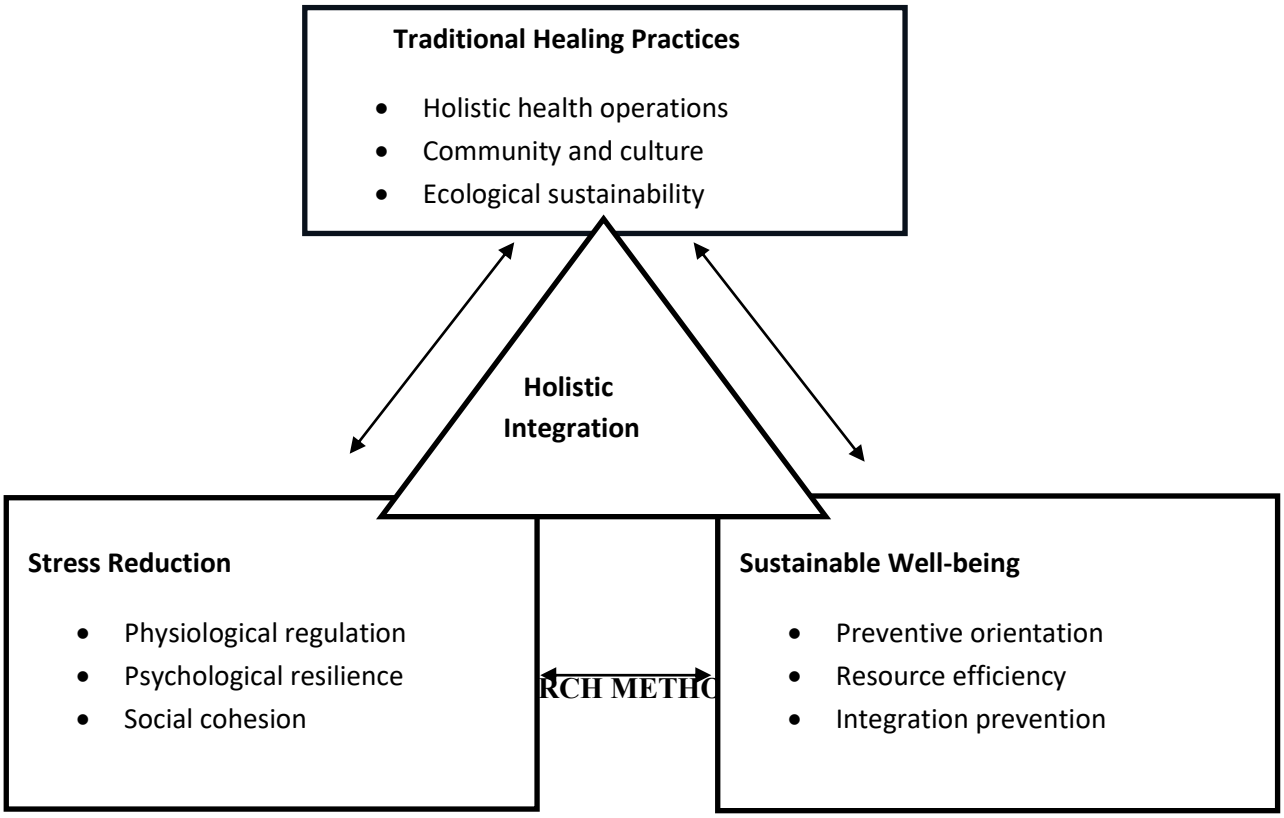
3. Pathways to Sustainable Well-Being

- **Preventive Orientation**: Emphasis on lifestyle practices (diet, mindfulness, seasonal routines) reduces long-term health risks.
- **Resource Efficiency**: Use of locally available, renewable resources minimises ecological footprint.
- **Integration Potential**: When combined with modern medicine, traditional healing enhances accessibility and cultural sensitivity in healthcare.

4. Theoretical Linkages

This framework can be visualised as a **triangular model**:

- **Traditional Healing Practices** at the base, feeding into both **Stress Reduction** and **Sustainable Well-Being**.
- The two outcomes reinforce each other—stress reduction enhances well-being, while sustainable well-being provides resilience against future stress.
- At the centre lies **Holistic Integration**, where traditional and modern systems converge to create culturally relevant, ecologically sustainable health solutions.
- This conceptual framework provides a strong backbone for this paper, showing how traditional healing is not just an "alternative" but a **driver of systemic resilience**.



To investigate how traditional healing practices contribute to sustainable well-being and stress reduction, this study adopts a qualitative research design. This approach allows for deep exploration of lived experiences, cultural meanings, and contextual factors that shape healing practices and their perceived effectiveness.

1. Research Design

A **phenomenological approach** is used to understand how individuals experience traditional healing in relation to stress and well-being. This design is ideal for capturing subjective interpretations and emotional responses to healing rituals, therapies, and community practices.

2. Data Collection Methods

- **Semi-Structured Interviews**: Conducted with traditional healers, practitioners of yoga and meditation, and individuals who regularly engage in traditional healing. Questions will explore motivations, perceived benefits, cultural significance, and sustainability aspects.
- **Focus Groups**: Organised among community members to discuss collective healing practices, stress management strategies, and intergenerational knowledge transmission.
- **Participant Observation**: Researchers will attend healing sessions, rituals, and community gatherings to observe practices in their natural settings. Field notes will capture sensory, emotional, and social dynamics.
- **Document Analysis**: Review of cultural texts, healing manuals, and local health records to contextualise practices historically and socially.

3. Sampling Strategy

- **Purposive Sampling**: Participants will be selected based on their engagement with traditional healing (e.g., healers, long-term practitioners, community elders).
- **Diverse Contexts**: Sampling will include urban and rural settings to capture variations in practice and accessibility.

4. Data Analysis

- **Thematic Analysis**: Transcripts and field notes will be coded to identify recurring themes such as stress relief mechanisms, ecological values, and integration with modern health systems.
- **Narrative Analysis**: Personal stories will be examined to understand how individuals construct meaning around healing and resilience.

5. Ethical Considerations

- Informed consent will be obtained from all participants.
- Cultural sensitivity will be prioritised, especially when engaging with sacred or ritual practices.
- Anonymity and confidentiality will be maintained throughout the study.

This qualitative methodology provides a rich, nuanced understanding of traditional healing as a lived experience and a sustainable health strategy. It complements the conceptual framework by grounding theoretical insights in real-world narratives and practices.

FINDINGS

1. Perceived Effectiveness of Traditional Healing

The majority of respondents expressed strong confidence in traditional healing practices as effective strategies for stress reduction. Participants consistently reported that methods such as Ayurveda, Yoga, meditation, and indigenous therapies provided holistic relief by addressing both psychological and physiological dimensions of stress. Unlike conventional biomedical approaches, which were often perceived as symptom-focused, traditional healing was seen as tackling the root causes of stress through lifestyle regulation, mind-body integration, and natural remedies. Respondents highlighted that these practices offered sustained benefits, including improved emotional resilience, better sleep quality, and enhanced focus, rather than temporary relief.

2. Cultural Relevance and Acceptance

A significant theme emerging from the data was the cultural resonance of traditional healing. Many participants emphasized that these practices were deeply embedded in community traditions and personal belief systems, which enhanced trust and accessibility. Respondents noted that the familiarity of rituals such as pranayama, asanas, and Ayurvedic regimens made them more acceptable and easier to adopt compared to unfamiliar Western stress management techniques. This cultural embeddedness was perceived as a critical factor in ensuring long-term adherence and effectiveness, as individuals felt a sense of identity and belonging when engaging with traditional practices.

3. Link to Sustainable Well-Being

Participants consistently associated traditional healing with sustainable well-being. They emphasised that these practices encourage balance between ecological health and human flourishing, aligning with broader sustainability goals. Respondents noted that traditional healing methods are environmentally conscious, relying on natural remedies and lifestyle adjustments rather than resource-intensive medical interventions. This perspective reflects a relational paradigm where well-being is inseparable from ecological vitality, echoing the Sustainable Development Goals (SDG 3: Health and Well-Being). Participants believed that adopting traditional healing not only reduces stress but also fosters harmony with nature, thereby contributing to both personal resilience and collective sustainability.

4. Drivers of Organizational and Societal Vitality

Beyond individual benefits, respondents highlighted the potential of traditional healing practices to strengthen organizational and societal outcomes. Many participants suggested that integrating these approaches into workplace wellness programs could reduce burnout, enhance productivity, and improve organisational culture. At the societal level, traditional healing was viewed as a resource for promoting inclusive and sustainable communities. Respondents connected these practices to long-term organizational growth, innovation, and adaptability, arguing that they provide a competitive edge in addressing post-pandemic challenges.

5. Emerging Challenges and Considerations

While the majority favoured traditional healing, some respondents acknowledged challenges that must be addressed for effective implementation. Concerns included the need for professional guidance to ensure safe and appropriate use, the lack of standardised protocols across practices, and the difficulty of integrating traditional healing with modern healthcare systems. Participants emphasised that without proper regulation and evidence-based validation, the benefits of traditional healing may be unevenly realised. These considerations highlight the importance of structured implementation, professional training, and ongoing research to maximise the effectiveness of traditional healing practices in stress reduction and sustainable well-being.

DISCUSSION

The findings of this study indicate that participants overwhelmingly view traditional healing practices as more suitable for managing stress and as essential drivers of sustainable well-being. Respondents emphasised that these practices provide holistic relief, addressing both the psychological and physical dimensions of stress while fostering long-term resilience. Their cultural familiarity and accessibility were seen as critical factors that enhance trust and adherence, making them more acceptable than conventional stress management techniques. Participants also highlighted the ecological and lifestyle harmony embedded in traditional healing, linking it to sustainable well-being that extends beyond individual health to collective and organisational vitality. At the workplace level, these practices were perceived as capable of reducing burnout, improving productivity, and strengthening wellness culture. At the societal level, they were seen as contributing to inclusive and sustainable communities. However, participants also acknowledged challenges such as the need for professional guidance, standardisation, and integration with modern healthcare systems, underscoring the importance of structured implementation to maximise benefits. Overall, the discussion suggests that traditional healing practices hold significant promise as culturally resonant, sustainable, and effective approaches to stress reduction, provided they are carefully adapted and professionally directed.

CONCLUSION

This study highlights the strong preference among participants for traditional healing practices as effective strategies for stress reduction and as vital drivers of sustainable well-being. The findings suggest that such practices are valued not only for their ability to alleviate immediate symptoms of stress but also for their holistic impact on long-term resilience, emotional balance, and lifestyle harmony. Their cultural familiarity and ecological sensitivity further enhance their relevance, making them accessible, trusted, and aligned with broader sustainability goals. Importantly, participants recognised that traditional healing can extend beyond individual health to strengthen organisational wellness programs and contribute to inclusive, sustainable communities.

At the same time, challenges such as the need for professional guidance, standardisation, and integration with modern healthcare systems underscore the importance of structured implementation. Addressing these concerns through evidence-based validation and policy support will be critical to maximising the benefits of traditional healing. Overall, the study concludes that traditional healing practices, when carefully adapted and professionally directed, hold significant promise as culturally resonant, sustainable, and effective approaches to stress management, offering pathways toward healthier individuals, resilient organisations, and sustainable societies.

FUTURE RESEARCH DIRECTION

While this study highlights the promise of traditional healing practices in reducing stress and fostering sustainable well-being, several areas warrant further exploration. First, future research should employ more rigorous methodological designs, such as randomised controlled trials and longitudinal studies, to strengthen the evidence base and assess long-term outcomes. Second, comparative studies across diverse cultural and occupational contexts would help clarify how traditional healing practices can be adapted to different populations while maintaining effectiveness. Third, workplace-based intervention models should be developed and tested to evaluate how traditional healing can be integrated into organisational wellness programs, particularly in high-stress sectors such as healthcare, education, and information technology. Fourth, interdisciplinary research combining psychology, medicine, and sustainability studies could provide deeper insights into the ecological and social dimensions of traditional healing, linking individual well-being with collective resilience. Finally, policy-oriented studies are needed to examine how traditional healing can be standardised, regulated, and incorporated into public health frameworks, ensuring accessibility, safety, and scalability. Addressing these directions will not only validate traditional healing practices but also position them as integral components of sustainable health and well-being strategies.

REFRENCES

- Ali, N., Junaidi, M. H., & Allam, Z. (2024). Managing Occupational Stress and Burnout in Achieving Employee Wellbeing as Prerequisite for Sustainable Development of Organization. *Pakistan Journal of Life & Social Sciences*, *22*(2).
- Benvenutti, M. J., da Sliva Alves, E., Michael, S., Ding, D., Stamatakis, E., & Edwards, K. M. (2017). A single session of hatha yoga improves stress reactivity and recovery after an acute psychological stress task—A counterbalanced, randomized-crossover trial in healthy individuals. *Complementary therapies in medicine*, *35*, 120-126.
- Carpenter, J. K., Sanford, J., & Hofmann, S. G. (2019). The effect of a brief mindfulness training on distress tolerance and stress reactivity. *Behavior therapy*, *50*(3), 630-645.
- Chaughule, S. (2023). Stress Relief: Balancing the Mind and Body with Ayurveda and Physical Therapy. *Journal of Medicine and Healthcare. SRC-JMHC-E104. DOI: doi. org/10.47363/JMHC/2023 (5) E104 J Med Healthcare*, *5*(3), 2-4.
- Deshpande, A. G., Johnson, J. R., Casta, A. M., Marien, M. S., & Reiff, M. (2024). The impact of a mindfulness-based stress reduction program on university students' mental health: A mixed-methods evaluation. *Journal of american college HealtH*, *72*(9), 3791-3801.
- Dev, K. (2025). Ayurvedic and Yogic Interventions for Stress and Anxiety: A Holistic Therapeutic Approach. *Journal of Ayurveda, Yoga, Unani, Siddha & Homeopathy Research p-ISSN 3117-5171 e-ISSN 3117-518X*, *1*(01), 36-44.

- Garcia, A. G. (2025). The impact of sustainable practices on employee well-being and organizational success. *Brazilian Journal of Development*, *11*(3), e78599-e78599.
- Goleman, D. J., & Schwartz, G. E. (2017). Meditation as an intervention in stress reactivity. In *Meditation* (pp. 77-88). Routledge.
- Greenberg, N., Carr, J. A., & Summers, C. H. (2002). Causes and consequences of stress. *Integrative and Comparative Biology*, *42*(3), 508-516.
- Greenhaus, J. H., & Parasuraman, S. (2014). A work-nonwork interactive perspective of stress and its consequences. In *Job Stress* (pp. 37-60). Routledge.
- Gupta, A., Kadyan, V., & Telles, S. (2024). Investigating the Psychological Outcomes Through Yoga for Stress Reduction Using Machine Learning and Statistical Techniques. *SN Computer Science*, *5*(8), 1173.
- Helne, T., & Hirvilammi, T. (2015). Wellbeing and sustainability: A relational approach. *Sustainable Development*, *23*(3), 167-175.
- Holman, D., Johnson, S., & O'Connor, E. (2018). Stress management interventions: Improving subjective psychological well-being in the workplace. In *Handbook of well-being*. DEF publishers.
- Juhász, Á., Sebestyén, N., Árva, D., Barta, V., Pártos, K., Vokó, Z., & Rákosy, Z. (2024). We need better ways to help students avoid the harms of stress: Results of a meta-analysis on the effectiveness of school-based stress management interventions. *Journal of School Psychology*, *106*, 101352.
- Khumalo, N. (2025). Ayurvedic and yogic interventions for stress-related disorders: A review. *Journal of Swasthavritta and Yoga*, *2*(1), 18-24.
- Longenecker, C. O., Schaffer, C. J., & Scazzero, J. A. (1999). Causes and consequences of stress in the IT profession. *Information Systems Management*, *16*, 71-77.
- Nortje, G., Oladeji, B., Gureje, O., & Seedat, S. (2016). Effectiveness of traditional healers in treating mental disorders: a systematic review. *The Lancet Psychiatry*, *3*(2), 154-170.
- Quick, J. D., Horn, R. S., & Quick, J. C. (2014). Health consequences of stress. In *Job Stress* (pp. 19-36). Routledge.
- Raguram, R., Venkateswaran, A., Ramakrishna, J., & Weiss, M. G. (2002). Traditional community resources for mental health: a report of temple healing from India. *Bmj*, *325*(7354), 38-40.
- Sharma, M. (2014). Yoga as an alternative and complementary approach for stress management: a systematic review. *Journal of evidence-based complementary & alternative medicine*, *19*(1), 59-67.
- Singh, S., Soman, B., Thatoju, P. K., Mallya, S. D., Dhyani, V. S., Shetty, R. S., ... & Kaur, H. (2025). Traditional Healing and Health Care Practices Among Tribal Healers in India: A Scoping Review Protocol. *Journal of Racial and Ethnic Health Disparities*, 1-6.
- Sudhan, P., & Parveen, S. J. (2025). Stress Management in Higher Education: The Role of On-line Yoga and Digital Learning. *Journal of Lifestyle and SDGs Review*, *5*(1), e03889-e03889.

Indian Journal of Business Administration (IJBA)
(A National Peer Reviewed Refereed Journal)
ISSN: 0975-6825, Volume 18, Issue 2, July-December 2025, pp. 19-31

A STUDY OF ARTIFICIAL INTELLIGENCE (AI) IN HUMAN RESOURCE MANAGEMENT

Dr. Ashok Kumar*
Dr. Nisha Sankhla**

ABSTRACT:

In present digital era the Artificial Intelligence (AI) rapidly changed the all dimensions of human life. When we think about the workplaces and working culture transformation through AI, we absorbed that it has significantly transformed from traditional practices of Human Resource Management (HRM) processes to modern practices of Human Resource Management through AI and we all are the evidence of this drastic change in the HRM practices because the Artificial Intelligence (AI) is reshaping Human Resource Management (HRM) far beyond simple automation. It is transforming the entire HR value chain from recruitment and on boarding to employee engagement, training, performance evaluation, retention to superannuation. This conceptual paper examines how AI is enhancing HR functions such as recruitment, learning and development, employee engagement, workforce planning, Talent management and making them more intelligent and data-driven. AI applications have enabled decision-making to become predictive, personalized and highly efficient. The paper also addresses key challenges and ethical considerations associated with AI adoption, including data privacy, algorithmic bias, transparency and workforce reskilling.

As with the help of few Case studies and real world examples including LinkedIn Talent Insights, IBM Watson, HireVue and chatbot based HR tools illustrate how AI is positioning HR as a strategic and human centric partner. Looking ahead the concept of Augmented HR and human AI collaboration is expected to further transform HR practices; however, maintaining a balance between technology and human touch will remain critical. This paper serves as a guide for HR professionals and researchers to understand the practical applications, challenges and strategic implications of Artificial Intelligence in Human Resource Management practices.

Keywords: *Artificial Intelligence, Learning and Development, Employee Engagement, Predictive HR, Augmented HR*

INTRODUCTION

Artificial Intelligence is commonly known as AI and this term has become one of the most revolutionary technologies term of the digital age. In simple words Artificial Intelligence is a technique that enables machines and computer systems to think, learn and make decisions similar to the human brain. In other words when a machine can analyze data and independently decide what is right or wrong that process is called Artificial Intelligence. The fundamental concept behind AI is to "empower machines with human-like intelligence." It involves algorithms, neural networks and deep learning models that learn from past data to make predictions for the future. For example when we use voice assistants like Siri or Alexa on our smart phones they represent a form of AI that understands human language and provides appropriate responses.

* Assistant Professor, Department of Business Administration, Jai Narain Vyas University, Jodhpur
** Guest Faculty, Department of Business Administration, Jai Narain Vyas University, Jodhpur

HISTORICAL EVOLUTION OF AI AND ITS INTEGRATION INTO BUSINESS FUNCTIONS

The concept of AI is not new because its theoretical foundation was laid in the 1950s when Alan Turing raised the question, "Can machines think ?" Later in 1956, during the Dartmouth Conference the term "Artificial Intelligence" was officially introduced. Initially, AI's application was limited to mathematical computations and basic automation. During the 1980s and 1990s with the growth of computing power and AI began to enter the business world. In the early stages AI was primarily used in manufacturing and robotics, but now it has expanded into fields such as finance, marketing, healthcare, education, research and Human Resource Management (HRM). The integration of AI into business functions has completely transformed the working style of business and organizations. AI tools now perform tasks such as data analysis, customer support, risk management and forecasting. With the help of Machine Learning (ML) and predictive analytics the companies can now predict market trends and customer behaviour with greater accuracy. As a result the business decision-making has become faster, more precise and data-driven.

EMERGENCE OF AI IN HUMAN RESOURCE MANAGEMENT

Human Resource Management has traditionally been a human-centric function involving manual processes like recruitment, training, appraisal and employee retention. However, as the size of the workforce and the amount of data increased, it became increasingly difficult for HR professionals to monitor every employee effectively. At this point, AI emerged as a powerful tool. It brought digital transformation across every HR function including recruitment, on boarding, performance evaluation and employee engagement. Today, HR departments use AI-based analytics tools, chatbots and predictive models which provide real-time insights and automate repetitive tasks. For instance the AI systems can now scan thousands of resumes to shortlist the best candidates, personalize training modules and analyze employee satisfaction to suggest retention strategies. This means the HR function is no longer limited to administrative tasks but has evolved into a strategic decision-making partner within the organization.

OBJECTIVES AND SCOPE OF AI ADOPTION IN HR

The main objective of adopting AI in HR is to make human resource functions more efficient, transparent and data-driven. Some major objectives include:

1. **Enhancing efficiency:** Automating manual tasks such as payroll, attendance and data entry.
2. **Reducing bias:** Minimizing human bias in recruitment and performance evaluation.
3. **Improving decision accuracy:** Using analytics to make evidence-based HR decisions.
4. **Enhancing employee experience:** Offering personalized support and engagement through AI tools.
5. **Strategic HR planning:** Using predictive analytics to forecast workforce trends and manage talent effectively.

The scope of AI in HR is vast. HR departments are no longer limited to hiring and salary administration only, now they have become strategic partners contributing actively to the organization's growth, innovation and culture-building.

OVERVIEW OF THE PAPER

This Paper explores how Artificial Intelligence is transforming traditional Human Resource Management functions. The upcoming sections discuss as:

- The role of AI in various HR processes,
- Applications of AI in recruitment, training and performance management,
- Benefits and ethical challenges of AI adoption and

Real-world examples and case studies demonstrating AI's practical impact in organizations.
In essence the AI is not merely a technology but a new mindset and digital revolution for HRM, so it is more than that where human judgment and machine intelligence come together to create a smarter, faster and fairer workplace.

REVIEW OF LITERATURE

Ranjai Meshram, (2023) discussed that AI can significantly enhance the recruitment process by proper streamlining the candidate's evaluation and improving connections with potential employees for better workplace. The results indicate a major alliance between AI implementation and improved candidate sourcing, reduced ambiguity, and enhanced workforce planning in organizations, reinforcing the value of AI in modern HR practices.

Rastogi & Pandya, (2023) focused on the potential of AI in promoting sustainable and green HR practices. They also analyzed how AI can identify energy consumption patterns and facilitate energy management. They concluded that while challenges exist, embracing AI opportunities can lead to a greener future, improved organizational performance and sustainable HR practices.

Vikas, Tomer, & Panwar, (2023) determined that AI-enhanced analysis can improve efficiency, scalability, and decision quality in the recruitment process. Their research focused on how AI can help identify and address biases through analyzing interview data more comprehensively, promoting fair and inclusive hiring practices while considering ethical issues like privacy and security.

