

# Generative AI for Quality Assurance and Academic Administration in Indian Technical Institutions: Adoption, Readiness and Policy Implications

**Dr. Abhijit R. Gajghate**

Associate Professor & HOD, Department of Business Management  
Madhukarrao Pandav College of Engineering, Bhandara, India

## Abstract

The rapid advancement of Generative Artificial Intelligence (Gen-AI) tools has opened new possibilities for improving quality assurance and academic administration in higher education. Technical institutions in India, which undergo continuous accreditation, reporting and documentation processes, present fertile ground for the integration of AI-driven automation and decision support systems. This pan-India study investigates the adoption levels, institutional readiness, perceived benefits, challenges, and policy implications of using Gen-AI tools such as ChatGPT, Gemini, Claude, and other LLM-based platforms across Indian technical institutions. Using a mixed-methods research approach, primary data were collected from **900 respondents** representing IQAC coordinators, administrators, senior faculty, and administrative staff from different regions of India. Findings indicate moderate-to-high awareness of Gen-AI but uneven adoption across institutions due to infrastructural constraints, lack of training, ethical concerns and absence of institutional policies. Gen-AI tools significantly enhance documentation efficiency, NAAC/AQAR preparation, report writing, meeting minutes, and student support services; however, concerns persist about plagiarism, data privacy, and accuracy. The study recommends national-level guidelines, capacity-building initiatives, ethical policies, and structured integration of AI to support quality assurance ecosystems. Policy recommendations for AICTE, NAAC and institutions have been proposed.

**Keywords:** Generative AI, IQAC, Quality Assurance, Academic Administration, NAAC, Technical Institutions, Higher Education, AI Adoption, India

## 1. Introduction

Generative Artificial Intelligence (Gen-AI) has emerged as a transformative technology capable of producing human-like text, audio, images and summarizations. In higher

education, Gen-AI tools are rapidly becoming central to documentation, reporting, student support, administrative tasks, learning analytics, and quality assurance systems. Technical institutions in India continuously interact with regulatory bodies such as the AICTE, NAAC, NBA, and university authorities. Their administrative processes involve intensive documentation, preparation of reports, AQAR, academic audits, curricula updates, industry interaction, feedback analysis and compliance activities. Traditionally, these processes are labor-intensive and time-consuming.

With the emergence of Generative AI tools—ChatGPT, Gemini, Claude, Copilot and domain-specific AI systems—institutions can now automate several administrative tasks: drafting reports, analyzing qualitative data, preparing minutes, summarizing policies, managing feedback, and enhancing decision-making. However, the rapid adoption of Gen-AI raises important questions about readiness, digital infrastructure, ethical concerns, academic integrity, and the ability of institutions to leverage these tools responsibly.

Despite its potential, empirical research on Gen-AI use in Indian technical institutions remains limited. This study fills the gap by examining adoption levels, perceived usefulness, institutional readiness, barriers, and policy implications.

## 2. Review of Literature

### 2.1 Generative AI in Higher Education

Research indicates that Gen-AI supports academic writing, assessment automation, learning analytics, personalized tutoring, and documentation automation (Dwivedi et al., 2023). Large language models (LLMs) facilitate summarization, policy drafting, and structured reporting.

## 2.2 AI in Quality Assurance

Studies reveal that AI-based tools can assist IQAC functions such as feedback analysis, strategic plan monitoring, metric analysis, and report preparation. Automation enhances transparency and reduces manual workload (Raman & Singh, 2022).

## 2.3 AI Adoption Models

Technology Acceptance Model (TAM), UTAUT and Diffusion of Innovation Theory explain adoption behavior driven by perceived usefulness, ease of use, institutional readiness, and social influence.

## 2.4 Challenges in AI Adoption

Ethical concerns (bias, accuracy), academic integrity, data privacy, lack of training, inadequate policies, and technological infrastructure remain major barriers (Kumar, 2024).