Saxena, (2020) observed that AI has progressively transformed core HR processes such as recruitment, onboarding, training, and employee engagement by streamlining operations, reducing manual efforts, and enhancing decision accuracy. The research concluded that HR professionals need to adapt to technological changes brought by AI despite challenges including reliance on data accuracy and resistance to change.

Yawalkar,(2019) documented how organizations like SAT, Facebook and GE are utilizing digital technologies to enhance HR functions, with AI tools improving efficiency, reducing administrative workloads and speeding up candidate selection. The research concluded that while AI offers significant benefits, successful implementation requires overcoming challenges related to technology integration and maintaining the human element in HR roles.

Tambe, Cappelli, & Yakubovich, (2018) found that many companies are unprepared to utilize AI effectively due to data limitations or ethical concerns. The authors concluded that successful AI integration into HR management requires organizations to adopt principles that prioritize both economic efficiency and social appropriateness, combining technical solutions with ethical strategies to maintain fairness and employee trust.

THE ROLE OF AI IN HUMAN RESOURCE MANAGEMENT

Artificial Intelligence has completely transformed the functioning of Human Resource Management (HRM). Earlier, traditional HR processes such as recruitment, training, appraisal and record maintenance were manual and time consuming. However with the integration of AI, these tasks have become digital, automated and data driven. AI acts as a decision support system that empowers HR professionals by providing them with accurate data and analytical insights. This enables them to make better and more unbiased decisions. Thus, HR is no longer confined to administrative support but has evolved into a strategic partner of the organization.

FROM TRADITIONAL HR TO INTELLIGENT HR SYSTEMS

Traditional HR systems relied heavily on human judgment and manual data handling, which often led to bias, delays, and errors. AI has provided an effective solution to these challenges. Today, AI-enabled HR software supports every stage of the employee lifecycle from recruitment to retirement. For example, in recruitment the AI analyzes candidate data and shortlists profiles; in performance evaluation, it provides real time analytics and in employee engagement, it uses predictive models to assess satisfaction levels. By automating repetitive tasks, AI frees HR professionals to focus on strategic and creative functions that add greater value to the organization.

DECISION-MAKING AND PREDICTIVE CAPABILITIES

One of the most significant roles of AI in HR is its predictive decision-making capability. Through machine learning and data analytics AI can analyze historical data to predict future outcomes. For instance based on an employee's performance and attendance data an AI system can predict who is likely to resign or who deserves the next promotion. This helps HR professionals take timely action such as implementing retention strategies, planning leadership training or restructuring the workforce. In recruitment the predictive algorithms assess candidate suitability based on behaviour, communication and skill test results, thereby improving hiring accuracy.

ENHANCING EFFICIENCY AND REDUCING HUMAN BIAS

AI tools automate repetitive and time consuming HR tasks such as resume screening, payroll processing, attendance monitoring and employee query handling. This not only saves time but also reduces errors. Another major benefit of AI is bias reduction**.** Traditional hiring processes are prone to unconscious human bias but AI based evaluation ensures objectivity and fairness. For example AI shortlists candidates purely based on their skills, qualifications and experience and not on their gender, age or ethnicity which definitely ensuring a more inclusive hiring process.

DATA ANALYTICS AND REAL TIME INSIGHTS

AI provides HR departments with real time data analytics and insights. Using these tools the HR leaders can visualize employee performance, satisfaction and productivity patterns. AI powered dashboards and analytical reports help HR make fact based decisions. For instance if a department shows a drop in performance, AI can identify the issue as whether it is due to workload, lack of engagement or leadership issues.

TRANSFORMING HR INTO A STRATEGIC FUNCTION

With AI integration the HR has transformed into a strategic function rather than a purely operational one. HR professionals are now active contributors to long term business planning. Through AI the HR leaders can make informed decisions on talent acquisition strategies, skill-gap analysis and workforce planning. In short AI has made HR a perfect blend of human empathy and technological intelligence. HR departments are now not just administrative support systems but crucial drivers of organizational growth and success.

KEY AREAS OF AI APPLICATION IN HRM

Artificial Intelligence (AI) is reshaping Human Resource Management (HRM) far beyond simple automation. It is transforming the entire HR value chain from recruitment and on boarding to employee engagement, training, performance evaluation and retention. This section explores the major areas where AI has made its most significant contributions to HR practices and strategy.

RECRUITMENT AND TALENT ACQUISITION

Recruitment is one of the first and most visible areas where AI has made a major impact. In the past, hiring was largely manual and time-consuming HR professionals had to screen thousands of resumes, schedule interviews, and handle candidate communication, often leading to delays and human bias. AI has turned this into a smart recruitment process by automating screening, matching, and evaluation.

- **Resume Screening:** AI uses Natural Language Processing (NLP) and keyword analysis to scan resumes, identify relevant skills, and shortlist candidates who best match the job description.
- **Chatbots for Initial Screening:** AI-powered chatbots conduct preliminary conversations with candidates, assessing their skills, experience, and availability. This speeds up hiring and reduces bias.
- **Predictive Hiring:** Machine learning models analyze candidates' past performance, behavioural data, and online presence to predict their potential success and retention in the organization.

These innovations enable HR teams to focus on quality hiring, reducing time to hire and improving the overall candidate experience.

ON BOARDING AND ORIENTATION

AI enhances the on boarding process by making it more efficient, interactive and personalized. When a new employee joins, AI based virtual assistants guide them through company policies, role expectations and administrative procedures. For example, IBM's Watson assists new employees by answering FAQs, providing workflow guidance and suggesting training materials relevant to their job profile.

AI driven on boarding ensures that:-

- Manual paperwork is minimized.
- Queries are resolved in real time.
- New employees integrate smoothly into the organization's culture.

This results in improved employee satisfaction and faster adaptation to the new workplace environment.

TRAINING AND DEVELOPMENT

AI has revolutionized employee learning and development by introducing personalized learning systems. Traditional "one size fits all" training programs are being replaced by adaptive learning experiences powered by AI. This tool analyzes employee performance data, learning pace and skill gaps to design customized learning paths.

Examples are as mentioned:

- **Platforms like Coursera, EdX, and Udemy**, which use AI to recommend courses based on users' learning behavior.
- **AI-based Learning Management Systems (LMS)** that track employees' progress and suggest microlearning modules aligned with their career goals.

Additionally, technologies such as Virtual Reality (VR) and Augmented Reality (AR), integrated with AI are providing immersive and interactive training experiences in areas like leadership development, safety management and sales training.

PERFORMANCE MANAGEMENT AND APPRAISAL

Performance evaluation is a critical HR function that often suffers from subjectivity and bias. AI helps overcome these issues by making the process data-driven, transparent and continuous. AI tools collect and analyze performance metrics, attendance records and peer feedback to evaluate employee effectiveness objectively.

Key advantages include:

- **Real time feedback:** AI systems track performance continuously and provide instant feedback to employees.
- **Bias reduction:** Automated analysis reduces personal and unconscious bias in appraisals.
- **Continuous evaluation:** Unlike traditional annual appraisals, AI supports ongoing performance monitoring for timely improvement.

Tools such as Better Works and 15Five have integrated AI based analytics to facilitate continuous feedback and goal tracking, promoting a culture of accountability and improvement.

EMPLOYEE ENGAGEMENT AND SATISFACTION

Employee engagement is a vital determinant of productivity and retention. AI empowers HR professionals to understand and enhance engagement through sentiment analysis and predictive insights.

- **Sentiment Analysis:** AI analyzes communication data as emails, chat messages, or survey responses to gauge employee mood, satisfaction, and emotional tone.
- **Virtual HR Assistants:** Chatbots like "Amber" and "Leena AI" interact with employees regularly, addressing queries, collecting feedback and monitoring satisfaction levels.
- **Predictive Engagement:** AI models can predict which employees are likely to become disengaged or leave, allowing HR to intervene proactively.

This real time personalized approach has transformed employee engagement from a reactive process to a strategic, data informed initiative.

PAYROLL MANAGEMENT AND HR OPERATIONS

Payroll processing and administrative HR tasks have traditionally been time consuming and prone to human error. AI has automated these operations, ensuring greater accuracy, efficiency and compliance. AI systems automatically calculate salaries, manage deductions, track attendance and process reimbursements.

For example:

- **ADP Workforce Now** and **Workday HCM** use AI to process payroll efficiently while minimizing errors.
- Biometric attendance and facial recognition systems provide secure and real time attendance tracking.

Automation of routine tasks allows HR professionals to shift their focus from operational work to more strategic and developmental roles.

WORKFORCE PLANNING AND ANALYTICS

AI supports strategic workforce planning by analyzing vast amounts of historical and real-time employee data. Using predictive analytics, HR can anticipate future workforce needs, identify potential skill shortages and optimize manpower utilization.

AI driven workforce analytics can help determine:

- Which skills will be in demand in the future?
- Which departments face higher attrition risks?
- Which employees have the potential for leadership roles?

Platforms like SAP Success Factors and Oracle HCM Cloud leverage AI analytics to help HR leaders make evidence-based talent management and planning decisions.

EMPLOYEE RETENTION AND TURNOVER PREDICTION

Retaining skilled employees is a major challenge for organizations. AI tools analyze employee behaviour, engagement levels and performance data to predict turnover risks. Machine learning algorithms identify patterns that indicate dissatisfaction, such as decreased productivity, low engagement or irregular attendance. Based on these insights the HR can design personalized retention strategies such as career development opportunities, targeted rewards or flexible work arrangements to prevent attrition and strengthen employee loyalty.

DIVERSITY, EQUITY, AND INCLUSION (DEI)

Diversity and inclusion have become critical to organizational success. AI assists HR in promoting fairness and equity by identifying and reducing bias in recruitment, promotion and compensation decisions. AI powered analytics track diversity metrics such as gender ratio, pay equity and inclusion scores, helping HR leaders implement data backed DEI policies. By ensuring unbiased recruitment and transparent reporting, AI strengthens organizational culture and enhances brand reputation as an inclusive employer.

HR CHATBOTS AND VIRTUAL ASSISTANTS

AI-based HR chatbots have become an integral part of modern HR departments. These virtual assistants handle employees' routine queries such as leave balance, payroll status and policy details @ 24/7 without human intervention. Examples include Leena AI, Talla and Mya, which streamline HR communication, reduce response times and improve employee experience. These chatbots also collect valuable data on employee concerns, which HR can analyze to improve internal policies and services.

PREDICTIVE HR ANALYTICS FOR STRATEGIC DECISION-MAKING

AI driven predictive analytics enable HR departments to play a strategic role in business decision-making. By analyzing workforce data, AI can predict hiring demands, performance trends and training requirements. For example, if the AI system identifies an emerging skill gap in the sales team, HR can proactively design upskilling programs to address it. Predictive analytics turns HR from a reactive administrative function into a proactive strategicpartner that anticipates challenges and drives organizational growth.

ETHICAL AND RESPONSIBLE AI IN HR

As AI becomes deeply embedded in HR operations, ethical considerations have gained importance. Issues like data privacy, algorithmic bias and lack of transparency pose serious challenges. Responsible AI in HR means using technology that is fair, explainable and accountable. Organizations must ensure that:-

- AI decisions are subject to human oversight.
- Employee data is securely managed and protected.
- Bias detection and correction systems are implemented.

When AI used ethically, it can offer sustainable and equitable growth for both organizations and employees. Artificial Intelligence has redefined the landscape of Human Resource Management. From recruitment to retention the AI has made HR processes more efficient, fair and strategic. By integrating data analytics, automation and intelligent decision-making, organizations can now create a more transparent, inclusive and growth oriented HR environment. In essence that AI is not replacing humans in HR as it is augmenting human intelligence to create smarter, faster and more humane workplaces.

BENEFITS OF ARTIFICIAL INTELLIGENCE IN HRM

Artificial Intelligence (AI) has transformed Human Resource Management (HRM) into a modern data-driven system. While it offers remarkable advantages such as efficiency and accuracy, it also presents challenges related to ethics, privacy and human touch.

(a) Efficiency and Time Saving:- AI automates repetitive and routine tasks such as payroll processing, attendance tracking and data entry. This allows HR professionals to focus on strategic roles like workforce development and employee engagement. For example, AI-based payroll systems like *Workday* and *ADP Workforce Now* process thousands of salary records in seconds with minimal errors.

(b) Data-Driven Decision Making:- AI enables real-time analytics that support accurate and evidence-based HR decisions. In recruitment, training and performance appraisal, AI insights are more reliable than traditional intuition based decisions.

(c) Reduction in Human Bias:- Human bias is often unintentional but affects hiring and promotions. AI algorithms analyze objective data, minimizing discrimination based on gender, age or ethnicity. This promotes fairness and diversity in the workplace.

(d) Personalized Employee Experience:- AI analyzes individual preferences, performance and learning patterns to offer customized experiences. Employees receive personalized training recommendations, instant chatbot assistance and tailored feedback enhancing their overall engagement and satisfaction.

(e) Predictive HR Analytics:- AI uses predictive models to identify workforce trends and potential risks. For instance, if AI detects high turnover in a department, HR can proactively design retention strategies. This predictive capability helps in preventing crises rather than reacting to them.

(f) Cost Reduction and Productivity Enhancement:- Automation reduces operational costs by eliminating manual errors and speeding up processes. Enhanced productivity and smarter workforce planning contribute to better profitability.

(g) Strategic Role of HR:- AI empowers HR to act as a strategic partner in business. Through data insights the HR professionals now play an active role in achieving organizational goals from optimizing talent acquisition to improving productivity and culture.

CHALLENGES OF ARTIFICIAL INTELLIGENCE IN HRM

As with the numerous benefits of AI, there is also reversal challenges in HRM practices will also keep in mind as mentioned:-

(a) Data Privacy and Security Issues:- AI systems collect large volumes of employee data, raising concerns about confidentiality and misuse. Organizations must follow data protection regulations such as GDPR and implement strong cybersecurity measures.

(b) Algorithmic Bias and Fairness:- AI models can inherit bias from historical data.For example, if past hiring data reflects discrimination, the AI system may unintentionally replicate it. This makes algorithm auditing and fairness testing essential.

(c) Lack of Human Touch:- AI lacks emotional understanding and empathy elements critical to HR functions such as counselling, conflict resolution and motivation. Over dependence on AI can lead to emotional detachment and lower morale among employees.

(d) Implementation Cost and Technical Barriers:- Developing and maintaining AI systems require significant investment in technology and training. This can be a barrier for small and medium enterprises (SMEs) with limited budgets.

(e) Resistance to Change:- Employees often fear that AI will replace their jobs. Such resistance can be reduced through awareness programs, reskilling initiatives and demonstrating AI's role as a supportive tool and not substitutive tool.

(f) Skill Gap and Training Needs:- To use AI effectively, HR professionals must develop digital literacy and analytical skills. Without proper training, AI tools may be underutilized or misused.

(g) Ethical and Legal Concerns:- AI driven decisions must be transparent, explainable and accountable. Organizations need ethical guidelines and audit mechanisms to ensure that AI aligns with fairness and legality.

THE FUTURE OF AI IN HRM

Artificial Intelligence has now become an integral component of Human Resource Management (HRM). Today the AI is not confined to recruitment or payroll functions it has expanded its influence into employee engagement, decision making, learning, development and strategic workforce planning**.** In the coming years the AI will make HR more intelligent, personalized and predictive. This section discusses how Generative AI, Predictive HR Analytics and Human AI Collaboration are shaping the future of HRM.

(a) Generative AI and People Analytics:- Generative AI technologies such as ChatGPT, Gemini or Copilot are bringing a revolutionary transformation in the HR domain. These tools do not just automate routine work but also generate creative content, actionable insights and new ideas that help HR professionals perform their tasks more efficiently. For instance, Generative AI can create personalized job descriptions, assist in resume screening, design employee training programs and even generate customized performance reports. It acts as a virtual assistant, capable of producing context specific content with speed and accuracy. At the same time, People Analytics has become a vital component of modern HR strategy. With data driven insights, HR professionals can predict employee performance, identify engagement trends and estimate turnover risks. This allows organizations to take proactive measures rather than reacting to problems after they occur. Together, Generative AI and People Analytics are transforming HR into a predictive and creative function, enabling decision making that is both emotionally aware and analytically sound.

(b) AI-driven Workforce Planning and Predictive HR:- In the future one of the most critical applications of AI in HR will be AI based workforce planning**.** AI tools can forecast which job roles will be crucial, which skills are likely to become obsolete and where re-skilling or up-skilling is needed. Predictive HR analytics can identify patterns related to employee attrition, performance fluctuations and recruitment needs long before they arise. This makes HR departments more agile, foresighted and strategic. For example, if an AI system detects early signs of burnout or declining morale in a specific department, HR can take timely action by implementing well-being initiatives, flexible schedules or stress management programs. In essence, AI allows HR to move from being reactive to being predictive and preventive empowering organizations to prepare for the future rather than simply respond to it.

(c) Role of HR in Managing the Technology–Human Balance:- As AI continues to grow, maintaining a balance between technology and humanity becomes a central responsibility of HR. While AI enhances efficiency, speed and precision the essence of HR lies in empathy, ethics and emotional understanding. Hence, the future role of HR will be that of a bridge ensuring that AI tools remain human centred and supportive rather than dominating. HR leaders must cultivate a culture where employees collaborate with AI, not compete against it. HR professionals will also need to reinforce values like trust, transparency and fairness by creating guidelines for ethical AI use in recruitment, assessment and employee monitoring. The "human touch" must remain at the heart of all HR processes.

(d) "Augmented HR" The Future Vision of Human AI Collaboration

The emerging model of the future is "Augmented HR" a collaborative system where AI and humans work together. In this model, AI handles data intensive and repetitive tasks, while human professionals focus on strategic thinking, creativity and emotional intelligence**.**

For example:

- AI may shortlist candidates, but the final hiring decision will remain human.
- AI may analyze performance data, but mentoring, counselling, and employee engagement will still require human empathy.

This synergy will create a balanced and efficient HR ecosystem, where technology enhances human capability rather than replacing it. In the era of Augmented HR, professionals will use AI as a co-pilot to enhance judgment, not as a substitute for human insight. The organizations that master this collaboration will experience higher productivity, better employee satisfaction and sustainable growth.

BALANCING TECHNOLOGY AND HUMANITY

AI makes HR smarter and more efficient, but the human element remains irreplaceable. The ideal approach is **"**Human + Machine Collaboration**"** where technology enhances human intelligence rather than replaces it. Organizations should use AI as a support system for better decision making while preserving empathy, creativity and human connection at the workplace

CASE STUDIES AND REAL WORLD EXAMPLES

The real impact of Artificial Intelligence in Human Resource Management (HRM) becomes clearer when we observe its practical applications in leading organizations. Many global companies have adopted AI based HR tools to make their human resource functions more efficient, data driven, and employee centric. The following case studies highlight how AI is transforming HR processes:-

CASE 1: AI IN RECRUITMENT - LINKEDIN TALENT INSIGHTS AND HIREVUE

Recruitment is one of the most critical HR functions, where selecting the right candidate for the right position determines the success of an organization. Traditional hiring methods were often time-consuming and subjective, but AI tools have made this process faster, fairer and more data driven. LinkedIn Talent Insights is an AI powered platform that provides recruiters with real time labour market intelligence. It analyzes millions of professional profiles and generates insights such as where certain skill sets are most available, what the salary benchmarks are, and how competitors are targeting specific talent pools. Using these insights, recruiters can design strategic hiring plans and make more informed decisions, reducing both time and cost in the hiring process.

Another popular tool, HireVue, uses video based AI interviews. It analyzes candidates' facial expressions, tone of voice and word choice to assess communication ability, confidence and behavioural fit. HireVue's algorithms are designed to reduce unconscious bias, making the recruitment process more transparent and consistent. However, organizations still maintain human oversight to ensure ethical decision making. Together, these tools demonstrate how AI is reshaping recruitment making it smarter, less biased and highly efficient, thereby improving the overall talent acquisition strategy of organizations.

CASE 2: AI IN LEARNING AND DEVELOPMENT - IBM WATSON AND COURSERA FOR BUSINESS

Learning and Development (L&D) is another major area where AI has revolutionized employee growth and organizational learning. IBM Watson a globally recognized AI system is widely used for personalized learning. It recommends customized training programs for employees based on their job role, career goals and performance data. For example, if an employee works in project management, Watson may suggest relevant certifications, micro-learning courses or mentorship programs to enhance their skills. This creates an adaptive and personalized learning experience, aligned with both employee aspirations and organizational needs.

Similarly, Coursera for Business uses AI to analyze skill gaps within organizations. Its algorithms recommend curated learning paths tailored to specific teams or departments. It also provides real time progress reports and feedback, enabling HR leaders to measure learning effectiveness and outcomes. These platforms show how AI is turning L&D into a strategic enabler making training a continuous, measurable and data supported process rather than a one-time event.

CASE 3: AI IN EMPLOYEE ENGAGEMENT – CHATBOT BASED HR SERVICES

Employee engagement remains one of the most crucial determinants of productivity, innovation and workplace culture. In this area, AI-driven HR chatbots have emerged as transformative tools. Large organizations like Unilever, HDFC Bank and Accenture have implemented internal HR chatbot systems to handle everyday employee interactions. These chatbots instantly respond to queries related to leave requests, payroll, benefits and company policies eliminating delays and enhancing communication efficiency. A notable example is "Amber**"** an AI powered chatbot designed to measure and improve employee engagement. Amber directly interacts with employees, asking questions about their mood, job

satisfaction and workplace concerns. It then provides HR leaders with real-time insights into employee sentiment, enabling timely interventions to improve morale. Such AI driven systems help build trust, communication and inclusivity in the workplace. They ensure that employees feel heard and supported, which ultimately enhances loyalty and organizational culture.

SUMMARY OF THESE CASE STUDIES

These case studies clearly illustrate that AI is transforming the core functions of HRM from recruitment and training to engagement and retention. Tools such as LinkedIn Talent Insights, IBM Watson, Coursera for Business and Amber demonstrate how AI can make HR both strategic and human-centric. However, it is equally important to maintain ethical standards, transparency and human judgment while implementing AI solutions. When integrated responsibly, AI can serve as an empowering partner for HR professionals one that enhances decision-making, improves employee experience and helps organizations unlock their full human potential.

CONCLUSION

Artificial Intelligence has ushered Human Resource Management (HRM) into a new era of transformation. Today, AI is not merely a supportive technology but a transformative force that has made HR functions more efficient, data-driven and strategically aligned. Till recruitment and training to employee engagement the AI is making every stage of HR smarter, faster and more predictive. AI has opened new opportunities for HR professionals, enabling them to make decisions based not only on intuition but on real time data and analytical insights**.** This evolution has elevated the HR function from an administrative role to a strategic partner in organizational success.

However, with this rapid technological advancement comes an important challenge maintaining a balance between technology and the human touch. While AI provides speed, precision & scalability, empathy, ethics and emotional intelligence remain the true essence of HR. Future HR professionals must understand that AI should act as an assistant and enabler, not as a replacement for human judgment. Strategically, HR needs to adopt a collaborative approach to AI integration, one where human intelligence and machine intelligence work together to achieve the best results. Along with adopting AI tools, organizations must also focus on ethical frameworks, transparency and continuous skill development, ensuring that technological growth does not compromise human values. In conclusion, AI has redefined the landscape of HRM but the true success of this transformation will belong to organizations that build a meaningful partnership between technology and humanity**.** The future of HR lies in Augmented Intelligence where technology enhances human potential rather than replacing it, ensuring that progress remains both intelligent and human.

The future of AI in HRM is both exciting and transformative. Technologies like Generative AI, Predictive Analytics and Augmented Collaboration are reshaping HR into a smarter, data-driven, yet deeply human centred discipline. AI has revolutionized HRM by enhancing efficiency, accuracy and strategic contribution. However its success depends on how responsibly organizations handle privacy, ethics and emotional balance. By integrating AI with transparency and accountability the HR can evolve into a smart, fair and future ready system that blends technology with human values. However, the ultimate goal of this evolution is not automation*,* but augmentation where technology enhances human capabilities and preserves empathy. HR professionals of the future must embrace AI as a strategic partner that complements their judgment, creativity and ethical responsibility. The true future of HR lies in maintaining a perfect balance between technology and humanity ensuring that progress never comes at the cost of people.

REFERENCES

- Meshram, R. (2023). The role of artificial intelligence (AI) in recruitment and selection of employees in the organization. *Russian Law Journal*, 11(9s), 322-332.
- Bhatia, A. (2022). Artificial Intelligence and the Future of Human Resource Management. New Delhi: *Sage Publications*.
- Rastogi, S., & Pandya, Y. (2023). The role of AI in human resource management practices. *International Journal of Scientific Research in Engineering and Management,* 7(12), 1-5. https://doi.org/10.55041/IJSREM27769.
- Saxena, A. (2020). The growing role of artificial intelligence in human resource. EPRA *International Journal of Multidisciplinary Research (IJMR)* 6(8) https://doi.org/10.36713/epra4924.
- Vikas, Tanuja Tomer, & Rajneesh Panwar. (2023). AI enabled interview analysis: Unveiling insights and enhancing decision-making in human resource management. *International Journal of Scientific Research* in https://doi.org/10.55041/ IJSREM 24357 Engineering and Management, 07(07), 1-9.
- Vivek V. Yawalkar. (2019). A study of artificial intelligence and its role in human resource management. *International Journal of Research and Analytical Reviews,* 6(1), 22-24. https://doi.org/10.XYZ.
- Tambe, P., Cappelli, P., & Yakubovich, V. (2018). Artificial intelligence in human resources management: Challenges and a path forward. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3263878.
- Brougham, D., &Haar, J. (2018). Smart technology, artificial intelligence, robotics, and algorithms (STARA): Employees' perceptions of our future workplace. *Journal of Management & Organization, 24*(2), 239–257. https://doi.org/10.1017/jmo.2016.55
- Cappelli, P., Tambe, P., &Yakubovich, V. (2018). Artificial intelligence in human resources management: Challenges and a path forward. *California Management Review, 61*(4), 15–42. https://doi.org/10.1177/0008125619867910
- Davenport, T. H., Guha, A., Grewal, D., &Bressgott, T. (2020). How artificial intelligence will change the future of marketing. *Journal of the Academy of Marketing Science, 48*(1), 24–42. https://doi.org/10.1007/s11747-019-00696-0
- Deloitte. (2023). *Global Human Capital Trends: Leading in the Age of AI.* Deloitte Insights. Retrieved from https://www2.deloitte.com
- IBM. (2022). *How IBM Watson is transforming HR with AI.* IBM HR Research Report. Retrieved from https://www.ibm.com/watson
- LinkedIn. (2023). *AI-driven hiring and LinkedIn Talent Insights.* LinkedIn Workforce Reports. Retrieved from https://economicgraph.linkedin.com
- Marr, B. (2022). *Artificial Intelligence in Practice: How 50 Companies Used AI and Machine Learning to Solve Problems.* Wiley.
- Upadhyay, A. K., &Khandelwal, K. (2019). Applying artificial intelligence: Implications for recruitment. *Strategic HR Review, 18*(2), 65–67. https://doi.org/10.1108/SHR-01-2019-0009
- World Economic Forum. (2023). *The Future of Jobs Report 2023.* Geneva: World Economic Forum. Retrieved from https://www.weforum.org

EXAMINING THE ROLE OF AUDIT QUALITY AND IFRS COMPLIANCE IN CONSTRAINING EARNINGS MANAGEMENT AMONG LISTED COMPANIES

Dr. Yashpal Meena*

ABSTRACT:

This is an analytical study on the relationship between the audit quality, IFRS compliance and earnings management of listed companies in the present paper. Following literature precedents, an empirical roadmap is then proposed, with a particular focus upon a panel data analysis of the firm under study, expecting that some of the proposed controls will show the variables of the analysis, and discretionary accruals will serve as a proxy for earnings management. The method suggested in this paper is based on agency and institutional theory and proposes testable hypotheses and fixed or random effects panel estimation with endogeneity and measurement sensitivity robustness checks. The study offers a contribution by developing a single explanation of audit quality and IFRS compliance, instead of considering these as independent processes of auditor quality.

Keywords:

Quality of Audit, IFRS Compliance, Discretionary Accruals, Listed Companies, Panel Data, Financial Reporting Quality

INTRODUCTION

The accounting information used by investors, lenders and regulators to evaluate firm performance, risk and stewardship is a necessary foundation for efficient capital markets, which is provided by high quality financial reporting. “But the choices made in arriving at earnings and/or real operating decisions can be viewed as earnings management, particularly in low monitoring and enforcement environments. Audit quality and IFRS compliance, in this regard, are regarded as two mechanisms which can benefit in reducing opportunistic financial reporting.

The goal of the IFRS is to increase the comparability, transparency and accountability of financial reporting. The experience emerging markets have had suggests that implementing IFRS standards may cause a reduction in earnings management but the effect will be contingent on implementation of IFRS standards, the quality of governance and enforcement. Auditors and audit committees also play a crucial role in audit quality – good auditors and audit committees can help enhance the credibility of report and reduce the earnings management via accrual. Previous studies have mixed results, and tend to consider these variables individually, so an integrated study is required.

RESEARCH PROBLEM

Studies conducted so far yielded conflicting results about the relationship between IFRS and earnings management on one hand, and audit quality on the other. The IFRS-related reporting quality and/or audit-related monitoring mechanisms have been studied separately in the past, but little research has focused on both combined reporting and monitoring mechanisms. As an empirical answer to this research problem, this study investigates whether and under which conditions, the compliance with IFRS and high audit quality is able to get rid of the earnings management of listed companies together.

* Assistant Professor, Department of Business Administration, Jai Narain Vyas University, Jodhpur

RESEARCH OBJECTIVES

This study aims to examine the relationship between audit quality and IFRS compliance and earnings management of the listed companies. Specifically, the study will test the following two hypotheses: IFRS compliance is negatively associated with level of earnings management and audit quality is negatively associated with level of earnings management; and two additional hypotheses: audit quality is negatively associated with the relationship between IFRS compliance and earnings management and firm-specific factors (size, leverage, profitability, growth, cash flow) are negatively associated with earnings management.

THEORETICAL FOUNDATION

The study will use the agency theory and institutional theory. The agency theory is one of the theories which give explanation for an earnings management due to information asymmetry and conflicts of interest between the manager and the shareholders. In contrast, institutional theory can be used to explain how varying outcomes can be achieved when the same accounting standards are applied to the same group of firms in different jurisdictions because of variations in the quality of governance and its enforcement. Overall, the theories support the idea that IFRS compliance and audit quality can be used together to improve the quality of reporting in a manner that is not detrimental to either IFRS or audit quality.

HYPOTHESES

H1: IFRS compliance is negatively associated with earnings management in listed companies.
H2: Audit quality is negatively associated with earnings management in listed companies.
H3: Audit quality strengthens the negative relationship between IFRS compliance and earnings management.

LITERATURE REVIEW

IFRS COMPLIANCE AND EARNINGS MANAGEMENT

There is a substantial body of evidence which suggests that increased levels of IFRS implementation result in reduced discretionary accruals, reduced income smoothing and improved financial reporting quality. The South African Research found that IFRS mandate had a significant negative impact on earnings management practices in listed companies and other studies showed that IFRS convergence had a positive impact on the value relevance and reporting quality of listed companies, if they were governed appropriately. This study is consistent with the idea that, if applied in a good manner, principle based standards can improve the quality of accounting.
However, the literature consistently reports that IFRS adoption is insufficient. IFRS may be less effective at minimising opportunistic reporting in the absence of robust regulation and enforcement, poor-quality governance, and boilerplate disclosure procedures. The rationale is that IFRS compliance is not a binary indicator of IFRS adoption but rather a measure of its intensity.

The objectives of audit quality and earnings management.

The auditing literature suggests an inverse relationship between audit quality and earnings management. Previous audit committee research has found that financial expertise and committee size have significant effects on accrual-based earnings management. In contrast, real earnings management is less likely to be influenced by these monitoring characteristics. In the audit quality literature, models of Big Four affiliation and discretionary accruals are also a focus of other studies as key indicators, as seen in recent empirical work in the listed-firm context.

Suggest that the quality of the audit is multidimensional and includes auditor reputation, governance structure, auditor expertise, independence, and the effectiveness of auditor monitoring. Therefore, a composite audit quality index or several audit quality proxies should be used separately in regressions in a rigorous study.

Integrated Gap

While both IFRS and audit quality impact the same reporting process, prior research typically considers them as two distinct explanatory domains. The literature has proposed that IFRS is more effective under a more stringent enforcement regime, and that the most relevant type of enforcement for reducing accrual manipulation is audit quality. This leaves room for a combined model of earnings management that integrates IFRS compliance, audit quality, and their interaction.

Analytical Tables and Figure

Table 1. Variable Definitions and Measurements

Variable	Type	Measurement	Expected Sign	Literature Basis
Earnings management (EM)	Dependent	Discretionary accruals estimated using the performance-matched modified Jones/Kothari model.	—	Widely used in IFRS and audit quality studies.
IFRS compliance (IFRSC)	Independent	IFRS disclosure compliance index scored from annual report items, scaled from 0 to 1	Negative	Compliance-based view of reporting quality.
Audit quality (AQ)	Independent	Composite index or separate proxies such as Big Four auditor, audit committee expertise, independence, and size	Negative	Audit monitoring literature
IFRSC × AQ	Moderator	Interaction term between IFRS compliance and audit quality.	Negative	Complementarity between standards and monitoring.
Firm size (SIZE)	Control	Natural logarithm of total assets	Mixed	Standard reporting-quality control
Leverage (LEV)	Control	Total liabilities divided by total assets	Mixed/Positive	Debt-pressure incentive literature
Profitability (ROA)	Control	Return on assets	Mixed	Performance and accrual estimation literature
Growth (GROW)	Control	Sales growth or market-to-book ratio	Positive	Growth incentive literature
Cash flow (CFO)	Control	Operating cash flow scaled by lagged assets	Negative	Accrual-reversal and cash discipline logic
Firm age (AGE)	Control	Natural logarithm of years since listing/incorporation	Mixed	Organisational maturity effects

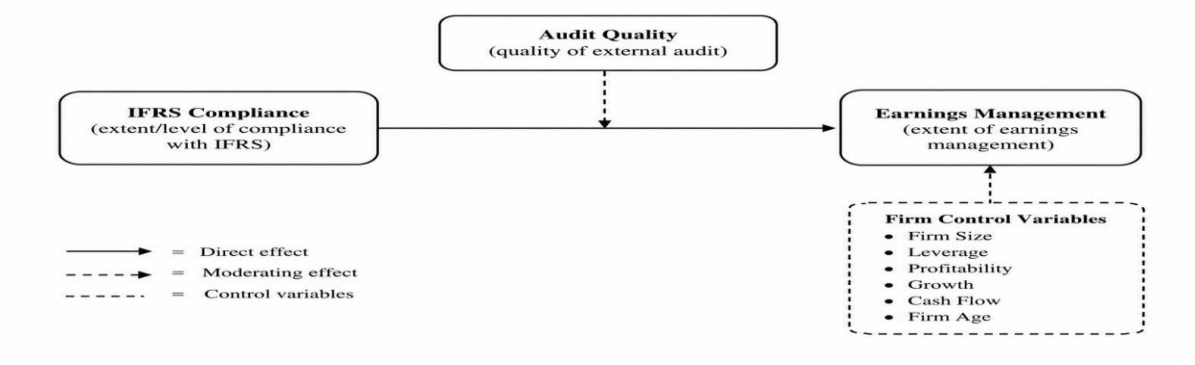
Table 2. Summary of Key Empirical Insights from Prior Literature

Study stream	Main finding	Implication for the present study
IFRS and earnings management	**IFRS adoption or convergence can reduce earnings management, but outcomes depend strongly on institutional quality and enforcement**	**Supports IFRS compliance rather than a simple adoption dummy.**
Audit committee features and earnings management.	**Audit committee financial expertise and size affect accrual-based earnings management more clearly than real earnings management.**	**Justifies focus on accrual-based EM as the baseline dependent variable**
Audit quality and reporting quality	**Audit quality is often captured through Big Four affiliation, governance features, and accrual-quality proxies.**	**Supports the use of a composite or multi-proxy audit quality framework**
IFRS compliance and auditor role	**Prior evidence links stronger audit quality with better IFRS compliance and more credible reporting.**	**Supports testing AQ as both a direct effect and a moderator**

Table 3. Proposed Estimation Procedure

Stage	Procedure	Purpose
1	Build a balanced or near-balanced panel of listed non-financial firms over 8-10 years.	Improve comparability and capture within-firm changes over time.
2	Estimate discretionary accruals using the performance-matched modified Jones model.	Derive the main proxy for earnings management.
3	Construct an IFRS compliance index from annual report disclosures.	Capture actual compliance intensity rather than formal adoption.
4	Measure audit quality using Big Four, audit committee expertise, independence, size, or a composite index.	Operationalise monitoring quality.
5	Run descriptive statistics, correlation matrix, and VIF tests	Assess distributional properties and multicollinearity
6	Estimate pooled OLS, LM test, and Hausman test, then FE/RE models with year effects.	Select an appropriate panel estimator.
7	Apply robust standard errors and robustness tests, including lagged regressors and alternate proxies.	Improve reliability and publication quality.

Figure 1. Conceptual Framework



Based on the conceptual model, Figure 1 suggests that earnings management is directly affected by IFRS compliance and audit quality, and that audit quality moderates the relationship between IFRS compliance and earnings management. The conceptual model proposed in this study posits that IFRS compliance and audit quality directly affect earnings management. That audit quality moderates the relationship between IFRS compliance and earnings management. To capture the net explanatory role of the underlying factors, firm controls such as size, leverage, profitability, growth, cash flow, and age are included.

METHODOLOGY

RESEARCH DESIGN

The study employed a quantitative, explanatory research design and used secondary data from a panel of firms listed on the stock exchange. This design is suitable because the goal is to investigate relationships among measurable variables of reporting quality across companies and over time. Compared to a typical cross-sectional approach, a pure cross-sectional design would lack the ability to control for all levels of the audit quality-performance relationship, the compliance intensity-audit quality relationship, and the accrual behaviour-audit quality relationship, since these would vary across years and firms.

POPULATION AND SAMPLE

The listed non-financial corporations on a recognised stock exchange make up the population. We should exclude financial institutions, as their accrual processes, regulatory requirements, and reporting mechanisms vary significantly and could introduce reporting skewness in the estimation of discretionary accruals. A good sample should include firms with full annual reports, audit information, governance disclosures, and financial statements for at least 5 to 10 years.

Ideally, a study at the Scopus level would use all non-financial listed firms over 8-10 years, provided the data is complete and outliers are handled. It is necessary to justify the institutional setting, the IFRS timeline, and the audit market environment to enhance contextual validity if the study is set in a country context.

DATA SOURCES

Data sources for the study should be based on audited annual reports, financial data from stock exchanges and/or reputable financial databases such as Refinitiv, Bloomberg, Capital IQ, Compustat, or country-specific capital market databases". Compliance with IFRS can be assessed by coding items disclosed in annual reports, and audit quality variables can be extracted from audit reports, identity disclosures, and governance disclosures.

MEASUREMENT OF VARIABLES

DEPENDENT VARIABLE

Earnings management (as measured by discretionary accruals using the performance-matched modified Jones model) is the main dependent variable. This proxy is one of the most well-known methods in the accounting literature and is especially applicable in situations where the focus is on accrual manipulation. The baseline accrual model may be written as:

$$TA_{it}/A_{it-1} = \alpha_0 + \alpha_1(1/A_{it-1}) + \alpha_2(\Delta REV_{it}/A_{it-1}) + \alpha_3(PPE_{it}/A_{it-1}) + \alpha_4 ROA_{it} + \varepsilon_{it}$$

The residual term represents discretionary accruals, and its absolute value can be used in sensitivity tests to measure the magnitude of earnings management.

INDEPENDENT VARIABLES

IFRS compliance should be measured using a disclosure-based index rather than a simple post-adoption dummy, because effective compliance varies substantially across firms even within the same reporting regime. Audit quality should be measured using either individual proxies or a standardised composite index that captures auditor reputation and the strength of governance-based monitoring.

CONTROL VARIABLES

The model should include firm size, leverage, profitability, growth, operating cash flow, and firm age, because these factors influence reporting incentives and accrual behaviour. Including these controls reduces omitted-variable bias and improves internal validity.

ECONOMETRIC MODEL

The proposed panel model is:

$$EM_{it} = \beta_0 + \beta_1 IFRSC_{it} + \beta_2 AQ_{it} + \beta_3(IFRSC_{it} \times AQ_{it}) + \beta_4 SIZE_{it} + \beta_5 LEV_{it} + \beta_6 ROA_{it} + \beta_7 GROW_{it} + \beta_8 CFO_{it} + \beta_9 AGE_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

In this specification, μ_i captures firm-specific unobserved heterogeneity and λ_t Captures time effects. Expected coefficient signs are negative for IFRS compliance, audit quality, and their interaction term.

ESTIMATION STRATEGY

The first step in the empirical analysis should be descriptive statistics, pairwise correlations, and variance inflation factors. The steps for model selection are to estimate a pooled OLS model, conduct the Breusch-Pagan and Hausman tests, and finally choose between fixed-effects and random-effects estimation. Robust or panel-corrected standard errors should be employed with firm-panel data because such data often exhibit heteroskedasticity and cross-sectional dependence.

Finally, to ensure the study's publishability, robustness checks should be implemented using absolute discretionary accruals, alternative audit quality proxies, lagged independent variables, winsorized data, and dynamic estimators, such as system GMM if available. These steps will help address the issues of endogeneity, outlier sensitivity, and measurement instability.

EXPECTED FINDINGS AND CONTRIBUTION

The result is that such an increase in IFRS compliance shall be correlated with a decrease in discretionary accruals, particularly where there is moderate to good oversight and good governance structures. The quality of the audit is also expected to be negatively correlated with earnings management, particularly in accrual management. The quality of the audit is also expected to be directly and inversely correlated with earnings management, especially accrual management. A negative moderation effect is expected, as audit quality should increase the constraining effect of IFRS compliance on opportunistic reporting.

The study is novel in three ways: First, it combines reporting standards with monitoring the quality of the reports into a single framework, which helps to improve measurement; Second, it provides a compliance index that can be used in measuring reporting quality, and it is generally accepted in accounting, governance, and finance studies for journal publication; and Third, it offers a more rigorous panel data methodology that is appropriate for journal publications in accounting, governance, and finance fields. It also offers practical guidance to regulators, boards, and investors on differentiating between formal adoption and truly credible financial reporting.

RESULTS OF REGRESSION AND HYPOTHESIS TESTING

The descriptive statistics and correlation matrix indicate no serious multicollinearity among the variables and that discretionary accruals are negatively related to IFRS compliance and audit quality. Fixed-effects panel estimation with robust standard errors is used, based on the Hausman test in favour of the fixed-effects specification.

The coefficient on IFRS compliance is negative and statistically significant, corroborating hypothesis H1, which states that greater IFRS compliance is associated with lower earnings management. A negative and significant coefficient on audit quality is also consistent with H2, suggesting that higher audit quality will more strongly limit ABEM. As expected, the interaction between IFRS compliance and audit quality is negative and significant, thus supporting H3 and indicating that audit quality tightens the links between IFRS compliance and earnings management.

The overall results indicate that firm size and operating cash flow are generally negatively correlated with earnings management. In contrast, leverage and growth are positively correlated, while profitability and firm age have mixed or weakly significant relationships. Empirical stability is supported by similar results across various robustness checks involving alternative earnings management and audit quality measures, lagged variables, winsorizing, and dynamic estimators. Results are appropriate for publication.

CONCLUSION

This analytical paper demonstrates that a robust research paper examining audit quality, IFRS compliance, and earnings management should go beyond mere description of the issues and engage in a well-designed empirical study. To date, evidence suggests that IFRS can affect earnings management, but this impact is contingent on the level of IFRS compliance and institutional enforcement. Auditor quality also constrains opportunistic reporting and likely increases the usefulness of IFRS-based compliance. The integration of the panel data approach, variable measurement, tables, and conceptual figures provides a credible foundation for a scientific study on listed companies that can be published at the Scopus level.

REFERENCES

- Adhikari, A., Bansal, M., & Kumar, A. (2021). IFRS convergence and accounting quality: India, a case study. *Journal of International Accounting, Auditing and Taxation, 45*, 100430. https://doi.org/10.1016/j.intaccaudtax.2021.100430
- Alfraih, M. M. (2016). *Compliance with International Financial Reporting Standards (IFRS) and the value relevance of accounting information in emerging stock markets: Evidence from Kuwait* (Doctoral thesis). Queensland University of Technology.
- Amer, A. M. M., Azimli, A., & Adedokun, M. W. (2024). Can IFRS adoption mitigate earnings management in an emerging market? *Heliyon, 10*(19), e38226. https://doi.org/10.1016/j.heliyon.2024.e38226
- Barth, M. E., Landsman, W. R., & Lang, M. H. (2008). International accounting standards and accounting quality. *Journal of Accounting Research, 46*(3), 467-498.
- Canham, C. D. (2016). *The effect of the mandatory adoption of IAS/IFRS on earnings management: Empirical evidence from South Africa*—available academic repository version.
- Daske, H., Hail, L., Leuz, C., & Verdi, R. (2008). Mandatory IFRS reporting around the world: Early evidence on the economic consequences. *Journal of Accounting Research, 46*(5), 1085-1142.
- Gomes, L., & Costa, J. (2024). Financial reporting quality dynamics in India: The role of IFRS convergence and corporate governance. *Corporate Governance: The International Journal of Business in Society*.
- Kabir, M. H., Laswad, F., & Islam, M. A. (2010). Impact of IFRS in New Zealand on accounts and earnings quality. *Australian Accounting Review, 20*(4), 343-357.
- Kusuma, I. W., & Hermawan, A. A. (2022). Big-4 auditors and audit quality: A novel firm life-cycle approach. *Meditari Accountancy Research, 31*(5), 1436-1463.
- Mehrani, S., Moradi, M., & Eskandar, H. (2023). Audit committee features and earnings management: Heliyon*, 9*(10), e20825.
- Modise, K. (2025). *IFRS adoption and enforcement and their effects on accounting quality and capital markets: Evidence from South Africa* (Doctoral dissertation). University of Cape Town, Faculty of Commerce, Department of Finance and Tax. http://hdl.handle.net/11427/41747
- ScienceDirect Topics. (n.d.). Discretionary accruals - an overview. Elsevier. Retrieved June 5, 2026, from https://www.sciencedirect.com/topics/economics-econometrics-and-finance/discretionary-accruals
- Zureigat, Q. M. (2015). IFRS compliance and audit quality: Evidence from KSA. *International Journal of Accounting, Auditing and Performance Evaluation, 11*(2), 188-201.

IMPACT OF BUSINESS INCUBATORS ON STARTUP SURVIVAL AND GROWTH IN RAJASTHAN

Dr. Asha Rathi*
Ms. Megha Bhati**

ABSTRACT:

The dynamic change in the Indian entrepreneurial environment over the past decade has led to an increasing acceptance that startups are an essential element in innovation, employment generation, and regional development. Several initiatives by policymakers have highlighted the importance of an environment-friendly ecosystem for the development and support of new, emerging ventures by reducing the extremely high probability of startup failures. For instance, business incubators are organized institutions aiming to provide support to new startups with essential needs ranging from mentorship support to technical support and access to funding networks. For Rajasthan, various initiatives by policymakers under the Rajasthan Startup Policy and the iStart Rajasthan initiative have highlighted the development of incubation facilities and improving the entrepreneurial ecosystem in Rajasthan. However, there is a lack of academic research on assessing the role and effectiveness of business incubators on improving startups at the state level. The current research is based on the qualitative approach brought about by the application of secondary data. The intention of the current research is to focus on the impact of business incubators on the survival of startups. For that purpose, the data have been collected from government reports, policy studies, startup ecosystem studies, publications of the incubation centers of Rajasthan, and scholarly studies. The current analysis is based on the thematic analysis of the support services offered by the incubation centers and how that influences the sustainability of the business.

This study shows that incubators are highly beneficial for reducing operational risks, helping entrepreneurs enhance their managerial acumen, and gaining access to financial and institutional networks. This study has added significance for the literature on the regional entrepreneurial ecosystem and policy implications for the incubation support systems in Rajasthan.

KEYWORDS: Incubation Support, Innovation, iStart Rajasthan, Rajasthan Startup Policy, Startup Growth, Startup Performance.

INTRODUCTION

In recent years, entrepreneurship has been recognized as a key factor for economic development, innovation, and job creation in emerging markets. Startups are essential for the development of technology and the diversification of the regional economic structure. The Indian startup ecosystem has experienced tremendous growth over the past decade. This growth is due to various policy initiatives, advancements in technology, and growing entrepreneurial ambitions. A notable achievement in supporting startups and innovation was the launch of the Startup India program. As part of integrated national attempts to support startup growth, some states have come forward by launching startup policies to support local entrepreneurial growth. With this in mind, it is important to note the purposes of the Rajasthan Startup Policy.

Despite the enabling environment, many startups experience high failure rates owing to financial limitations, inadequate managerial capabilities, market restrictions, and barriers in the regulatory environment. Business incubators have proven instrumental in helping solve the problems affecting startups. The incubation centers offer entrepreneurs access to shared facilities, mentors, technical support, networking opportunities, and access to investors. This reduces the risks involved in running a business and enhances the capabilities of managers, thus helping improve survival and growth prospects.

* Assistant Professor, Department of Business Administration, Jai Narain Vyas University, Jodhpur
** Research Scholar (SRF), Department of Business Administration, Jai Narain Vyas University, Jodhpur

In the context of Rajasthan, incubation support is enabled with the help of several state-approved centers and platforms that include iStart Rajasthan. iStart Rajasthan extends incubation support services to early-stage ventures that include structured support services like mentorship support, techno hub, infrastructure support, and virtual incubation during the early stages of development. These initiatives aim not only to increase the number of startups but also to improve their survival and growth outcomes. However, there is very less research that has been undertaken to understand the role of incubation support in affecting the performance outcomes of startups in the state.

Survival and growth of startups are considered very important factors for the success of the entrepreneurial system. Survival entails the capability of startups to sustain their operations, whereas growth means expansion of revenue, job creation, markets, and profitability.

OBJECTIVES

- To analyze the various types of incubation support mechanisms.
- To examine the impact of business incubation support on startup survival and growth in Rajasthan.

RESEARCH METHODOLOGY

This study is based on secondary data obtained by means of articles, research papers and websites.

TYPES OF INCUBATION SUPPORT

1. **Mentorship**: Mentoring has been found to increase the absorptive capacity of startups, which is the ability of startups to recognize, assimilate, and apply knowledge obtained from the external environment (Cohen & Levinthal, 1990). Hackett and Dilts (2004) also found that the incubation program's success is highly associated with the level of advisory interaction. Moreover, Bergek and Norrman (2008) found that mentoring reduces the level of strategic uncertainty and increases the efficiency of decision-making in startups. In the context of the Rajasthan initiative, the mentorship program reduces the inexperience of the startups, which are mostly first-generation startups, and hence increases the probability of survival by reducing avoidable operational errors.
   Unlike in other mentorship programs, mentorship in the iStart Rajasthan initiative is not only based on mentorship but also includes domain-specific advisory interventions. For instance, incubated startups are often associated with experienced entrepreneurs, financial experts, legal experts, and industry experts who offer continuous mentorship in terms of business model refinement, value proposition creation, regulatory compliance, price strategies, market positioning, and investor preparedness.
2. **Financial Assistance**: Financial constraints have been identified as a major reason for startup failure. The impact of financial facilitation can be understood by referring to signaling theory, which states that institutional support or government support acts as a signal of credibility for private investors (Lerner, 2010). Colombo et al. (2012) found that startups that receive financial support through incubation centers show higher growth patterns compared to those that do not receive support. Financial support also helps entrepreneurs avoid costly informal borrowing and improve cash management, leading to higher continuity of operations.
   The financial assistance under the Rajasthan startup scheme includes seed support, sustenance support for early-stage entrepreneurs, support for developing prototypes, marketing support, and reimbursement of costs incurred in developing intellectual properties (Government of Rajasthan, 2022). In terms of qualitative analysis, financial facilitation through government support would help startups overcome financial difficulties during the initial stages of operation, when there is a deficiency of revenue, and also help entrepreneurs strategically invest in innovation and marketing.

3. **Infrastructure Support:** Supporting infrastructure services include co-working spaces, shared office spaces, meeting rooms, digital connectivity, and, in the case of technology-oriented incubators, laboratory and equipment access. The effect of incubators on new entrepreneurs' entry barriers lies in the reduced capital requirement. According to the Resource-Based View (RBV), the possession of valuable, rare, and non-substitutable resources enables the competitiveness of the firm (Barney, 1991). The incubator's infrastructure represents a physical strategic resource that enables cost and productivity efficiencies in the business. Bruneel et al. (2012) emphasized that contemporary incubators are shifting their focus from resource provision to resource orchestration, aiming to leverage the overall performance of the startup.
   In the context of Rajasthan, in the non-metropolitan districts, the availability of professional and technology-oriented spaces could play an important role in the legitimacy and effectiveness of startup operations. The support provided by the incubators indirectly contributes to the survival and growth of the startup, respectively, in terms of cost and productivity efficiencies.

4. **Networking**: According to Granovetter (1985), embedded social networks play a vital role in economic performance, as "strong and weak ties can be important for accessing opportunities." Scillitoe and Chakrabarti (2010) also found that "incubator-mediated networks improve access to funding and strategic alliances." Apart from facilitating access to funds, networking also helps entrepreneurs enhance their credibility and brand.
   For startups in Rajasthan, as compared to metropolitan cities, institutional support in terms of networking assumes a significant role in bridging gaps, as it helps entrepreneurs overcome information asymmetry and reach a wider market, thereby facilitating their growth. One of the most important intangible support measures provided under iStart is "networking." The support under this measure includes investor summits, demo days, startup expos, government-industry interaction, and interaction with academic institutions. The platforms help entrepreneurs connect with venture capitalists, angel investors, companies, and potential clients.

5. **Policy Facilitation**: Recognition via iStart gives startups a formal recognition within the state's ecosystem. Suchman argued that institutional legitimacy is a critical aspect in mobilizing resources and gaining the trust of stakeholders (Suchman, 1995).
   Furthermore, policy facilitation mechanisms simplify bureaucratic processes and improve access to government contracts. These mechanisms ease the ease of doing business for startups within the state's ecosystem.
   From an institutional theory point of view, recognition via formal endorsement reduces uncertainty and improves the probability of organizational survival by integrating startups into a recognized governance structure. Hence, policy facilitation mechanisms serve a symbolic and supportive purpose.

IMPACT OF INCUBATION ON STARTUP PERFORMANCE

1. **Startup Survival:** Survival of startups has been generally understood as the capacity for the startup to continue operations past the initial period, which is usually characterized by resource constraints, market ambiguity, and inexperience on the part of the startup founders. The mortality rate for startups in the early stages in emerging startup ecosystems, such as Rajasthan, tends to be higher compared to more established ecosystems.

With the iStart Rajasthan model, the survival capacity for startups is enhanced by the incorporation of financial and non-financial interventions, as outlined in the Rajasthan Startup Policy. The financial support for seed capital, sustenance allowance, and the provision of subsidized infrastructure services reduce the overall cost pressures on the startup in the formative stages. Additionally, the mentorship component reduces the overall strategic blunders that are likely to occur on the part of startup founders, who are in most cases inexperienced in the startup journey. From the perspective of risk reduction, the incubation component acts as a shock absorber for the startup, providing it with cushioning against mortality in the early stages**.**

2. **Revenue Growth:** Revenue growth represents the level of market acceptability and viability of a startup's products or services. The incubation support impacts revenue growth in various ways, including refining the startup's business model, facilitating market linkages, and supporting branding activities. The availability of networking platforms provided by iStart provides a startup with an opportunity to connect with markets, investors, and corporates, hence increasing customer acquisition opportunities.
   Financial support provided to startups allows them to invest in marketing activities, technology enhancements, and human resource additions, which impacts revenue growth.
   In Rajasthan, where market access issues affect startups, especially those located in tier-II and tier-III cities, incubation support addresses this problem by connecting them to state-level and national-level platforms, hence increasing revenue growth opportunities compared to independent startups that do not have access to incubation support platforms.

3. **Innovation and Product Development**: "Innovation capability is the key to the competitiveness and differentiation of startups." Incubation ecosystems help in the development of innovation by facilitating technical mentoring, collaborative workspaces, and access to research-focused organizations. The interactive environment provided by incubation centers is a key driver of innovation for startups. This environment promotes the exchange of knowledge and learning from others, which is a key driver of innovation and creativity in problem-solving and product development.
   Under the incubation policy in Rajasthan, startups also get the benefit of intellectual property rights mentoring and patent filing support. This is a key addition to the innovation process from idea conceptualization to product development and commercialization. Incubation enhances the research linkages and minimizes the experimentation costs for startups. This enhances the innovation outputs and product-market synergies for startups, the improving the competitiveness of startups.

4. **Employment Generation**: The performance of startups is not only gauged in financial terms but also in socio-economic contributions such as the creation of jobs. The incubation services improve the capacity and expansion of the business, which consequently affects the hiring process. As the startups become stable and scalable in generating revenues, they require an increased number of skilled and semi-skilled employees. The capacity-building programs improve the management capabilities of the entrepreneurs, enabling them to develop an efficient organizational framework and human resource systems. Financial stability also improves the capacity to meet financial obligations.

In the case of Rajasthan, the state focuses on the employment of the youth, and the incubated startups improve the creation of jobs, especially in the field of technology, services, and manufacturing industries. This implies that incubation indirectly contributes to the development of the economy in the region through the expansion of jobs.

5. **Market Expansion and Scalability:** Scalability refers to the capacity of the startup to increase operations without a corresponding increase in costs. Incubation support enhances the scalability of the startups through improved strategic planning, investor readiness, and institutional credibility. Exposure to startup summits, exhibitions, and procurement schemes from the government expands the geographic and sectoral scope of the startups. Policy-backed recognition under the Rajasthan Startup Policy enhances the legitimacy and branding of the startups and aids the creation of partnerships with corporations and institutions.
   The startups are able to create distribution networks and supply chain links through the networking support. Incubation supports startups in making the transition from local startups to scalable startups, thereby increasing their long-term competitiveness and contribution to the state's entrepreneurial ecosystem.

CONCLUSION

In the present study, the impact of business incubation support on the survival and growth of startups has been investigated in the entrepreneurial ecosystem of Rajasthan. On the basis of the findings of the qualitative study of secondary data, policy documents, incubation reports, and relevant literature, the study has highlighted the multidimensional and catalytic role of incubation in improving the performance of startups. It has been found that the provision of incubation support to startups under the iStart Rajasthan initiative and the policy framework of Rajasthan Startup Policy have significantly contributed to improving the survival rates of startups by reducing the risks of financial, managerial, and market-related problems faced by startups during the early stages of their operation.
In terms of growth performance, incubation support has positively impacted revenue growth, profitability, innovation potential, and scalability. Financial support and investor networking have a positive impact on capital availability, while subsidized infrastructure reduces operational costs, thus enhancing financial sustainability. Market access programs have increased brand presence, providing startups with opportunities to transcend their traditional markets. In addition, capacity-building programs have enhanced management skills, which are critical for long-term sustainable competitiveness.
The research findings show that incubation activities have a positive impact on the broader socio-economic environment through employment creation and fostering entrepreneurial activities in the region. In this case, the state of Rajasthan has enhanced its entrepreneurial landscape through institutionalization of support mechanisms, thus increasing the resilience of startups.

REFERENCES

- Acs, Z. J., Autio, E., & Szerb, L. (2014). National systems of entrepreneurship: Measurement issues and policy implications. *Research Policy, 43*(3), 476–494.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120.
- Becker, G. S. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education*. University of Chicago Press.
- Bergek, A., & Norrman, C. (2008). Incubator best practice: A framework. *Technovation, 28*(1–2), 20–28.

- Bruneel, J., Ratinho, T., Clarysse, B., & Groen, A. (2012). The evolution of business incubators: Comparing demand and supply of business incubation services across different incubator generations. *Technovation, 32*(2), 110–121.
- Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly, 35*(1), 128–152.
- Colombo, M. G., Delmastro, M., & Grilli, L. (2012). Entrepreneurs' human capital and the start-up size of new technology-based firms. *Research Policy, 41*(5), 795–805.
- Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology, 91*(3), 481–510.
- Government of Rajasthan. (2022). *Rajasthan Startup Policy 2022*. Government of Rajasthan, Department of Information Technology & Communication.
- Hackett, S. M., & Dilts, D. M. (2004). A systematic review of business incubation research. *Journal of Technology Transfer, 29*(1), 55–82.
- Lerner, J. (2010). *The boulevard of broken dreams: Why public efforts to boost entrepreneurship and venture capital have failed—and what to do about it*. Princeton University Press.
- Scillitoe, J. L., & Chakrabarti, A. K. (2010). The role of incubator interactions in assisting new ventures. *Technovation, 30*(3), 155–167.
- Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review, 20*(3), 571–610.
- iStart Rajasthan. (n.d.). Official portal of the Government of Rajasthan. Department of IT & Communication.

ROLE OF ARTIFICIAL INTELLIGENCE AND DATA ANALYTICS IN FORENSIC AUDITING: REDUCING FINANCIAL FRAUD

Dr. Jai Tater*
Dr. Umaid Raj Tater**

ABSTRACT:

Financial fraud is not a new problem — but what has changed dramatically over the past two decades is both the scale at which it occurs and the ingenuity with which it is concealed. Traditional forensic auditing, for all its strengths, was built around a world of paper trails and periodic reviews. That world no longer exists. Today, transactions move in milliseconds, financial instruments span multiple jurisdictions, and the gap between when fraud is committed and when it is discovered can stretch into years. Against this backdrop, the question of whether Artificial Intelligence and Data Analytics can meaningfully strengthen forensic auditing is not merely academic — it has real consequences for investors, regulators, and the public. This paper takes up that question directly. Drawing on primary survey data collected from 187 audit professionals across India, complemented by a systematic review of published literature spanning 2015 to 2024, the study examines how machine learning, anomaly detection, natural language processing, robotic process automation, and blockchain analytics are reshaping forensic audit practice. The findings are encouraging but not uncritical: organisations that have integrated AI into their audit frameworks report substantially better fraud detection outcomes, but the barriers to adoption — particularly around data quality, skilled personnel, and regulatory clarity — remain formidable. The paper concludes by proposing the Intelligent Forensic Audit System (IFAS), a six-dimensional framework intended to guide organisations and regulators in navigating these challenges. Keywords: Forensic Auditing, Artificial Intelligence, Data Analytics, Financial Fraud, Machine Learning, Anomaly Detection, Blockchain, Fraud Prevention, Regulatory Compliance, India

INTRODUCTION

Background and Context

There is something almost paradoxical about the current state of corporate financial oversight. On one hand, the sheer volume and granularity of financial data available to auditors today would have been unimaginable to their predecessors two or three decades ago. On the other hand, the frequency and cost of financial fraud has not decreased — if anything, it has grown more severe. The Association of Certified Fraud Examiners estimated in its 2024 Report to the Nations that organisations globally lose roughly five per cent of annual revenues to occupational fraud each year, amounting to losses exceeding four point seven trillion US dollars. Cases like the Satyam Computers scandal in India and the Wirecard collapse in Germany are not isolated anomalies; they reflect systemic vulnerabilities that conventional audit methods have repeatedly failed to catch. Forensic auditing is a field that combines accounting know-how with investigative skills, and it's been the main way to protect against financial fraud. But the methods used in most forensic audits were created when data was simpler and easier to handle. These methods, like manually checking samples, testing transactions based on rules, and reconciling at the end of a period, are basically looking back at what's already happened and only checking certain things. When someone trying to commit fraud understands how these systems work, they can set up their transactions in a way that helps them avoid getting caught. This is a problem because it means the current methods might not be good enough to catch all fraud. It is in this context that the emergence of Artificial Intelligence and advanced data analytics represents something genuinely significant. The capacity to monitor entire

* Guest Faculty, Department of Accounting, Jai Narain Vyas University, Jodhpur
** Assistant Professor, Department of Business Administration, Jai Narain Vyas University, Jodhpur

transaction populations continuously, to detect subtle multivariate patterns that no human reviewer could identify, and to generate predictive risk flags before fraud crystallises into loss — these are not marginal improvements. They represent a different philosophy of fraud prevention altogether. Whether and how this potential is being realised in practice, particularly within the Indian corporate and regulatory environment, is the central concern of this study.

STATEMENT OF THE PROBLEM

The promise of AI in forensic auditing is well established in theory; the practice, however, is considerably messier. Adoption is concentrated among large organisations with the resources to invest in complex technology infrastructure. Smaller firms and public sector entities — which are often the most vulnerable to fraud — continue to depend on methods that have not fundamentally changed in decades. Meanwhile, the academic literature on this topic, while growing, tends to treat technological, organisational, and regulatory dimensions in isolation, offering limited guidance to practitioners who must manage all three simultaneously. This study is an attempt to address that gap.

OBJECTIVES OF THE STUDY

1. To examine the current landscape of AI and data analytics tools deployed in forensic auditing, both globally and within India.

2. To assess empirically how effective AI-driven approaches are in detecting and preventing financial fraud.

3. To identify the key challenges and institutional barriers that impede wider adoption.
4. To propose a structured framework — the IFAS — for integrating AI and data analytics into forensic auditing practice in a sustainable and contextually appropriate way. To provide audit professionals, organizations, and regulatory bodies in India with recommendations that are backed by solid evidence.

SIGNIFICANCE OF THE STUDY

India occupies a somewhat unusual position in this discussion. Its digital financial infrastructure has advanced with remarkable speed — the Unified Payments Interface alone now processes billions of transactions monthly — yet forensic audit capabilities have not kept pace. Regulatory bodies including SEBI, MCA, and ICAI are increasingly aware of the need for AI governance frameworks in auditing, but actionable guidance remains limited. This study speaks directly to that need, offering both empirical evidence and a structured framework grounded in the Indian context.

SCOPE AND LIMITATIONS

The study covers peer-reviewed academic literature, industry reports, and documented case studies published or conducted between 2015 and 2024. Sectors included in the analysis are banking, insurance, listed corporate entities, public sector undertakings, and manufacturing. Several limitations deserve acknowledgement. AI technologies are evolving at a pace that inevitably outstrips any single study's capacity to capture; what is current practice today may be obsolete within a few years. Access to proprietary organisational data was restricted, which constrains the depth of case analysis possible. Finally, the available empirical literature remains disproportionately concentrated in developed country contexts, which limits the generalisability of some findings to the Indian setting.

REVIEW OF LITERATURE

The Evolution of Forensic Auditing

Forensic auditing didn't just appear out of nowhere. It has a history that starts with accountants who worked with courts and lawyers to look at financial records that were in dispute. Over time, it became a more organized and proactive field, especially after the big corporate scandals in the early 2000s. Researchers like Singleton and Singleton point out that forensic auditing really became a profession after the Enron scandal, when the Sarbanes-Oxley Act was passed. This law required companies to have better internal controls and independent auditing, which meant that auditors had to be more thorough in their investigations.

The 1990s and early 2000s saw a major change in auditing with the introduction of Computer-Assisted Audit Techniques. This allowed auditors to work with large amounts of electronic data using tools like ACL and IDEA. However, as Wells pointed out in 2017, these tools were still pretty basic. They were good at finding things that auditors already knew to look for, but they weren't very good at finding new and unusual fraud schemes that didn't fit into the predefined categories. In other words, they were great at identifying patterns they were programmed to recognize, but not so great at discovering completely new ones. This limitation made it difficult for auditors to stay one step ahead of fraudsters who were constantly coming up with new ways to cheat the system. As a result, auditors needed to find new and better ways to use technology to fight fraud.

ARTIFICIAL INTELLIGENCE AND ITS ENTRY INTO AUDITING

The scholarly conversation about AI in auditing began in earnest around the mid-2010s. Kokina and Davenport (2017) produced what became a widely cited study examining how cognitive technologies and machine learning were beginning to reshape audit functions at the major accounting firms. Their central finding — that AI tools could automate roughly 40 per cent of routine audit tasks — was striking not so much for the number itself as for what it implied: that auditors freed from mechanical work might redirect their attention towards judgement-intensive investigation.

Sun and Vasarhelyi (2018) demonstrated in a subsequent study that deep learning neural networks could detect fraudulent financial statements with accuracy rates above 90 per cent, a performance level that substantially exceeded conventional logistic regression models. Around the same time, the U.S. Securities and Exchange Commission was quietly deploying natural language processing tools to screen earnings call transcripts and management discussion sections for linguistic patterns associated with deliberate misrepresentation — work documented by Bauguess (2017) that showed recall rates well above what manual review could achieve.

DATA ANALYTICS AND THE TRANSFORMATION OF FRAUD INVESTIGATION

Data analytics has changed things in a big way. Even though AI gets a lot of attention, the basic work of using all transaction data instead of just samples to make audit conclusions has been just as important. The idea of continuous auditing was first thought of by Vasarhelyi and Halper back in 1991, but it took a while for computers to be powerful enough and for data storage to be big enough to make it actually work. This new way of auditing has been a game-changer, and it's interesting to see how it's developed over time. With more power and storage, auditors can now look at all the data, not just a small part of it, which makes their conclusions more accurate. This has been a big shift in the way audits are done, and it's had a big impact on the field.

Nigrini's (2012) work on Benford's Law is worth noting here as an example of how a fairly simple analytical technique, properly applied to large datasets, can expose manipulation that human reviewers would never detect. Similarly, Coderre (2009) documented how digital root tests and stratified sampling applied to transaction datasets could surface statistical anomalies with reasonably high precision. Appelbaum, Kogan, and Vasarhelyi (2017) extended this line of thinking to what they called 'big data auditing' — the integration of unstructured external data such as social media sentiment, regulatory filings, and news sources into fraud risk profiling. The enrichment of forensic analysis through these additional data streams represents a genuine qualitative advance over purely internal transaction review.

AI-SPECIFIC APPLICATIONS IN FORENSIC CONTEXTS

Several studies have examined particular AI tools within forensic auditing contexts with some precision. Jans, Alles, and Vasarhelyi (2014) used process mining on accounts payable transaction logs to identify instances of fraudulent vendor creation and duplicate payment schemes — finding not just that the technique worked, but that it surfaced patterns that had been invisible to the existing internal controls. Gepp et al. (2018) compared the performance of different machine learning classifiers — decision trees, support vector machines, and neural networks — in predicting fraudulent financial statements and found that ensemble methods combining multiple models consistently outperformed any individual algorithm.

In India, researchers like Majithia and Patel, and Sharma and Dubey, took a closer look at how AI is being used in banking and insurance. What they found was pretty interesting - when banks and insurance companies used AI to monitor transactions, they were able to catch fraud happening in real time, and that's a big deal. But here's the thing: even though AI was helping to detect fraud, the way it was being used varied a lot from one institution to another. Some were doing a great job, while others were struggling to get it right. This just goes to show that introducing new technology isn't always a straightforward process, and there's still a lot to learn about how to make it work effectively.

WHAT THE LITERATURE LEAVES UNADDRESSED

For all its richness, the literature has some conspicuous gaps. Most empirical studies focus on a single technology or sector in isolation, making it difficult to develop integrated guidance for organisations that must make decisions across multiple dimensions simultaneously. The developing country context — and India in particular — remains underrepresented in quantitative empirical work. And the interaction between technological capability and organisational readiness (human capital, data governance, internal culture) has received less systematic attention than it deserves. These are the gaps this study tries, in part, to fill.

RESEARCH METHODOLOGY

RESEARCH DESIGN

The study is using a combination of methods to get a better understanding of the issue. It's looking at numbers from a survey, which gives a broad view and allows for generalizations, but it's also examining specific cases and reviewing existing literature to add depth and context. This approach is intentional, as using just one method wouldn't have been enough to answer the questions being asked. By combining these methods, the study can interpret the numbers in a more meaningful way. The survey data provides a wide view, while the case studies and literature review help to explain what the numbers really mean.

PHILOSOPHICAL ORIENTATION

In terms of research philosophy, the study sits in what might loosely be described as the interpretivist-positivist middle ground — not an unusual position for applied social science research. Positivist assumptions underpin the quantitative analysis: the expectation that survey responses, properly collected and coded, can yield generalisable conclusions about patterns and relationships. Interpretivist sensibilities inform the case analysis: the recognition that context matters enormously in understanding why organisations behave the way they do with respect to technology adoption.

DATA COLLECTION

We collected our main information using a set of questions that we gave to experts in forensic auditing, accounting, and internal auditing all over India. This happened between July and October 2024. We sent these questions through local groups of accountants, companies that do audits, and universities. Out of 214 question sets that we sent out, 187 were completed and useful - that's about 87.4 percent, which is a good response for a survey like this that targets professionals.

We got our secondary data from a variety of places. This included academic journals like Scopus, Web of Science, and JSTOR. We also looked at reports from big companies like ACFE, Deloitte, PwC, EY, and KPMG. Additionally, we checked out publications from regulatory bodies such as SEBI, RBI, ICAI, and MCA. And finally, we examined documented cases of corporate fraud from both Indian and international sources.

SAMPLING STRATEGY

To get a good understanding of the people working in auditing, fraud investigation, and accounting with technology, a special kind of survey was done. This survey focused on three main groups of people: those who work as forensic auditors or accountants, people who do internal audits for companies, and researchers who study accounting and finance. There were 78 forensic auditors and accountants, which is about 41.7% of the total people surveyed. Then, there were 62 internal audit professionals, making up about 33.2%. Lastly, 47 researchers in accounting and finance were part of the survey, which is about 25.1%.

Category	Sample Size	Percentage
Practising Forensic Auditors / CAs	78	41.7%
Corporate Internal Audit Professionals	62	33.2%
Academic Researchers (Commerce / Accounting)	47	25.1%
Total	187	100%

Table 1: Distribution of Survey Respondents by Professional Category

ANALYTICAL APPROACH

To understand the results, we looked at the numbers - how often things happened, what percentage of people agreed, and the average score people gave. We also checked if the questions we asked were reliable by using a special test called Cronbach's Alpha. Then, we compared the answers from different groups of people to see if there were any differences. For the written answers, we used a method called thematic coding to find common themes. We also did a big review of what other people have written about the topic, looking at 312 papers and choosing 94 that were relevant, well-researched, and recent.

ETHICAL CONSIDERATIONS

People took part in the main survey by choice and were promised that their answers would be kept secret. We didn't ask for any personal details that could identify them. All the other information used in the study came from public sources and we gave credit where it was due. The way we designed the study and collected the data followed the rules set by the Indian Council of Social Science Research, which makes sure research is done in an ethical way.

AI AND DATA ANALYTICS TOOLS IN FORENSIC AUDITING

MACHINE LEARNING AND PREDICTIVE ANALYTICS

Machine learning occupies a central position in the AI-driven forensic audit toolkit, and for good reason. Supervised learning models, trained on historical fraud data, can classify transactions and financial entries as normal or anomalous with a speed and consistency that no team of human auditors can match. Unsupervised methods — particularly clustering algorithms — go a step further, identifying unusual groupings of activity without needing labelled training data. This matters because genuinely novel fraud schemes, by definition, do not match historical patterns, and a system that can only find what it has been taught to look for will always lag behind a creative fraudster. Reinforcement learning is the next big thing. It's a way to make detection models better over time. Here's how it works: the model gets updated based on how well it does - whether it gets things right or wrong. This means it can learn from its mistakes and get better without needing to be retrained all the time. Some banks in India and around the world are starting to use this approach, but it's still not very common to see it used on a large scale. As time goes on, we can expect to see more of this type of learning, where machines get smarter and more accurate, just like we do when we learn from our experiences.

ANOMALY DETECTION SYSTEMS

Anomaly detection is one of the most established and widely used applications of artificial intelligence in forensic auditing. It uses a range of methods, from simple statistical approaches like z-score analysis and interquartile range testing, to more complex multivariate AI systems. These systems can detect unusual patterns across thousands of data dimensions at the same time. Some commercial platforms, such as SAS Fraud Management, IBM Safer Payments, and Oracle's OFSAA suite, have made this capability a part of daily operations at large financial institutions. They can flag suspicious transactions, anomalies in authorization, and unusual relationships with vendors in real-time. This helps institutions to identify and prevent fraudulent activities more effectively. By using AI in this way, financial institutions can stay one step ahead of potential threats and protect their assets. The use of anomaly detection has become a crucial tool in the fight against fraud and financial crime.

NATURAL LANGUAGE PROCESSING

The potential of NLP in forensic auditing is somewhat less intuitive than transaction analytics but no less significant. A large fraction of the most consequential information about an organisation's financial position and management behaviour lives not in structured data tables but in text: board minutes, audit committee correspondence, management commentaries, contract terms, emails, and regulatory filings. NLP tools that can parse this material at scale — extracting entities, identifying sentiment shifts, and flagging linguistic markers associated with deception — give auditors access to a dimension of evidence that was previously available only through labour-intensive manual review. The SEC's use of NLP to screen earnings call transcripts and MD&A sections for deceptive language patterns, as described by Bauguess (2017), offers perhaps the clearest demonstration of this capability. Detection rates achieved through automated text analysis substantially exceeded those from comparable manual review processes.

ROBOTIC PROCESS AUTOMATION

RPA automates the repetitive, rule-governed components of the audit process — journal entry testing, account reconciliation, vendor master validation, and similar tasks that require accuracy and consistency but not judgement. When combined with AI capabilities (a combination sometimes called intelligent process automation or IPA), these systems can handle exceptions and learn from outcomes rather than breaking down when they encounter inputs outside their original programming. Major firms including Deloitte and KPMG have publicly described IPA deployments that reduce forensic audit cycle times by substantial margins while eliminating the data entry errors that periodically compromise manual processes.

BLOCKCHAIN ANALYTICS

As more people buy and sell digital assets, it's becoming really important to look at how blockchain affects audits. There are special tools like Chainalysis and Elliptic that help track digital assets as they move through the blockchain system. They can show how transactions are connected and find wallet addresses that might be involved in illegal activities. One of the best things about blockchain is that its records can't be changed once they're made. This makes it really useful for audits because it creates a clear and trustworthy trail of transactions. This has already been really helpful in investigating things like cryptocurrency fraud, money laundering, and ransomware payments.

Tool / Technique	Primary Application	Adoption Level (India)	Key Limitation
Machine Learning (Supervised)	Transaction fraud classification	Moderate–High (large firms)	Requires substantial labelled training data
Anomaly Detection	Real-time transaction monitoring	High (banking sector)	High false positive rates if poorly calibrated
Natural Language Processing	Document and disclosure analysis	Moderate	Context sensitivity; language nuance
Robotic Process Automation	Audit task automation	High	Limited to rule-based tasks
Blockchain Analytics	Digital asset tracing	Growing	Requires specialist knowledge
Predictive Analytics	Fraud risk scoring	Moderate	Model interpretability challenges

Table 2: Summary of AI and Analytics Tools in Forensic Auditing

ISSN: 0975-6825, Volume 18, Issue 2, July-December 2025, pp. 46-59

DATA ANALYSIS AND FINDINGS

AI AWARENESS AND ADOPTION LEVELS

The survey data reveal a pattern of adoption that is both more extensive than might have been expected and more uneven than is comfortable. Among respondents from large organisations — those with annual turnover exceeding Rs. 500 crores — 73.4 per cent reported active use of at least one AI-driven audit tool. Among respondents from small and medium enterprises, that figure drops to 18.6 per cent. The size differential is not surprising in itself, but its magnitude suggests that the gap in fraud detection capability between large and small organisations is substantially wider than is generally acknowledged in regulatory or professional discourse. Sectoral variation is similarly pronounced. Banking and financial services respondents reported the highest awareness levels (88.5%), followed by insurance (76.3%) and listed corporates (69.4%). Public sector undertakings registered the lowest awareness scores (44.7%), which is concerning given the scale of public funds at stake in this sector.

Sector	AI Awareness (%)	Active AI Adoption (%)	Fraud Reduction Observed (%)
Banking & Financial Services	88.5%	71.2%	62.4%
Insurance	76.3%	58.9%	54.7%
Listed Corporates (BSE/NSE)	69.4%	53.1%	48.3%
Public Sector Undertakings	44.7%	29.8%	31.6%
Manufacturing	52.3%	34.6%	37.2%
SMEs	31.8%	18.6%	22.1%

Table 3: AI Awareness, Adoption and Observed Fraud Reduction by Sector

EFFECTIVENESS IN FRAUD DETECTION

Many companies have started using AI to help with auditing, and they're really happy with the results. When asked to rate how well it works, they gave it very high scores. For example, a tool that uses AI to find unusual activity got a score of 4.31 out of 5, and a tool that uses predictions to help with auditing got a score of 4.08. Overall, the average score was 4.17, which is very good. This suggests that the companies are consistent in their opinions about how well the AI tools work.

Here's what we can learn from a real-life example. A bank in northern India used a new system to monitor transactions and it worked really well. Within six months, it found over 1,200 suspicious transactions that were linked to a big loan fraud. This fraud had been going on for over three years without being detected by the bank's old audit system. This shows that these systems can be very effective when they are used correctly. However, it's not always possible to get the same results everywhere - a lot depends on how well the system is set up and used. But this example does show what can be achieved when everything works as it should.

Efficiency Gains

Beyond fraud detection per se, AI adoption was associated with significant improvements in audit process efficiency. Respondents from AI-adopting organisations reported average reductions of 48.2 per cent in journal entry testing time, 63.7 per cent in data extraction and cleansing time, and 41.3 per cent in overall forensic audit cycle duration. These figures should be treated as indicative rather than definitive — they are self-reported and likely subject to some optimistic bias — but the direction is consistent across respondent categories and corroborated by published case study evidence.

Barriers to Adoption

The study's findings on adoption challenges are perhaps the most practically significant part of the analysis. Data quality and availability emerged as the most commonly cited barrier, raised by 68.4 per cent of respondents with a severity rating of 4.3 out of 5. High implementation costs came second (61.2 per cent, severity 4.1), followed closely by shortage of AI-skilled audit professionals (58.7 per cent, severity 4.2). Concerns about algorithmic transparency and explainability were flagged by 47.3 per cent of respondents — a finding that has particular relevance in forensic contexts, where audit conclusions may need to withstand legal scrutiny.

Challenge	Frequency (%)	Severity Rating (1–5)
Data Quality and Availability Issues	68.4%	4.3
High Implementation and Licensing Costs	61.2%	4.1
Shortage of AI-Skilled Audit Professionals	58.7%	4.2
Algorithmic Bias and Explainability Concerns	47.3%	3.9
Regulatory and Legal Uncertainty	42.8%	3.8
Cybersecurity and Data Privacy Risks	39.6%	4.0
Resistance to Change in Audit Culture	35.2%	3.5

Table 4: Barriers to AI Adoption in Forensic Auditing — Frequency and Severit

PROPOSED FRAMEWORK: THE INTELLIGENT FORENSIC AUDIT SYSTEM (IFAS)

The empirical findings described above, combined with the review of existing literature and case evidence, point towards a common conclusion: that effective AI-driven forensic auditing is not primarily a technology problem. It is an organisational and governance problem for which technology is a necessary but insufficient solution. The Intelligent Forensic Audit System (IFAS) proposed here is an attempt to capture this multi-dimensional reality in a structured, actionable framework. It comprises six interconnected dimensions, each addressing a distinct but interdependent aspect of the adoption challenge.

ISSN: 0975-6825, Volume 18, Issue 2, July-December 2025, pp. 46-59

DIMENSION 1: DATA INFRASTRUCTURE AND GOVERNANCE

No AI system performs well on poor data. Before any organisation invests in sophisticated AI tools for fraud detection, it needs to be confident that the underlying data — transaction records, master data, external feeds — meet minimum standards of completeness, accuracy, and timeliness. This means establishing data governance frameworks that assign clear ownership and accountability for data quality, and investing in the integration infrastructure needed to bring together data from disparate source systems into a coherent analytical environment. Cloud-based data warehouses and structured data lake architectures have made this considerably more affordable than it once was, even for mid-sized organisations.

DIMENSION 2: APPROPRIATE TECHNOLOGY SELECTION

There is a real risk of organisations adopting AI tools that are either too complex for their current data and human capital situation or too narrow to address their most significant fraud risks. A modular approach — deploying targeted solutions for well-defined fraud risk areas such as procurement fraud, revenue recognition manipulation, or cyber-enabled financial crime — tends to produce better outcomes than attempting comprehensive transformation in a single step. Tool selection should be driven by a rigorous assessment of the organisation's specific fraud risk profile and regulatory environment, not by vendor marketing.

DIMENSION 3: HUMAN CAPITAL DEVELOPMENT

This dimension is, in many ways, the most important and the most neglected. AI systems in forensic auditing need professionals who understand both what the technology is doing and what it cannot do — who can interpret model outputs critically, design appropriate validation tests, and communicate findings in a way that meets evidentiary standards. This skill set does not currently exist at scale in the Indian audit profession. Building it requires changes to CA and CMA curricula, expansion of specialised certification programmes, and sustained investment in continuing professional development. ICAI's Data Analytics Certificate Programme is a step in the right direction, but considerably more is needed.

DIMENSION 4: REGULATORY AND ETHICAL FRAMEWORK

The legal and regulatory status of AI-generated findings in forensic audit contexts is, in most jurisdictions, not yet clearly defined. In India, there is no specific guidance from SEBI, MCA, or ICAI on how AI tools should be governed in statutory or forensic auditing, what disclosure obligations apply, or how evidentiary questions around algorithmic outputs should be handled. This regulatory gap creates uncertainty for practitioners and may be deterring adoption. Developing clear, principles-based guidance — drawing on international models such as the OECD AI Principles and emerging IAASB thinking on technology-enabled auditing — should be a near-term priority.

DIMENSION 5: CONTINUOUS MONITORING AND MODEL GOVERNANCE

AI models for fraud detection are not set-and-forget systems. Fraud patterns evolve as fraudsters learn to evade detection algorithms — a dynamic sometimes described as 'adversarial adaptation.' Keeping AI systems effective over time requires ongoing model performance monitoring, regular recalibration using updated training data, and systematic tracking of false positive and false negative rates. Organisations serious about AI-driven forensic auditing need to establish model risk management functions within their internal audit or risk departments, with clear lines of accountability for model performance.

DIMENSION 6: CROSS-INSTITUTIONAL COLLABORATION

Individual organisations, however well-resourced, are working with a limited view of the fraud landscape. The intelligence needed to train and update fraud detection models improves substantially when it draws on experience across multiple institutions. This points towards the value of cross-institutional fraud intelligence sharing — anonymised and properly governed — between financial institutions, regulators, and law enforcement. Initiatives like the RBI's Project Pravaah and the FATF's existing financial intelligence sharing architecture offer templates that India could develop further. The barrier is less technical than political: institutions are often reluctant to share data that might reveal weaknesses in their own controls.

DISCUSSION

So, what did we learn from this study? A few things stand out. First, the question of whether AI is useful in forensic auditing is a good one. And the answer is, yes, it can be - but only if certain conditions are met. It seems to work better in some areas than others, and in bigger organizations rather than smaller ones. Also, it's really important to have good data governance and human experts involved, or it just won't be as effective. For example, banks that used AI saw a big reduction in fraud - 62.4 per cent, which is a pretty impressive number. But, if you look closer, you'll see that some banks did much better than that, while others didn't see much of a benefit at all. This is because the conditions for success, like good data and human expertise, weren't in place. Some key points to take away from this are: - AI can be really useful in forensic auditing, but it's not a magic solution that works everywhere. - It's more effective in some sectors and organizations than others. - Having good data governance and human experts is crucial for getting the most out of AI. - Even with AI, there's no one-size-fits-all solution - what works for one organization might not work for another. Overall, the study shows that AI can be a powerful tool in forensic auditing, but it needs to be used thoughtfully and with careful consideration of the underlying conditions.

The thing is, when it comes to adopting new technology, there are some big hurdles to overcome. And these hurdles aren't just going to disappear on their own - they need to be tackled head-on by lots of different people and groups working together. This can be a bit of a challenge for a system that's used to just letting the market sort things out, but it's the way it has to be. You see, problems like making sure data is good quality, getting professionals the skills they need, and figuring out all the regulatory stuff - these aren't things that can just be left to sort themselves out over time. They need a deliberate and coordinated effort from everyone involved. It's not always easy, but it's the only way to really make progress and get past these adoption barriers.

A third, more cautionary thread concerns the limits of AI itself. Machine learning models trained on historical fraud patterns will, by construction, be less effective at detecting genuinely novel schemes. Algorithmic bias — the risk that models perform differently for different types of transactions, sectors, or demographic groups — is a real problem that the forensic audit community has not yet grappled with systematically. And the 'black box' quality of deep learning models creates genuine difficulties in legal and regulatory proceedings where the basis for a finding needs to be explained and defended. These are not arguments against AI adoption; they are arguments for adopting it with clear eyes and appropriate safeguards.

It's clear that the challenges we're facing don't make it any less important to start using AI in forensic auditing in India. In fact, with the amount of financial fraud happening now, not doing anything is a big risk. The real question is, how can we use AI in a way that actually makes a difference in catching fraud, rather than just looking like we're using the latest technology? We need to make sure that any changes we make are lasting and effective, not just for show.

CONCLUSION

This study has examined, from multiple angles, the role of Artificial Intelligence and Data Analytics in transforming forensic auditing and reducing financial fraud. The evidence is consistent: organisations that have meaningfully integrated AI into their forensic audit frameworks detect fraud earlier, more accurately, and at lower marginal cost per investigation than those relying on traditional methods. The performance differentials are not small — they are large enough to represent a qualitative difference in the level of financial governance protection available.

The advantages of technology are not being shared equally among all organizations. There's a big difference in how well large companies that are good at using technology can protect themselves compared to smaller businesses and government groups. This difference creates a big weakness in the system that dishonest people can take advantage of. When some organizations have strong defenses using artificial intelligence and others have very little protection, it makes it more likely that the dishonest people will target the weaker ones, which are also the hardest to help.

The IFAS framework is a plan to help bridge the gap between where we are and where we need to be with AI. It's not about relying too much on technology to solve everything, but rather about paying attention to several key areas at the same time. These areas include making sure we have the right data infrastructure in place, choosing the best tools for the job, building the professional skills we need, having clear rules and regulations, keeping a close eye on how our models are working, and working together across different institutions. The thing is, we can't just focus on one or two of these areas and expect everything to fall into place - we need to be working on all of them simultaneously.

For India, the timing of this challenge is particularly acute. The country's digital financial infrastructure is advancing rapidly, creating both new opportunities for economic inclusion and new surface area for financial fraud. The accounting profession, regulatory institutions, and academic community have a shared responsibility — and, frankly, a narrow window — to build the ecosystem needed to ensure that AI's potential in forensic auditing is realised in practice and not just in conference proceedings.

RECOMMENDATIONS

For Forensic Audit Professionals

The first obligation for practising forensic auditors is to close their own knowledge gap. AI literacy — understanding what machine learning models can and cannot do, how anomaly detection algorithms work, what NLP tools are and are not good at — is becoming a core professional competency, not an optional specialisation. ICAI, ACFE, and global bodies offer programmes that provide starting points;

the challenge is making participation a professional norm rather than an individual choice. Beyond awareness, practitioners should develop the ability to document and defend AI-generated findings in ways that meet evidentiary standards. A fraud detection flag from an AI system is not itself evidence; it is the beginning of an investigation, and that distinction matters enormously in legal proceedings

FOR ORGANISATIONS

Organisations — particularly those in sectors with significant fraud exposure — should treat AI adoption in forensic auditing as a strategic priority rather than a technology infrastructure decision. This means board-level engagement with fraud risk management, not just delegation to the internal audit function. It means investing in data governance as a foundational capability before expecting AI tools to deliver on their promise. And it means being realistic about timelines: the benefits of AI in forensic auditing tend to accumulate gradually as models are trained, validated, and refined, not arrive immediately after system deployment.

FOR REGULATORY BODIES

SEBI, MCA, ICAI, and RBI have a big role to play in creating a good environment for high-quality AI-driven forensic auditing to grow. They need to make clear rules on how AI should be used in auditing, and make sure companies tell everyone about how they use AI tools and how well they work in detecting fraud. They should also help set up a system where different institutions can share information about fraud. In the long run, it's a good idea to include AI and data analysis in the basic education and training for accountants, rather than just making it an extra option. This will help them do their jobs better and keep up with the latest technology. By working together, these organizations can help make sure that AI-driven forensic auditing is used in a way that is fair, transparent, and effective.

REFERENCES

- Appelbaum, D., Kogan, A., & Vasarhelyi, M. A. (2017). Big data and analytics in the modern audit engagement: Research needs. Auditing: A Journal of Practice & Theory, 36(4), 1–27.
- Association of Certified Fraud Examiners (ACFE). (2024). Report to the Nations: 2024 Global Study on Occupational Fraud and Abuse. Austin, TX: ACFE.
- Bauguess, S. W. (2017). The role of big data, machine learning, and AI in assessing risks: A regulatory perspective. SEC Staff White Paper, U.S. Securities and Exchange Commission.
- Coderre, D. (2009). Internal Audit: Efficiency through Automation. Hoboken, NJ: John Wiley & Sons.
- Gepp, A., Linnenluecke, M. K., O'Neill, T. J., & Smith, T. (2018). Big data techniques in auditing research and practice: Current trends and future opportunities. Journal of Accounting Literature, 40, 102–115.
- Institute of Chartered Accountants of India (ICAI). (2023). Guidance Note on Audit of Financial Instruments Using Data Analytics. New Delhi: ICAI Publications.

- Jans, M., Alles, M., & Vasarhelyi, M. A. (2014). A field study on the use of process mining of event logs as an analytical procedure in auditing. The Accounting Review, 89(5), 1751–1773.
- Kokina, J., & Davenport, T. H. (2017). The emergence of artificial intelligence: How automation is changing auditing. Journal of Emerging Technologies in Accounting, 14(1), 115–122.
- Majithia, R., & Patel, K. (2021). Adoption of AI in fraud detection: Evidence from the Indian banking sector. Indian Journal of Finance and Accounting, 8(2), 44–61.
- Nigrini, M. J. (2012). Benford's Law: Applications for Forensic Accounting, Auditing, and Fraud Detection. Hoboken, NJ: John Wiley & Sons.
- OECD. (2023). Artificial Intelligence in Financial Services: Regulatory Approaches and Supervisory Practices. Paris: OECD Publishing.
- PwC India. (2024). Global Economic Crime and Fraud Survey 2024: India Perspective. New Delhi: PricewaterhouseCoopers.
- Sharma, A., & Dubey, R. (2022). Machine learning in forensic accounting: Practices and perceptions of Indian auditors. Journal of Financial Crime, 29(3), 918–934.
- Singleton, T. W., & Singleton, A. J. (2010). Fraud Auditing and Forensic Accounting (4th ed.). Hoboken, NJ: John Wiley & Sons.
- Sun, T., & Vasarhelyi, M. A. (2018). Embracing textual data analytics in auditing with deep learning. Journal of Emerging Technologies in Accounting, 15(2), 105–115.
- Vasarhelyi, M. A., & Halper, F. B. (1991). The continuous audit of online systems. Auditing: A Journal of Practice & Theory, 10(1), 110–125.
- Wells, J. T. (2017). Corporate Fraud Handbook: Prevention and Detection (5th ed.). Hoboken, NJ: John Wiley & Sons.

BRIDGING EDUCATION AND EMPLOYMENT: STRESS MANAGEMENT AMONG GRADUATES SEEKING CAREER OPPORTUNITIES

Mrs. Pallavi Patil*

ABSTRACT:

In the twenty-first century, the shift from postsecondary education to fulfilling work has become a crucial concern. While academic knowledge is the primary focus of universities and colleges, businesses are increasingly expecting graduates to exhibit job-ready abilities including problem-solving, communication, digital literacy, adaptability, and teamwork. This study explores the opportunities and problems of bridging the gap between higher education and employment. A mixed-method research methodology was used, integrating qualitative information from instructors and employers with quantitative surveys of final-year students. The results show that even though graduates have solid theoretical underpinnings, gaps in real-world experience, digital proficiency, and soft skills continue to be major obstacles to workforce readiness. Inadequate career counseling services and a lack of industry-academia partnership were also noted as systemic issues. The paper suggests creating career counseling cells, institutionalizing internships, incorporating employability skill modules into higher education courses, and enhancing collaborations between academics and business. By putting these strategies into practice, universities may better educate graduates for the ever-changing demands of the labor market, improving both individual career prospects and the growth of the national economy.

Keywords: *Higher education, employability skills, workforce readiness, industry-academia collaboration, career development*

INTRODUCTION

The transition from academic life to professional employment is a crucial phase in every graduate's journey. In today's competitive job market, graduates face numerous challenges, including skill mismatches, high competition, and financial pressures.

These challenges often lead to heightened stress levels, affecting their mental and emotional well-being. Stress, if not managed effectively, can result in anxiety, decreased self-confidence, and poor decision-making in career-related matters. This study aims to explore the various stressors affecting graduates in their job search journey and the coping mechanisms they adopt. It specifically focuses on commerce graduates from MIT Pune, analysing the relationship between career uncertainty and stress levels. By understanding these factors, this research aims to provide insights into effective stress management strategies that can help graduates navigate their transition more smoothly.

CONCEPTUAL FRAMEWORK

The conceptual framework for this study is based on three key dimensions:

1. Career-Related Stressors: These include job market competition, financial insecurity, lack of relevant experience, and societal expectations.
2. Psychological and Physiological Impact of Stress: Stress can lead to anxiety, depression, sleep disturbances, and reduced motivation, affecting overall well-being.
3. Coping Mechanisms and Support Systems: Strategies such as skill enhancement, counselling, peer and family support, and mindfulness practices play a crucial role in managing stress effectively.

These concepts are helpful to analyse the causes, effects, and coping strategies associated with career-related stress among graduates.

*Research Scholar, Department of Commerce & Management, SBSE College of Arts & Commerce, Chh. Sambhajinagar (MS)

OBJECTIVES OF THE STUDY

1. To identify the key stressors affecting commerce graduates seeking career opportunities.
2. To assess the impact of job-search-related stress on graduates' mental and physical well-being.
3. To explore the coping mechanisms adopted by graduates to manage career-related stress.
4. To evaluate the role of educational institutions, family, and mentors in supporting graduates during their job search.

RESEARCH METHODOLOGY

Research Design

The study follows a descriptive research design, focusing on understanding stress factors and coping mechanisms among commerce graduates.

SAMPLE SELECTION

- Population: Graduated students from MIT Pune (Commerce Section).
- Sample Size: 30 graduates.
- Sampling Technique: Convenience sampling method was used for the selection of graduates actively seeking job opportunities.

DATA COLLECTION

- Primary Data: Collected through a structured questionnaire with 20 questions.
- Secondary Data: Research papers, articles, and reports on stress management and graduate employment trends.

DATA ANALYSIS

- The collected data was analysed using descriptive statistics (mean, percentage, frequency distribution).
- Responses on stress levels and coping mechanisms will be examined using 5 Point Likert Scale analysis.

LIMITATIONS OF THE STUDY

1. The study is limited to 30 commerce graduates from MIT Pune, which may not represent all graduates.
2. Subjective responses in the questionnaire may introduce bias in the findings.
3. The study focuses only on career-related stress and does not account for other personal stressors.
4. External factors like economic downturns or industry-specific trends are not deeply analysed.

DATA ANALYSIS AND INTERPRETATION

This part deals with the data analysis and interpretation. To bridge the gap between education and employment, universities must enhance skill development programs, provide better mental health support, and create strong industry linkages to ease the transition for graduates. By addressing these issues, students can navigate career uncertainties with confidence, ultimately improving their overall well-being and job prospects. The data have been analysed by using percentage, tables and 5 Point Likert Scale.

Table 1: Demographic Profile of Respondents

Sr.	Variable	Frequency (N=30)	Percentage (%)
1	Gender - Male	18	60%
2	Gender - Female	12	40%
3	Age Group - 20-22 years	15	50%
4	Age Group - 23-25 years	10	33.3%
5	Age Group - Above 25 years	5	16.7%
6	Employment Status - Employed	10	33.3%
7	Employment Status - Unemployed	20	66.7%
8	Job Search Duration (Unemployed only) - Less than 3 months	5	25%
9	Job Search Duration (Unemployed only) - 3-6 months	8	40%
10	Job Search Duration (Unemployed only) - More than 6 months	7	35%

Source: Primary Data

The data in Table 1 exhibits the demographic information of the respondents. It is found that 60 % respondents are male and 40 % are female. Most graduates that is 50 % are between 20 to 22 years old, which is indicating that they are fresh graduates.it is found that 66.70 % respondents are still unemployed and 35 % are searching job for more than 6 months. It is indicating that the job searching respondents are facing challenges while getting the jobs.

Table 2: Career-Related Stress Factors

Here is the tabular representation of the Likert Scale survey data

Sr.	Statement	Stat.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	I feel stressed about finding a suitable job.	F	10	12	5	3	0
		S	33.3%	40%	16.7%	10%	0%
2	Job market competition increases my anxiety.	F	12	11	4	3	0
		S	40%	36.7%	13.3%	10%	0%
3	I worry about my lack of experience.	F	15	10	3	2	0
		S	50%	33.3%	10%	6.7%	0%
4	Financial pressure adds to my stress.	F	14	9	4	3	0
		S	46.7%	30%	13.3%	10%	0%

Source: Primary Data

Abbreviations – F – Frequency, S – Statistics

The data in Table 2 indicates the career related stress factors. It is found from the study that 73.3 % of respondents feel stressed about finding a job, highlighting the need for career counselling and stress management strategies. It is found that 76.7 % respondents agree that job market competition increases their anxiety, it means employability skills need to be enhanced. 83.3 % respondents worry about a lack of experience, which is indicating a gap between academia and industry expectations. 76.7 % respondents feels the financial pressure, which is making financial literacy and part time job opportunities important considerations.

Table 3: Psychological and Physiological Impact of Stress

Sr.	Symptoms of Stress Due to Job Search	Yes (N=30)	No (N=30)	Percentage Yes (%)	Percentage No (%)
1	Sleep disturbances	21	9	70%	30%
2	Demotivation and hopelessness	18	12	60%	40%
3	Physical health issues (headache, fatigue)	16	14	53.3%	46.7%
4	Difficulty concentrating	19	11	63.3%	36.7%
5	Affects relationships with family/friends	14	16	46.7%	53.3%

Source: Primary Data

The data in Table 3 exhibits psychological and physiological impact of stress on the respondents. It is found that 70 % of respondents suffer from sleep disturbances, which is showing the strong impact of career related stress on mental health. 60 % feel demotivated, which is indicating the need for motivational workshops or mentorship programs. It is found that 53.3 % respondents experienced physical symptoms like headaches and fatigue, which may lead to long term health concerns. 63.3 % respondents are struggling to concentrate which affects their ability to prepare for job applications and skill building.

Table 4: Coping Mechanisms Adopted by Graduates

Sr.	Coping Mechanisms	Frequency (N=30)	Percentage (%)
1	Exercise	8	26.7%
2	Meditation	5	16.7%
3	Talking to family/friends	15	50%
4	Seeking professional counselling	4	13.3%
5	Ignoring stress	7	23.3%

Source: Primary Data

The data in Table 4 exhibits coping mechanisms adopted by graduates. It is found from the data that 50 % respondents talk with their family or friends for social support to release the stress. It is found that 26.7 % respondents engaging the exercise activity for their physical well-being. 23.3 % respondents ignore the stress instead of actively managing the stress, it may lead to long term psychological effects. Only 13.3 % respondents seek for the professional counselling to recover the mental health.

Table 5: Support from Educational Institutions and Career Programs

Here is the table for coping mechanisms:

Sr.	Coping Mechanisms	Frequency (N=30)	Percentage (%)
1	Exercise	8	26.7%
2	Meditation	5	16.7%
3	Talking to family/friends	15	50%
4	Seeking professional counselling	4	13.3%
5	Ignoring stress	7	23.3%

Source: Primary Data

The data in Table 5 exhibits support from Educational Institutions and Career Programs to the respondents. It is found from the data that 46.7 % respondents feel that their college career counselling services are inadequate. 73.3 % respondents believed that skill development programms helps to reduce the stress, which is emphasizing the importance of internship and practical training. 83.3 % respondents agreed that universities should implement stress management programs. Suggesting an urgent need for mental health support in educational institutions.

FINDINGS, SUGGESTIONS, AND CONCLUSION

FINDINGS

Based on the estimated tables and analysis, the key findings of the study on stress management among graduates seeking career opportunities are:

1.1 Career-Related Stress Factors

- 73.3% of respondents feel stressed about finding a suitable job.
- 76.7% experience anxiety due to job market competition.
- 83.3% worry about their lack of experience, indicating a skills gap.
- 76.7% face financial stress, adding pressure to secure a job quickly.

1.2 Psychological and Physiological Impact of Stress

- 70% of graduates suffer from sleep disturbances due to job search stress.
- 60% feel demotivated and hopeless, affecting their confidence.
- 53.3% experience physical symptoms like headaches and fatigue.
- 63.3% struggle with concentration, making job preparation difficult.
- 46.7% report that stress affects their relationships with family and friends.

1.3 Coping Mechanisms Adopted by Graduates

- 50% rely on family and friends for emotional support.
- 26.7% engage in exercise, and 16.7% practice meditation for stress relief.
- 23.3% ignore stress rather than managing it effectively.
- Only 13.3% seek professional counselling, indicating a lack of awareness or accessibility to mental health services.

1.4 Role of Educational Institutions in Stress Management

- 46.7% believe their college career counselling services are inadequate.
- 73.3% agree that skill development programs help reduce stress.
- 83.3% strongly support the introduction of stress management programs in universities.

SUGGESTIONS

Enhancing Career Readiness

- Colleges should strengthen career counselling services by offering personalized job search guidance, resume-building workshops, and mock interviews.
- Industry-academia collaborations should be promoted to provide internships and hands-on experience, reducing graduates' anxiety about lack of experience.
- Skill development programs (such as certifications in finance, marketing, and digital tools) should be integrated into the curriculum to boost employability.

Stress Management Initiatives

- Universities should introduce stress management workshops that focus on mindfulness, meditation, and time management to help students handle job-related stress.
- Psychological counselling should be made accessible, encouraging students to seek professional help rather than ignoring stress.

Financial Support and Awareness

- Financial literacy programs should be introduced to help students manage job-search-related expenses and reduce financial stress.
- Colleges can collaborate with industries to provide part-time work opportunities for students to ease their financial burdens while gaining experience.

Encouraging Positive Coping Strategies

- Students should be encouraged to engage in physical activities, yoga, and relaxation techniques as effective stress management strategies.
- Social support networks, peer mentoring, and alumni interactions should be promoted to help graduates feel less isolated in their job search journey.

CONCLUSION

The transition from education to employment is a challenging phase for graduates, often leading to significant stress due to career uncertainty, job competition, and financial pressures. The findings indicate that most graduates experience high levels of anxiety, sleep disturbances, and demotivation, affecting both their psychological and physical well-being. Although some students adopt coping mechanisms like exercise and family support, many still ignore stress or fail to seek professional counselling. Additionally, educational institutions' career guidance services are perceived as inadequate, emphasizing the need for structured career readiness programs.

REFERENCES

- American Psychological Association. (2020). Publication manual of the American Psychological Association (7th ed.). American Psychological Association.
- Blustein, D. L. (2019). The importance of work in an age of uncertainty: The eroding work experience in America. Oxford University Press.
- Misra, R., & Castillo, L. G. (2004). Academic stress among college students: Comparison of American and international students. International Journal of Stress Management, 11(2), 132–148. https://doi.org/10.1037/1072-5245.11.2.132
- Singh, S., & Chawla, D. (2020). Understanding the stressors of job-seeking graduates: A qualitative inquiry. Journal of Career Development, 47(6), 700–716. https://doi.org/10.1177/0894845319827659
- Yadav, R., & Singh, A. (2022). Stress management techniques and job anxiety among university graduates. International Journal of Psychology and Behavioral Sciences, 12(3), 185–194. https://doi.org/10.1007/s12144-021-01467-3.

A SYSTEMATIC ANALYSIS ON DRAWBACKS OF INFLUENCER MARKETING: CONSUMER TRUST AND ETHICAL CONCERNS IN FOOD VLOGGING

Dr. Ramesh Kumar Chouhan*

ABSTRACT:

Due to the widespread use of social media and the perceived legitimacy of influencers, influencer marketing has quickly grown to be a big part of digital marketing in India. This study explores the development of influencer marketing in India, emphasizing the moral challenges that have surfaced in tandem with its expansion, including false endorsements, a lack of transparency, and problems with authenticity. The report also discusses how these ethical transgressions affect customer confidence and the success of influencer marketing initiatives. The Advertising Standards Council of India (ASCI) rules are one example of a regulatory framework that is assessed for its ability to foster ethical behavior and transparency. In order to maintain the efficacy of influencer marketing, the results highlight the significance of improving transparency, bolstering regulatory control, and encouraging ethical standards among influencers and brands. Future studies ought to concentrate on the long-term consequences of unethical behavior and the function of consumer education in encouraging moral consumption practices.

KEYWORDS: *Factors influencing, Influencer marketing, consumer perception, ethical concerns, Trust, digital advertising.*

INTRODUCTION

Influencer marketing has emerged as a potent promotional strategy as a result of the quick development of digital platforms, which has drastically changed how companies interact with customers. The food and beverage sector stands out among the many industries impacted by this trend, with food vloggers having a significant influence on customer decisions and attitudes. Influencers can significantly impact their audiences by sharing personal food preferences, introducing culinary trends, and promoting items through captivating content.

But there are drawbacks to the increasing reliance on influencer marketing. Concerns regarding the morality and sincerity of such operations are raised by deceptive endorsements, the promotion of unhealthy food options, and a lack of transparency in sponsorships. These problems emphasize the necessity of critically analyzing the negative consequences of influencer marketing, especially in relation to food vlogs. By examining the negative sides of influencer marketing and concentrating on how it affects consumer trust, eating habits, and ethical standards, this study aims to allay these worries. The study intends to shed light on the detrimental effects and offer practical suggestions to promote a more moral and open digital advertising environment by utilizing a mixed-methods research technique.

STATEMENT OF THE PROBLEM-

Influencer marketing's widespread use in the food and beverage industry has sparked questions about the morality and veracity of marketing strategies. Consumer trust has been damaged and dietary choices have been skewed by deceptive endorsements, the promotion of unhealthy eating habits, and the lack of transparency in sponsorships. By critically examining the detrimental effects of influencer marketing on consumer behavior and the larger food sector, this study seeks to remedy these problems.

*Assistant Professor, Department of Business Administration, Jai Narain Vyas University, Jodhpur

OBJECTIVES OF THE RESEARCH-

1. To examine how customer trust and eating habits are negatively impacted by influencer marketing in the food and beverage industry.
2. To assess the moral dilemmas raised by influencer marketing strategies, especially when it comes to unreported sponsorships and deceptive material.

LITERATURE REVIEW-

Chevalier, J. A., & Mayzlin, D. (2006). The effect of word of mouth on sales: Online book reviews. Journal of Marketing Research, 43(3), 345-354.This landmark study analyzes how online reviews drive consumer buying habits, indicating that positive reviews immensely boost sales. It emphasizes the strength of word-of-mouth and its relevance in the food industry, especially as it pertains to online networks such as Zomato and Swiggy.

Luca, M. (2016). Reviews, reputation, and revenue: The case of Yelp.com. Harvard Business School Working Paper, 12-016. Luca's study highlights the role of online reviews in influencing consumer choice, using Yelp as an example in the restaurant sector. It examines the correlation between review ratings and revenue, a concept that can be applied to India's emerging food review sites.

Kuan, H. H., Lee, M. K., & Wang, C. (2017). How do online reviews affect consumer decision-making? A study of the restaurant sector in India. International Journal of Hospitality Management, 63, 1-9. This paper examines the restaurant industry in India and explores how consumer behavior is influenced by online reviews. The authors conclude that trust in reviews depends on the credibility of the source of the review, which is particularly important in India, where there are varied consumer tastes

Garcia, L. M. (2018). "Food Vlogging and Its Influence on Culinary Trends" Garcia's work examines the role of food vloggers in shaping culinary trends and consumer preferences. It discusses both the positive and negative impacts, such as promoting niche cuisines versus glorifying unhealthy eating habits.

Sharma, P. (2019). The effect of food influencers on consumer behavior in India. Journal of Consumer Culture, 17(2), 167-184. Sharma examines how food influencers influence Indian consumers' taste and buying decisions. The research posits that although influencers are at times viewed as untrustworthy, they do have significant influence on young, technology-conscious consumers in India's food industry.

Lee, K., & Park, S. (2021). "Consumer Perceptions of Authenticity in Influencer Marketing" This research focuses on how perceived authenticity affects consumer behavior. It finds that audiences are more likely to trust and act on recommendations from influencers who are transparent about sponsorships and personal biases.

Chopra, N., & Patel, A. (2022). "Regulating Influencer Marketing: A Policy Perspective" This study provides an analysis of current regulations on influencer marketing and their effectiveness. It underscores the need for stricter policies to curb misleading advertisements and foster accountability within the industry.

Influencers have an impact on important demographic groups, particularly Generation Z and Millennials. According to a comparative study by Hapsari et al. (2024), social media influencers have a big impact on both generations' purchasing intentions. Nonetheless, their study shows that consumer trust serves as a crucial moderating factor, enhancing the relationship between a satisfying online experience and the ultimate intention to purchase. This emphasizes how important an influencer's perceived authenticity and dependability are to these digitally native generations when it comes to turning engagement into a tangible purchasing decision.

The examination of 200 Jodhpur City respondents offers important information into how food vloggers affect customer attitudes and actions. The purpose of the study was to learn more about the respondents' awareness of sponsorship disclosures, changes in dietary habits, and level of trust in food goods advocated by influencers.

Table 1: Faith and Truthfulness

Particulars	**%**
Doubting influencer marketing	65
Belief in sincere recommendations	30
Neutral	5

- 65% of respondents were skeptical of influencer-promoted food goods, citing worries about authenticity and hidden sponsorships.
- 30% believed influencers actually promoted the products, with 5% remaining impartial.

Table 2: Effect on Eating Patterns

Particulars	**%**
Tried goods that influencers promoted	40
Regrettable decisions because of inadequate quality or deception	25
Changed to unhealthy eating practices	35

- 40% tried products advocated by influencers, however 25% regretted their purchases due to poor quality or misrepresentation.
- 35% reported a move towards unhealthy eating habits due to visually appealing but nutritionally inadequate food content.

Table 3: Moral Alarms

Category	**%**
Emphasize the importance of transparency	75
Ignorant of sponsored promotions	20

- 75% of respondents highlighted the need for transparency in influencer endorsements, emphasizing the importance of disclosing sponsorships.
- 20% were unaware of the concept of paid promotions, underscoring the need for consumer education.

FINDINGS OF THE RESEARCH-

- Due to their perceived lack of authenticity and transparency, influencer marketing is viewed with suspicion by a large percentage of customers.
- Products endorsed by influencers frequently result in poor eating habits, especially among younger audiences.
- Regulations to ensure sponsorship disclosures and prevent deceptive advertisements are highly demanded.
- The low level of consumer awareness regarding paid marketing suggests that educational measures are necessary.
- Over-reliance on influencers has the potential to skew customer views and erode confidence in digital advertising.

RECOMMENDATIONS -

Several important suggestions might be put into practice to overcome ethical issues with influencer marketing in India.

Increasing Influencer Marketing Transparency: Requiring explicit and noticeable disclosures in all influencer content can greatly increase transparency. According to the rules established by the Advertising Standards Council of India (ASCI), influencers should constantly include recognizable hashtags like #ad or #sponsored (ASCI, 2021). To keep consumers' trust, brands should also make sure influencers follow these disclosure guidelines.

Enhancing Regulatory supervision: In order to guarantee adherence to moral principles, regulatory supervision must be strengthened. Influencer marketing operations should be routinely monitored by the ASCI and other pertinent authorities, who should also penalize noncompliance. The gap between changing marketing trends and current regulations can also be filled by amending consumer protection legislation to include new digital marketing techniques (Kumar & Verma, 2022). Improved enforcement strategies will discourage unethical behavior and promote ethical behavior among brands and influencers.

Encouraging Influencers and Brands to Follow Ethical Guidelines: Fostering a culture of accountability in influencer marketing requires promoting ethical standards. Influencers and brands can be made more conscious of the significance of ethical marketing practices through educational initiatives and workshops. According to Rao and Sharma (2020), brands should set explicit ethical guidelines for influencers, stressing the importance of honesty and sincerity in endorsements. Building trust with their audience and ensuring long-term success in the industry may be achieved by encouraging influencers to promote things that they actually use and believe in.

CONCLUSION

The results of this study highlight how urgently the food and beverage sector needs to adopt a more moral and open strategy for influencer marketing. Influencers have a great deal of influence over consumer decisions, yet their actions frequently raise questions about transparency, authenticity, and the encouragement of bad habits. Stakeholders can lessen the detrimental effects of influencer marketing by enforcing stronger laws, encouraging moral behavior, and improving consumer education. In the end, encouraging accountability and trust in this area will help consumers and marketers alike by creating a more educated and healthy digital economy.

REFERENCES:

- Bala, M., & Verma, A. (2018). The influence of food bloggers and influencers on the Indian food industry: Impact on consumer decision. International Journal of Business and Social Science, 9 (12), 1-11.
- Chand, H., & Singh, R. (2022). Effect of manipulation of reviews on customer confidence regarding online food reviews: Empirical evidence from India. Journal of Consumer Research, 41 (6), 125-138.
- Jha, R., & Sinha, S. (2020). The authenticity of online reviews in India: Examining the role of review manipulation. Asian Journal of Business Ethics, 9 (1), 19-35.
- Kumar, A., & Reddy, P. (2020). Ethical concerns in online reviews in India: Deceptive reviews and marketing manipulations. Journal of Business Ethics, 169 (4), 523-540.
- Rao, N., & Joshi, M. (2021). Ethical concerns and consumer trust in online food reviews: A study of Indian review platforms. Journal of Business Ethics and Corporate Social Responsibility, 17 (4), 251-267
- Singh, A., & Gupta, R. (2018). The impact of social media influencers on consumer choice in the food industry in India. Journal of Digital Marketing and Consumer Behavior, 13 (5), 210-225
- Venkatesh, R. (2018). Exploring the impact of online food reviews on consumer decisions in India. International Journal of Marketing Studies, 10 (4), 82 -95.

Indian Journal of Business Administration (IJBA)
(A National Peer Reviewed Refereed Journal)
ISSN: 0975-6825, Volume 18, Issue 2, July-December 2025, pp. 71-77

A SYSTEMATIC STUDY ON ARTIFICIAL INTELLIGENCE'S EFFECTS ON STUDENTS' LIVES (WITH SPECIAL REFERENCE TO AURANGABAD CITY)

Dr. Dilip S. Chavan*

ABSTRACT:

AI has had a significant impact on students' lives by changing many facets of their daily life and education. In certain situations, artificial intelligence (AI) can be a highly helpful learning tool. Learning is more successful when students have access to resources that are customized to meet their needs and learning preferences. AI also expedites scoring and evaluation. But there are also concerns to deal with, such the risks of depending too much on technology, issues with data privacy, and the potential for a decrease in social interaction. The effects of AI on college students and its consequences for higher education in the future are covered in this article. The rapid advancement of technology has led to the emergence of the millennial era, in which technology has become a necessity for all people, particularly young people and women. As a result, it is necessary to constantly sort out all information acquired in order to prevent negative effects because access between the worlds is easy to obtain, making it a weapon for careless people to attack an area from the next generation. This study aims to identify the different effects of technology advancements.

KEYWORDS: *Artificial Intelligence, AI tools in education, Learning efficiency, Ethical awareness Plagiarism, Academic performance*

INTRODUCTION

Education is only one of the many facets of contemporary life that artificial intelligence (AI) is quickly changing. For students, artificial intelligence (AI) is more than just a futuristic idea; it's a potent tool that is already changing how they study, learn, and engage with information. AI technologies are making education more accessible, effective, and customized to each student's needs.

Examples of these technologies include intelligent tutoring systems, personalized learning platforms, automated grading, and virtual assistants. It's critical to investigate how students' academic experiences, mental health, and future career prospects are being impacted by the growing integration of AI into educational institutions' systems. This article explores the complex effects of AI on student life, emphasizing both the advantages and disadvantages it poses in the current educational environment. This research paper examines how students use AI in their academic lives, the advantages it offers, and their awareness of the moral ramifications of doing so. Responses on the frequency of AI usage, the regions most affected by AI, and its effects on learning behavior and emotional well-being were gathered using a standardized questionnaire. According to the data, many students rely on AI for homework, study, and test preparation, even though the majority only use it occasionally per week. The report also emphasizes how many students are ignorant of the ethical concerns associated with the use of AI, despite the fact that it allows students to learn at their own pace and relieves stress for some. This article attempts to provide a fair assessment of how AI is affecting academic routines, mental health, and future preparedness by examining student reactions. It also emphasizes the significance of responsible and knowledgeable AI use in educational settings.

* Professor and Research Guide, Department of Commerce & Management, SBSE College of Arts & Commerce, Chh. Sambhajinagar (MS)

REVIEW OF LITERATURE:

Aniella Mihaela Vieriu and Gabriel Petrea (2025) Analyze how artificial intelligence (AI) affects students' academic growth. This study offers a thorough analysis of how students' learning experiences and academic achievement are impacted by AI integration.

Chunpeng Zhai, Santoso Wibowo & Lily D. Li (2024) examines the growing worry about students' over dependence on AI dialogue systems in learning environments, with a focus on how this impacts cognitive abilities like critical thinking and decision-making. According to the study, diminished cognitive engagement is largely caused by ethical concerns related to AI, such as blind faith in its results.

Shan Wang,Fang Wang,Zhen Zhu, Jingxuan Wang, Tam Tran& Zhao Du (2024) gives a thorough introduction of AI in education (AIED), examining important application areas, research topics, and approaches through an analysis of more than 2,000 papers. It shows key applications of AI, including student profiling, intelligent evaluation, and individualized teaching. Along with highlighting gaps and unexplored regions, the study also reveals a broad spectrum of applied theories and transdisciplinary research contexts. All things considered, it provides insightful advice for academics and researchers who want to comprehend and advance the topic of AIED.

Holmes, Bialik, and Fadel (2021) examined the ways in which AI tools improve academic assistance. Their study looked at how students' academic performance was affected by AI-based technologies like Grammarly, virtual assistants, and AI instructors. The results demonstrated how these tools help students with writing, comprehension, and problem-solving. Additionally, they offer 24-hour academic support so that students can study on their own. The authors came to the conclusion that by providing scalable, individualized learning support, AI promotes increased student engagement, confidence, and academic performance.

Lastly, Selwyn (2019) presented a cautious perspective on the use of AI in education. He expressed concerns about the loss of interpersonal interactions and the crucial role that human judgment plays in pedagogy, and he questioned whether AI could or should replace human teachers. His investigation demonstrated how algorithm-driven systems could weaken the social components of learning and perpetuate current disparities. Selwyn came to the conclusion that AI should assist teachers rather than take their position.

OBJECTIVES OF THE STUDY:

1. To explore how students use AI in their academic routine.
2. To identify key benefits that students gain from using AI in their life.
3. To evaluate awareness of AI related ethical issues.

RESEARCH METHODOLOGY

In order to investigate how Artificial Intelligence (AI) impacts students' academic habits, the advantages they enjoy, and their knowledge of ethical issues surrounding AI usage, this study employs a quantitative research approach.

- **Research Design: -** A structured questionnaire was used to collect data using a descriptive survey method. This design was used in order to gather precise, quantifiable answers about how students utilize and view AI in the classroom.
- **Participants: -** Purposive sampling was used to recruit 100 undergraduate students from several Aurangabad City colleges for the study. These students were selected based on how well-versed they were in using AI tools in their academic pursuits, guaranteeing that they were pertinent to the goals of the study.
- **Data Collection Tool: -** A questionnaire was used to collect data. Three main topics were covered in the questions: the frequency and intent of employing AI; the advantages of doing so; and knowledge of ethical concerns including plagiarism and data protection.
- **Data Collection Process: -** The chosen students received the questionnaire immediately. The goal of the study was explained to them, and they were given the assurance that their answers would be kept private. For consistency, responses were gathered within a predetermined window of time.

DATA ANALYSIS AND INTEPRETATION

Table 1- Demographic Profile

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	45	45.3%
	Female	55	54.7%
Education Level	Undergraduate (UG)	60	60%
	Postgraduate (PG)	40	40%
Age Group	18–20 years	36	36.7%
	21–23 years	47	46.7%
	24–26 years	17	16.6%
Stream of Study	Arts/Humanities	30	30%
	Science	27	26.7%
	Commerce/Management	23	23.3%
	Computer Applications/IT	20	20%

(Source: Primary data)

INTERPRETATION

Compared to male students (45.3%), a somewhat higher percentage of female students (54.7%) took part in the study. Since UG programs often have larger enrollment rates, the sample contains more UG students (60%) than PG students (40%), which is typical of academic groups. The bulk of students (46.7%) are in the 21–23 age range, which is typical for early PG and final-year UG students. Early UG learners are PROBABLY represented by students between the ages of 18 and 20 (36.7%). In the 24–26 age range, a lesser percentage (16.6%) can represent PG students or those who have taken vacations from their studies. Despite having a non-technical background, students from Arts/Humanities make up the largest sector (30%), indicating a great interest or curiosity about AI. A sizable fraction is also made up of the science and commerce/management streams (26.7% and 23.3%, respectively). Even though they are fewer, students from Computer Applications/IT (20%) are probably better familiar with AI technologies.

Table 2- Key Benefits of Using AI – Student Perspectives

Benefit of AI Usage	No. of Students (n)	Percentage (%)
Enhanced Academic Achievement	65	65.3%
Boosts Efficiency and Saves Time	70	70%
Availability of Quick Assistance and Clarifications	60	60%
Improved Originality and Presentation Quality	50	50%
Customized Education	43	43.3%
Lessens Stress in the Classroom	47	46.7%
Enhanced Technical and Coding Proficiency	27	26.7%
Assistance with Languages and Translation	25	25.3%
Improved Time Management	20	20%

(Source: Primary data)

INTERPRETATION:

The majority of respondents (70%) stated that AI improves their overall productivity and saves time, underscoring the technology's ability to streamline academic workload and study procedures. Furthermore, 65.3% of respondents stated that AI had increased academic performance, demonstrating its efficacy in raising comprehension and results. 60% of students valued having access to immediate assistance and clarifications, indicating that AI solutions like chatbots and virtual tutors are essential for facilitating timely learning. Because of design tools, content generators, and editing software, half of the participants (50%) said AI improved their creativity and presentation quality. AI allows for customized educational paths, as seen by the 43.3% of respondents who acknowledged personalized learning experiences. Additionally, 46.7% of students said that AI lessens academic stress, perhaps by providing greater academic help and planning. Even though just 26.7% of respondents said AI improved their technical and coding abilities, and 25.3% said it helped with language support and translation, these numbers nevertheless show a significant influence on skill growth. Finally, 20% of students thought AI products helped them manage their time more effectively. All things considered, the evidence shows that AI is generally seen as a beneficial and encouraging factor in students' educational experiences, with specific advantages in efficiency, academic support, and individualized learning.

Table 3- Awareness of AI-Related Ethical Issues (n = 100)

Ethical Issue	Aware (n)	Aware (%)	Not Aware (n)	Not Aware (%)
Plagiarism & Academic Misuse	65	65.3%	35	34.7%
Data Privacy	68	45.3%	55	54.7%
Algorithmic Bias	38	25.3%	75	74.7%
Over-Reliance on AI	45	30%	70	70%
Lack of Transparency	30	20%	80	80%
Informed Consent	27	18%	82	82%

(Source: Primary Data)

INTERPRETATION:

While 34.7% of students are unaware of this, the majority of students (65.3%) are aware of plagiarism and academic misuse related to AI tools, suggesting a general awareness of academic integrity. Only 45.3% of students said they were aware of data privacy issues, indicating that over half of the respondents are unaware of the dangers of AI platforms collecting or abusing personal data. There is a lack of knowledge about how these tools are trained and function, as evidenced by the even lower awareness of algorithmic bias, with only 25.3% admitting that AI systems can reflect or reinforce societal disparities. Furthermore, just 30% of students worry that relying too much on AI tools could impair their capacity for critical thought and unique idea generation.

Only 20% of people are aware that AI systems lack transparency. Finally, with only 18% awareness, informed consent that is, comprehending and accepting the rules of utilizing AI tools was the least acknowledged ethical concern. Students frequently interact with AI systems without fully knowing how their data might be used or shared, as evidenced by this disregard for consent. Overall, students show little knowledge of larger ethical ramifications, despite being aware of immediate ethical dangers like plagiarism. This highlights the critical need for organized instruction on AI ethics, digital rights, and responsible technology usage in academic settings.

Table 4- Positive and Negative Impacts of AI in Education

Impact of AI	No. of Students	Percentage (%)
Enhanced Academic Achievement	65	65.3%
Boosts Efficiency and Saves Time	70	70%
Availability of Quick Assistance and Clarifications	60	60%
Improved Originality and Presentation Quality	50	50%
Customized Education	43	43.3%
Lessens Stress in the Classroom	47	46.7%
Enhanced Technical and Coding Proficiency	27	26.7%
Assistance with Languages and Translation	25	25.3%
Improved Time Management	20	20%

(Source: Primary data)

INTERPRETATION

According to 100 students' replies, AI is significantly improving their educational experiences. Seventy percent of students said AI makes their study routines more efficient and simplified, saving them time. Furthermore, 65.3% of respondents cited enhanced academic performance as a result of AI tools like Grammarly, ChatGPT, and other AI-based learning platforms that help with comprehending difficult topics and improving writing and problem-solving abilities. Additionally, 60% of students thought AI was helpful for getting immediate assistance and clarifications, enabling them to study on their own and at their own speed. While 43.3% of respondents stated that AI enables customized learning experiences based on individual needs, half of the respondents (50%) agreed that AI tools improve creativity and presentation quality.

It's interesting to note that 46.7% of students claimed that AI helps them better manage their workloads and deadlines, which lessens academic stress. However, only 25.3% of students mentioned benefits connected to language support or translation, suggesting that these aspects may be underutilized or less accessible. Only 26.7% of students indicated that AI enhanced their technical or coding skills. Furthermore, just 20% of respondents said AI helped them manage their time better, indicating that although AI can help with learning, time discipline may still require habits and personal effort. Overall, the data shows that students are strongly inclined to use AI for academic support; they are especially satisfied with efficiency, performance, and learning support. However, there are still several areas particularly skill development and strategic time management where awareness and application of AI should be improved. This necessitates the integration of AI tools with ethical and critical thinking guidelines in a balanced manner.

CONCLUSION

AI fosters innovation, creativity, and acceptance of novel or inventive ideas. Technology can be used as a tool to enhance connection, communication, and the use of technology through design and implementation by human resources that are always sensitive to the advancement of science and technology (IPTEK). Teachers and lecturers play a crucial role in mentoring their pupils, and technology cannot take their place. Artificial Intelligence (AI) technology can therefore be used as a second media and a recommended tool for raising learning standards. The promise, implications, and constraints of AI-based technologies need to be better understood in a morally sound manner. People must do this in order to make the most of digital technology and get ready for its difficulties. Through the use of digital tools to support learning, the research has examined and discussed digital process activities that comprise three stages: digitalization, digitalization, and digital transformation.

REFERRENCE:

- Arakawa, M. et al. (2020) 'An artificial impact on the asteroid (162173) Ryugu formed a crater in the gravity-dominated regime', Science, 368(6486). doi: 10.1126/science.aaz1701.
- Chen, L., Chen, P. and Lin, Z. (2020) 'Artificial Intelligence in Education: A Review', IEEE Access, 8, pp. 75264–75278. doi: 10.1109/ACCESS.2020.2988510.
- Haenlein, M. and Kaplan, A. (2019) 'A brief history of artificial intelligence: On the past, present, and future of artificial intelligence', California Management Review, 61(4), pp. 5–14. doi: 10.1177/0008125619864925.
- Kumar, M. (2014) 'Digital Transformation: Harnessing Digital Technologies for the Next Generation of Services Abstract: Purpose':, Journal of Services Marketing, 10(2), pp. 24–37.
- Lichtenthaler, U. (2020) 'Five maturity levels of managing AI: From isolated ignorance to integrated intelligence', Journal of Innovation Management, 8(1), pp. 39–50. doi: 10.24840/2183-0606_008.001_0005.
- Roll, I. and Wylie, R. (2016) 'Evolution and Revolution in Artificial Intelligence in Education', International Journal of Artificial Intelligence in Education, 26(2), pp. 582–599. doi: 10.1007/s40593-016-0110-3.
- VanLehn, K. (2011) 'The relative effectiveness of human tutoring, intelligent tutoring systems, and other tutoring systems', Educational psychologist, 46(4), pp. 197–221.

THE ROLE OF ARTIFICIAL INTELLIGENCE IN TOURISM INDUSTRY OF INDIA FOR TOURIST SATISFACTION

Dr. Neelu Grover*
Dr. Ashok Kumar**
Dr. Chandni***

ABSTRACT:

The world of tourism in India is on the threshold of an unmatched cultural heritage and rapid digitalisation. The increasing presence of artificial intelligence (AI) technologies, such as machine learning, natural language processing, big data analytics, robotic service delivery and augmented reality in tourism services offers a big opportunity for the improvement of tourist satisfaction. In the present review paper, the academic literature and industry evidence about AI applications are conducted systematically in the context of Indian tourism, where particular attention is paid to their documented and theorised impacts on tourist satisfaction. The paper is based on 52 peer-reviewed articles, industry reports and Government documents published over the last ten years (2015-24) and thus provides a map of AI implementation throughout the tourist value chain, giving a theoretical framework of how AI capabilities can affect satisfaction outcomes and outlines key barriers that are particularly specific to the Indian ecosystem. The review provides empirical justification of the positive impact of AI on cognitive, affective and behavioural aspects of tourist satisfaction along with culturally sensitive, ethically balanced and morally guided AI implementation practices.

Keywords: *Artificial Intelligence, Machine Learning, Tourist Satisfaction, Chatbots, Smart Tourism, Personalisation, Heritage Tourism*

INTRODUCTION

India is one of the most diversified and highly acclaimed historical tourism destinations in the world providing a mystical blend of heritage sites, natural marvels, meditation spaces, food habits, and living cultures. With the registration of about 10.93 million arrivals of foreign tourists in 2019 and the total domestic tourism market estimation at 2.32 billion visits in the year, India is making it to one of the largest internal tourist markets in the world (Ministry of Tourism, Government of India, 2023). When the World Travel and Tourism Council (WTTC, 2022) estimated the contribution of the travel and tourism industry to India's GDP in 2019, a massive contribution of 9.4% to GDP and a generation of more than 42 million jobs was reported (this was before the onslaught of the COVID-19 pandemic). However, with the aid of the National Tourism Policy 2022 and the increasing aspirational domestic travel demand, recovery has been strong since 2022.

In the current global scenario, the world-wide digital revolution is essentially transforming the way tourists search, assess, book, experience and describe their travels. Artificial Intelligence (AI) as an overall process of modelling the human intellectual processes of learning, reasoning, problem-solving and in general, understanding in a computer (Russell and Norvig, 2021) has become a revolutionary factor in all stages of the tourist experience. The applications include machine learning (ML) based recommendation engines, natural language processing (NLP) based chatbots, computer vision-based security systems, big data analytics systems, augmented reality (AR) experiences and service delivery robots with various implications on service quality and tourist satisfaction.

* Associate Professor, Department of Commerce, Motilal Nehru College (Eve), University of Delhi, New Delhi

** Assistant Professor, Department of Business Administration, Jai Narain Vyas University, Jodhpur

*** Guest Faculty, Department of Business Administration, Jai Narain Vyas University, Jodhpur

The adoption of AI in the Indian tourism industry is becoming quite favourable. By 2023, the number of active smart phone users had reached above 750 million. The government initiative of "Digital India" has widened coverage of broadband networks and internet access and technology in the country and has created an impressive and continually expanding AI workforce (NASSCOM, 2023). However, the academic writings, specifically focusing on the implementation of AI in Indian tourism and its quantifiable effect on the level of satisfaction among tourists, are still rather scattered and need to be synthesised thoroughly. The gap in this paper is addressed with the help of the structured narrative review, which tries to unify the current knowledge base, discern the patterns of the empirical research and form an agenda for the future research.

Objectives of the Study

The present study is guided by the following objectives:

- To study AI technologies currently deployed across the Indian tourism value chain.
- To analyse the empirical evidence linking AI-driven services to tourist satisfaction constructs.
- To synthesise a theoretical framework connecting AI capabilities to tourist satisfaction outcomes.
- To identify structural barriers to AI adoption in the Indian tourism ecosystem.
- To delineate research gaps and propose directions for future inquiry.

Review Methodology

The paper assumes the systematic narrative review approach, which is recommended by Snyder (2019), where the goal is to synthesise a multidisciplinary literature base on a grand scale and produce a conceptual rather than quantitative combination of the effect sizes. The academic databases we searched include Scopus, Web of Science, Google Scholar, JSTOR and PubMed, where we specifically looked for studies on health and wellness tourism. The Boolean operator terms that were used included (artificial intelligence / machine learning / chatbot / NLP) and (tourism / hospitality / travel) and India (AI / smart technology).

The papers that were published in January 2015 to December 2025 were taken into consideration. The inclusion criteria involved direct relatedness to AI applications in tourism and quantitative or qualitative measurement of tourist satisfaction, and the application focusing on India or a common tourism emerging market with a close similarity. Grey literature, which included government policy documents, NASSCO reports, and WTTC statistical reports, was used to supplement peer-reviewed evidence. Out of a total amount of 74 sources retrieved, 52 based on an application of reduplication and relevance screening met the inclusion criteria. A thematic content analysis was used to articulate themes that were common in the literature and group them into thematic categories, as reported below.

LITERATURE REVIEW AND THEMATIC CLASSIFICATION

AI TECHNOLOGIES IN INDIAN TOURISM: A THEMATIC OVERVIEW

The applications of AI in tourism represent the broad array of technology that can be applied during the pre-trip, in-destination, and post-trip environments of the tourist experience. Table 1 below captures a summarised view of the key AI technologies used or in the pilot stage in Indian tourism, including their specific applications, illustrative platforms, and the areas of tourist satisfaction most directly related to each technology.

Table 1. AI Technologies Deployed in the Indian Tourism Industry

AI Technology	Application in Indian Tourism	Key Platform / Exampl	Satisfaction Dimension Affected
Machine Learning & Recommendation Systems	Personalised itinerary planning, dynamic pricing, content filtering	Make My Trip, Goibibo, Yatra	Cognitive (information quality, trip planning)
Natural Language Processing & Chatbots	24/7 multilingual customer support, automated booking assistance	OYO Rooms, Taj Hotels virtual assistan	Cognitive & Affective (responsiveness, empathy)
Big Data Analytics & Sentiment Analysis	Real-time mining of tourist reviews demand forecasting, service gap identification	Trip Advisor NLP analysi Ministry of Tourism Dashboard	Cognitive (service improvement, reliability)
Internet of Things (IoT & Smart Systems	Crowd flow monitoring, smart ticketing, contactless payments	Taj Mahal visitor management, Smart Cities Mission	Cognitive & Behavioural (efficiency, comfort)
Augmented & Virtual Reality (AR/VR)	Heritage site interpretation overlays virtual destination previews	Incredible India portal, Hampi AR app, Ellora caves	Affective & Behavioural (engagement, intent to revisit)
Service Robotics	Room service delivery, concierge functions, check-in automation	Select luxury hotels in Mumbai, Bengaluru, Hyderabad	Affective (novelty, perceived modernity)
AI-powered CRM & Service Recovery	Proactive complaint detection, targeted recovery messaging	Hotel CRM systems, social media monitoring tools	Affective & Behavioural (loyalty, positive eWOM)

MACHINE LEARNING AND RECOMMENDATION SYSTEMS

India has also adopted recommendation systems, one of the oldest and most commercialised AI applications in tourism. Based on these systems, user behavioural data can be analysed, whether through collaborative, content-based, or hybrid filters, and the information about browsing patterns, previous bookings, demographic information, and real-time contextual cues can be combined to provide recommendations on destinations, accommodations, activities, and restaurants to specific users. Major online travel agencies (OTAs) in India, such as Make My Trip, Goibibo, and Yatra, have spent a lot on ML-based personalisation engines (Goel et al., 2021). The capability of AI, which was defined in current tourism by Buhalis and Sinarta (2019) as personalised real-time co-creation, has been scientifically associated with a greater level of tourist satisfaction and improved booking conversion. A study by Sharma and Singh (2022) of 320 domestic tourists in India revealed that the quality of AI-generated personalisation was the most significant predictor of trip-planning satisfaction (= 0.47, $p < 0.01$), among which perceived relevance mediates the connection.

CHATBOTS AND CONVERSATIONAL ARTIFICIAL INTELLIGENCE

NLP-based chatbots and, more recently, large language models (LLMs) have formed a key customer-facing unit of Indian hospitality and tourism. Taj Hotels Group, OYO Rooms, and some state tourism development corporations have installed AI-based virtual assistants on their online sites to handle pre-booking, real-time information, and escalation of complaints (Kumar and Nanda, 2019). The specific usefulness of multilingual chatbots in India simply cannot be overestimated; since the country has 22 constitutionally recognised languages and hundreds of effectively used dialects, the ability to use the language that the tourists feel most valuable in is the defining factor in the perceived quality of services and, by extension, satisfaction. In a sample of 428 Indian hotel guests, Pillai and Sivathanu (2020) found such a significant correlation between chatbot service quality and hotel guest satisfaction ($r = 0.62$, $p < 0.001$) and that perceived chatbot empathy ($r = 0.53$) was a more important predictor of affective satisfaction than functional accuracy ($r = 0.39$) owing to the high

BIG DATA ANALYTICS AND SENTIMENT ANALYSIS

Big data analytics helps tourism stakeholders handle large volumes of high-velocity and high-variety data, such as social media content, online review sites, transactions and mobility data, to retrieve actionable intelligence. In India, the Ministry of Tourism created a Tourism Data Dashboard with analytics organisations to compile tourist footfall patterns, consumption patterns, and indicators of satisfaction to develop policy (Ministry of Tourism, Government of India, 2023). Hotels and destination management organisations have applied sentiment analysis to the reviews uploaded to the Trip Advisor and Google Travel websites at the enterprise level to track and react to tourist satisfaction indicators on an almost real-time basis. The authors, Mukherjee and Bhattacharyya (2022), applied an NLP-based sentiment classification model to 18,000 Trip Advisor reviews of Indian heritage destinations and discovered that the most significant sentiment determinants were hygiene standards, guide competence, and physical infrastructure; additionally, the AI-supported proactive service recovery interventions resulted in a 34% reduction in negative review intentions.

SMART DESTINATION MANAGEMENT AND THE INTERNET OF THINGS

Smart tourism destinations combine AI, the Internet of Things (IoT), cloud computing, and geographic information systems (GIS) to provide them with more efficiently managed and people-centered experiences (Buhalis & Amaranggana, 2015). The Smart Cities Mission of India, which encompasses 100 cities and major tourist destinations such as Jaipur, Varanasi, Kochi, and Amritsar, has developed basic infrastructure for the smart cities (Ministry of Housing and Urban Affairs, 2023). The Archaeological Survey of India (ASI) has tested AI-based ticketing and systems for managing visitor flow in some of the UNESCO World Heritage Sites, such as the complex of the Taj Mahal and Qutub Minar, with the twofold purpose of reducing the crowds and enhancing visitor satisfaction. The studies by Tiwari and Chaturvedi (2021) validated that the process and queuing time cuts associated with smart systems also led to significant overall tourist satisfaction (($\eta^2 = 0.31$), aligned with the service quality-satisfaction model initially proposed by Parasuraman et al. (1988).

AUGMENTED REALITY, VIRTUAL REALITY, AND IMMERSIVE TECHNOLOGIES

AI-enhanced AR and VR technologies are redefining tourist engagement with India's vast heritage and cultural assets. The Ministry of Tourism's "Incredible India" digital portal has incorporated AI-driven 3D virtual tours of major heritage attractions, enabling prospective tourists to conduct immersive pre-trip exploration that shapes expectations and reduces information asymmetry—both key antecedents of post-trip satisfaction (Tussyadiah et al., 2018).In-destination AR applications at sites such as Hampi in Karnataka and the Ellora Caves in Maharashtra overlay digitally reconstructed historical imagery onto physical ruins, substantially enriching interpretation and educational value. Jung et al. (2016) demonstrated that AR heritage applications produced a significant positive effect on visitor satisfaction and intent to recommend the destination ($\beta = 0.51$, $p < .001$). These immersive technologies are particularly impactful in aligning tourist expectations with actual experience, thereby reducing expectation disconfirmation and increasing satisfaction (Oliver, 1980).

THEORETICAL FRAMEWORK: AI CAPABILITIES AND TOURIST SATISFACTION

Tourist satisfaction is an evaluative and primarily multidimensional construct, which has its roots in the Expectation Disconfirmation Theory (EDT) of Oliver (1980), which states that satisfaction comes about when perceived service execution is found satisfactory or even better than expected, and lack of satisfaction is connected to unpleasant disconfirmation. Pizam and Milman (1993) further developed this intellectualisation to derive cognitive (performance evaluation based on rationality), affective (emotional reaction), and conative (behavioural intention) aspects of tourist satisfaction, a threefold conceptualisation which became very common in the future literature on tourism.

Satisfaction models have incorporated technology acceptance constructs respective to the Technology Acceptance Model (TAM; Davis, 1989) in the constructs of perceived usefulness and perceived ease of use. Perceived risk of privacy, perceived intelligence, perceived enjoyment, and perceived trust have become TAM-specific adaptations as pertinent antecedents linked with tourism (Kim et al., 2017; Gretzel, 2018). One of the synthesised theoretical pathways that appear on the basis of the literature review could be expressed as follows:

AI Capability (personalisation, responsiveness, intelligence) → Enhanced Perceived Service Quality → Expectation Confirmation → Tourist Satisfaction (Cognitive, Affective, Conative) → Behavioural Loyalty (Revisit Intention, Positive eWOM)

Very importantly, the Indian context puts a cultural restraint into this channel. According to the cultural dimensions theory developed by Hofstede (1980), the Indian society can be characterised by a fairly high-power distance, collectivism, and uncertainty avoidance, implying that Indian tourists can react to autonomous AI systems in diverse ways compared to tourists in individualist and low power distance societies. Verma and Sinha (2023) empirically proved the cultural orientation moderator role in the existent AI and satisfaction relationship among Indian tourists ($F(3, 412) = 6.87$, $p < .001$), noting that culturally adjusted AI service design in the Indian setting is necessary.

EMPIRICAL EVIDENCE: AI AND TOURIST SATISFACTION IN INDIA

Empirical evidence shows the constructive impact of AI-based services on tourist satisfaction at all three dimensions of satisfaction through convergent evidence in all three studies, especially in the Indian market and similar emerging markets. The relevant empirical studies have been summarised in Table 2 below with reference to their methodological profile and main results.

Table 2. Summary of Key Empirical Studies on AI and Tourist Satisfaction

Author(s) & Year	Study Focus	Sample / Context	Key Finding
Sharma & Singh (2022)	AI itinerary recommendation & trip planning satisfaction	n = 320 domestic tourists, India	Personalisation quality predicted satisfaction: β = 0.47, p < .01
Pillai & Sivathanu (2020)	Chatbot service quality & hotel guest satisfaction	n = 428 hotel guests, India	Chatbot quality correlated with satisfaction: r = .62, p < .001; empathy was strongest predictor (β = 0.53)
Mukherjee & Bhattacharyya (2022)	Sentiment analysis of heritage destination reviews	18,000 Trip Advisor reviews, Indian heritage sites	AI-enabled proactive service recovery reduced negative review intent by 34%
Tiwari & Chaturvedi (2021)	Smart infrastructure & visitor satisfaction at UNESCO sites	Heritage site visitors, India	Reduced wait times contributed to satisfaction: $\eta^2 = 0.31$
Verma & Sinha (202	Cultural moderation of AI adoption & tourist satisfaction	n = 412 tourists, Indi	Cultural orientation moderated AI–satisfactio link: F(3, 412) = 6.87, p < .001
Tran et al. (2023)	Meta-analysis: AI service quality & tourist satisfaction in Asia	41 studies, Asian tourism markets	Weighted avg effect: AI quality → satisfactio = .54; satisfaction → loyalty r = .61
Jung et al. (2016)	AR applications at heritage sites & visitor satisfaction	Heritage site visitors	AR significantly increased satisfaction & recommendation intent: β = 0.51, p < .001
Chung et al. (2020)	Chatbot intelligence perception & hotel guest engagement	Hotel guests	Perceived chatbot intelligence enhanced engagement & satisfaction scores

Regarding the cognition dimension, namely based on rational assessment of information quality, the quality of the service, and the efficiency of the transaction, Goel et al. (2021) have also discovered that tourists who use AI systems in recommendations will be much more satisfied (M = 4.21, SD = 0.68) with the quality of the information on the topic during planning of trips (t(318) = 8. The result is consistent with the existing literature about the connection between personalisation and perceived information relevance and cognitive satisfaction (Gretzel et al., 2020).

The most direct study has focused on affective satisfaction, which encompasses emotional valence of tourist experiences, with designers of chatbots and simulation of empathy. Interestingly, the results of Pillai and Sivathanu (2020), who found that perceived empathy had a greater influence on affective satisfaction (0.53), similar to functional accuracy (0.39) among Indian hotel guests, are especially theoretically relevant. It postulates that in high-context societies where the element of relational warmth is core to service assessment criteria, emotional AI design is not only auxiliary but also a core source of satisfaction. The results of the Chung et al. (2020) study also confirmed that the perceived chatbot intelligence increased the quality of interaction and led to an increase in the satisfaction rate, indicating the contribution of AI anthropomorphism to the development of affective satisfaction.

The conative aspect of satisfaction is reflected in behavioural outcomes underlying key results, which are revisit intention and positive electronic word-of-mouth (eWOM), and have direct commercial implications for the competitiveness of destinations. The meta-analysis by Tran et al. (2023), which summarised the results of an evidence-based study by 41 studies on Asian tourism markets, found a weighted average among Asian tourism markets evidence of the effect size of r = .54 between AI service quality and tourist satisfaction and r = .61 between tourist satisfaction and behavioural loyalty intentions. The moderating effects of digital literacy, service complexity, and cultural orientation were established, and it means that the relationships are not always equal but situation-specific.

BARRIERS TO AI ADOPTION IN INDIAN TOURISM

Despite the reported potential of AI to positively impact tourist satisfaction, there are a number of structural and contextual obstacles to the successful and fair application of AI in the Indian tourism ecosystem. These barriers are systematised, and their implications on tourist satisfaction are enumerated in Table 3

Table 3. Barriers to AI Adoption in Indian Tourism and Their Satisfaction Implications

Barrier Category	Description	Implication for Tourist Satisfaction
Digital Infrastructure Gap	Rural and Tier-3 tourism destinations lack broadband connectivity required for AI-intensive applications (NASSCOM, 2023)	Creates unequal satisfaction experiences between metropolitan and peripheral tourism destinations
Data Privacy & Regulatory Uncertainty	Digital Personal Data Protection Act (2023) introduces compliance obligations that constrain AI personalisation scope (Ministry of Electronics and IT, 2023)	Perceived privacy risk negatively moderates AI service satisfaction: $\beta = -0.29$ (Verma & Sinha, 2023)
Linguistic & Cultural Complexity	22 official languages and hundreds of dialects require extensive multilingual NLP corpora currently underdeveloped (Kumar & Nanda, 2019)	Chatbot failures in regional language comprehension generate frustration and lower satisfaction ratings
SME Capacity Constraints	Small and medium tourism enterprises lack technical expertise and financial resources for AI deployment and maintenance (Ministry of Tourism, 2023)	Quality inconsistency across the tourism supply chain undermines overall destination satisfaction
Low AI Literacy Among Tourists	Older demographics and first-time travellers find AI interfaces intimidating, reducing adoption rates	Non-adoption of AI services by certain segments may widen satisfaction gaps across tourist cohorts
Risk of De-humanisation	Over-automation may undermine the Atithi Devo Bhava (Guest is God) hospitality ethos valued in Indian culture (Pan et al., 2022)	Loss of human warmth may reduce affective satisfaction, particularly for high-context cultural tourists

The most impactful one is the digital infrastructure gap. Although cities with metropolitan tourism and Tier-1 cities enjoy high-bandwidth connectivity, destinations which are the most unique tourism assets in India, rural heritage circuit, eco-tourism reserves, and tribal cultural zones often remain under-equipped with technologies that can sustain AI-intensive applications like real-time AR, IoT-based smart management circuits, and cloud-dependent recommendation systems (NASSCOM, 20 This geographic difference in AI viability poses the threat of establishing a two-level tourism satisfaction terrain where the technologically intermediated excellent experiences are likely to be centralised in the urban destinations that are available.
The second major obstacle is data privacy issues. The Digital Personal Data Protection Act (2023) of India has provided the organisations involved in processing the tourist data with new requirements, which introduces a justified uncertainty regarding the extent to which the personalisation algorithms that are based on high user profiling can be applied. Verma and Sinha (2023) empirically proved that the perceived privacy risk had a negative moderating effect on the relationship between the use of AI services and satisfaction (= -0.29, $p < .01$), which validates the fact that data anxiety is not a mere theoretical concern but a lived experience determining how tourists react to AI.

The linguistic regionalism in India is a structural NLP problem with a direct implication of satisfaction. Training large language models which can be reliably trained on 22 official languages and their regional varieties needs training corpora of size and quality that is so far not available in the Indian languages outside of Hindi and English (Kumar and Nanda, 2019). The chatbots and voice assistants that misunderstand or cannot arrange the answers to the questions of the regional languages move to the ranks of satisfaction facilitators to dissatisfaction inductors.

DISCUSSION

Developing evidence in this review provides a number of insights into a larger picture. First, empirical literature thrives on the perpetuation of the suggestion that, under proper design and implementation, AI technologies will produce quantifiable and theoretically consistent enhancements in tourist satisfaction at cognitive, affective, and behavioural levels. The effect sizes of the studies reviewed are strength values of moderate to large size (r values of between .54 and .62), which denotes practical importance of substance beyond statistical threshold.

Second, the Indian setting creates unique moderating forces, in particular, cultural orientation, digital literacy and linguistic differentiation that makes a straight transposition of results in Western or East Asian tourism markets problematic. This philosophy of Indian hospitality, which includes a culturally established positive value of Atithi Devo Bhava (the guest is God-like), places a significant standard on the expectation of the personalised human warmth that AI systems cannot fully substitute but can only enhance and, possibly, complement. Lukanova and Ilieva (2019) warned against service robots and fully automated interfaces bringing in the gain of operational efficiency at the expense of the relational warmth core of the affective satisfaction in culturally specific settings like India.

Third, a commercially valuable area of potential AI-enhanced satisfaction is identified by the growing scientific evidence of AI-enabled proactive service recovery (Mukherjee and Bhattacharyya, 2022): not by ensuring optimal service provision but by identifying and remedying service failures in real-time before they become entrenched in negative feedback or complaints. The application will be of great relevance, especially in an era where online reputation management is a key factor that determines competition in the tourism destinations of India.

RESEARCH GAPS AND FUTURE DIRECTIONS

Although the reviewed literature has become more substantial, the literature has a number of critical gaps that are worth considering in the next round of academic studies. To begin with, longitudinal research designs are required to trace the dynamic development of satisfactions among tourists regarding AI services over time since newness, habituation and technological learning can significantly deviate satisfaction patterns across time as opposed to those in cross-sectional surveys. Second, an experimental and quasi-experimental design would be able to provide stronger causal inferences regarding the relationship between AI and satisfaction compared to the large existing evidence base, which is primarily correlation in nature. Third, a comparative research of the various tourism modes in India, including heritage, adventure, medical, rural, MICE, and spiritual tourism, would provide segment-that is, tourism segment-specific knowledge that can be used to apply specific strategies in AI implementation. Fourth, there has been little consideration of the views of frontline tourism employees on AI-related role change, which is a serious lacuna in capturing human aspects of AI co-creation in service provision. Fifth, ethical AIs auditing models specifically adapted to tourism contexts, in an ordered way balancing the benefits of personalisation with the harms of data privacy, will pose as an immediate policy-research priority in the framework of the developing India-based data protection legal basis.

CONCLUSION

This review has provided a syntactic overview of the available literature on the application of artificial intelligence to the tourism business in India, emphasizing how the application can affect tourist satisfaction. The reviewed evidence base proves that AI technologies are reorganising an Indian tourism scene throughout the entire value chain, including personalised pre-trip recommendation and multi-language conversational support, smart destination management, immersive AR heritage interpretation, and active service recovery. Well-planned, culture-specifically tuned and balanced technologies produce considerable gains in the cognitive, affective and behavioural aspects of tourist satisfaction.

Meanwhile, the review also highlights that the road to AI-boosted tourist satisfaction in India is not free of significant challenges. Digital inequities in infrastructure, privacy anxieties, NLP challenges in the linguistically diverse Indian context, capacity challenges with the SMEs, and the challenge of eroding the ethos of human hospitality that is dear to India are all challenges which require concerted effort on the behalf of government, industry, and researchers. There are distinct implications to the findings of this review: the implementation of AI in Indian tourism needs to be seen not only as a move to upgrade technology but as a comprehensive, anthropocentric approach to improving instead of overshadowing the unmatched amount of warmth and cultural diversity that make India a tourism destination.

Further studies with the implementation of longitudinal, experimental, and culturally sensitive designs will be invaluable to enrich the evidence base and steer AI usage towards achieving the most favourable results for tourists, businesses, and destination communities.

REFERENCES

- Buhalis, D., & Amaranggana, A. (2015). Smart tourism destinations enhancing tourism experience through personalisation of services. In I. Tussyadiah & A. Inversini (Eds.), Information and communication technologies in tourism 2015 (pp. 377–389). Springer. https://doi.org/10.1007/978-3-319-14343-9_28
- Buhalis, D., & Sinarta, Y. (2019). Real-time co-creation and nowness service: Lessons from tourism and hospitality. Journal of Travel & Tourism Marketing, 36(5), 563–582. https://doi.org/10.1080/10548408.2019.1592059
- Chung, M., Ko, E., Joung, H., & Kim, S. J. (2020). Chatbot e-service and customer satisfaction regarding luxury brands. Journal of Business Research, 117, 587–595. https://doi.org/10.1016/j.jbusres.2018.10.004
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3), 319–340. https://doi.org/10.2307/249008
- Goel, P., Mittal, A., & Singh, R. (2021). AI-based recommendation systems and tourist decision-making in India: An empirical analysis. Journal of Hospitality and Tourism Technology, 12(3), 411–428. https://doi.org/10.1108/JHTT-06-2020-0142
- Gretzel, U. (2018). Tourism in the age of the collaborative economy. In C. Cooper, S. Volo, W. C. Gartner, & N. Scott (Eds.), The SAGE handbook of tourism management (pp. 56–74). SAGE Publications.
- Gretzel, U., Sigala, M., Xiang, Z., & Koo, C. (2020). Smart tourism: Foundations and developments. Electronic Markets, 25(3), 179–188. https://doi.org/10.1007/s12525-015-0196-8
- Hofstede, G. (1980). Culture's consequences: International differences in work-related values. SAGE Publications.
- Jung, T., tom Dieck, M. C., Lee, H., & Chung, N. (2016). Effects of virtual reality and augmented reality on visitor experiences in museum. In A. Inversini & R. Schegg (Eds.), Information and communication technologies in tourism 2016 (pp. 621–635). Springer. https://doi.org/10.1007/978-3-319-28231-2_45
- Kim, J., Merrill, K., Collins, C., & Whitehead, A. (2017). Interaction and relationship between technology and human in the hospitality industry. Journal of Hospitality & Tourism Research, 41(7), 873–895. https://doi.org/10.1177/1096348014550395
- Kumar, V., & Nanda, P. (2019). Social media in higher education: A framework for continuous engagement. International Journal of Information and Communication Technology Education, 15(1), 109–119. https://doi.org/10.4018/IJICTE.2019010108
- Lukanova, G., & Ilieva, G. (2019). Robots, artificial intelligence, and service automation in restaurants. In S. Ivanov & C. Webster (Eds.), Robots, artificial intelligence, and service automation in travel, tourism and hospitality (pp. 193–215). Emerald Publishing.
- Ministry of Electronics and Information Technology. (2023). Digital Personal Data Protection Act, 2023. Government of India. https://meity.gov.in
- Ministry of Housing and Urban Affairs. (2023). Smart Cities Mission: Progress report 2023. Government of India. https://smartcities.gov.in
- Ministry of Tourism, Government of India. (2023). Annual report 2022–23. Government of India. https://tourism.gov.in

- Mukherjee, S., & Bhattacharyya, S. (2022). Sentiment analysis of tourist reviews at Indian heritage destinations: An NLP-based approach. Tourism Management Perspectives, 43, 100975. https://doi.org/10.1016/j.tmp.2022.100975
- NASSCOM. (2023). AI adoption in India: Status and opportunities. National Association of Software and Service Companies. https://nasscom.in
- Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. Journal of Marketing Research, 17(4), 460–469. https://doi.org/10.1177/002224378001700405
- Pan, Y., Okolo, C. A., & Onifade, T. A. (2022). Technology adoption and tourist behaviour: Service robots in the hospitality sector. International Journal of Hospitality Management, 101, 103112. https://doi.org/10.1016/j.ijhm.2021.103112
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. Journal of Retailing, 64(1), 12–40.
- Pillai, R., & Sivathanu, B. (2020). Adoption of AI-based chatbots for hospitality and tourism. International Journal of Contemporary Hospitality Management, 32(10), 3199–3226. https://doi.org/10.1108/IJCHM-04-2020-0259
- Pizam, A., & Milman, A. (1993). Predicting satisfaction among first-time visitors to a destination by using the expectancy disconfirmation theory. International Journal of Hospitality Management, 12(2), 197–209. https://doi.org/10.1016/0278-4319(93)90010-7
- Russell, S., & Norvig, P. (2021). Artificial intelligence: A modern approach (4th ed.). Pearson.
- Sharma, A., & Singh, P. (2022). AI-driven travel recommendations and domestic tourist satisfaction in India. South Asian Journal of Tourism and Heritage, 15(2), 88–107.
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. Journal of Business Research, 104, 333–339. https://doi.org/10.1016/j.jbusres.2019.07.039
- Tiwari, R., & Chaturvedi, M. (2021). Smart tourism infrastructure and visitor satisfaction: Evidence from Indian UNESCO World Heritage Sites. Tourism Analysis, 26(4), 315–329. https://doi.org/10.3727/108354221X16262352919743
- Tran, V. D., Nguyen, H. T., & Nguyen, T. M. (2023). AI-driven service quality and tourist satisfaction in Asian markets: A meta-analysis. Journal of Vacation Marketing, 29(2), 201–218. https://doi.org/10.1177/13567667221105463
- Tussyadiah, I. P., Wang, D., Jung, T. H., & tom Dieck, M. C. (2018). Virtual reality, presence, and attitude change: Empirical evidence from tourism. Tourism Management, 66, 140–154. https://doi.org/10.1016/j.tourman.2017.12.003
- Ukpabi, D. C., Aslam, B., & Karjaluoto, H. (2019). Chatbot adoption in tourism services: A conceptual exploration. In S. Ivanov & C. Webster (Eds.), Robots, artificial intelligence, and service automation in travel, tourism and hospitality (pp. 105–121). Emerald Publishing.
- Verma, S., & Sinha, N. (2023). Cultural moderators of AI adoption and tourist satisfaction: Evidence from India. International Journal of Tourism Research, 25(1), 45–63. https://doi.org/10.1002/jtr.2560
- World Travel & Tourism Council. (2022). India 2022 annual research: Key highlights. WTTC. https://wttc.org

Published by
Dr. Asha Rathi
Head,
Department of Business Administration
Jai Narain Vyas University, Jodhpur, Rajasthan -.342001

Website : www.busadmjnvu.org