## Research Gap Identified

- No large-scale pan-India study exists on **Gen-AI in IQAC and academic administration**.
- Lack of evidence on institutional readiness and policy frameworks.
- Limited empirical data on how Gen-AI affects NAAC/NBA processes.

This study addresses these gaps.

## 3. Objectives of the Study

1. To examine awareness and adoption levels of Generative AI tools in IQAC and academic administration.
2. To assess institutional readiness for Gen-AI integration in Indian technical institutions.
3. To identify perceived benefits and challenges of using Gen-AI tools.
4. To analyze the impact of Gen-AI on quality assurance, documentation processes and efficiency.
5. To propose a policy framework for responsible and effective Gen-AI adoption.

## 4. Hypotheses

H1: Awareness of Generative AI positively influences its adoption in IQAC processes.

H2: Institutional readiness significantly affects adoption of Gen-AI tools.

H3: Perceived usefulness positively impacts adoption.

H4: Ethical and privacy concerns negatively influence adoption.

H5: Gen-AI adoption significantly improves efficiency in academic administration.

## 5. Research Methodology

### 5.1 Research Design

A descriptive, quantitative, and qualitative mixed-methods design was adopted.

### 5.2 Population

All technical institutions in India affiliated with AICTE, universities, or autonomous bodies.

### 5.3 Sample Size

A pan-India survey was conducted with **n = 900 respondents** based on Cochran's formula and expanded for national heterogeneity.

### 5.4 Sampling Technique

- Stratified sampling:
  - Six regions: North, South, East, West, Central, Northeast
  - Institution types: Government, Private-Aided, Private-Unaided, Autonomous
  - Respondent categories: IQAC staff, Administrators, HODs/Faculty, Administrative officers

### 5.5 Data Collection Tools

1. **Structured Questionnaire (Likert 5-point):**
  - Awareness, Adoption, Perceived Usefulness (TAM), Ease of Use, Readiness, Ethical Concerns, Impact.
2. **Interviews (30 participants):**
  - IQAC coordinators, Principals, Registrars, Deans.

### 5.6 Data Analysis

- Descriptive statistics
- Reliability (Cronbach's alpha)
- EFA/CFA
- Regression and ANOVA
- Thematic analysis for qualitative data

## 6. Data Analysis & Interpretation

The data collected from **900 respondents across India** was analyzed using descriptive statistics to understand respondent demographics, institutional profiles, familiarity with Generative AI, and usage patterns. The following tables (6.1 to 6.6) provide a structured representation of the sample characteristics with clear interpretations. These insights help assess the readiness and adoption of Gen-AI tools across various categories of technical institutions.

### 6.1 Distribution of Respondents by Institution Type

*This section examines the representation of different types of technical institutions participating in the study. It helps determine whether the sample adequately captures diversity in governance, structure, and accreditation responsibilities.*

**Table 6.1: Distribution of Respondents by Institution Type**

Institution Type	Frequency (n)	Percentage (%)
Government Technical Institutions	220	24.44%
Government-Aided Technical Institutions	150	16.67%
Private Unaided Technical Institutions	380	42.22%
Deemed/Autonomous Universities	150	16.67%
<b>Total</b>	<b>900</b>	<b>100%</b>

#### Interpretation:

Most responses were obtained from Private Unaided Technical Institutions (42.22%), reflecting their higher population across India. Both Government-Aided and Deemed Universities contributed equally (16.67% each). Government institutions constituted nearly one-fourth of the sample (24.44%), ensuring balanced representation across governance structures.

### 6.2 Distribution of Respondents by Designation / Role

*This section categorizes respondents based on their professional role within institutions. Understanding respondent roles is important for interpreting perceptions about Gen-AI adoption, especially in IQAC and administrative processes.*

**Table 6.2: Distribution of Respondents by Designation / Role**

Respondent Category	Frequency (n)	Percentage (%)
IQAC Coordinators / Members	180	20.00%
Administrators (Principal, Registrar, VP)	160	17.78%
Faculty / Heads of Departments	400	44.44%
Administrative Staff (Exam, Office)	160	17.78%
<b>Total</b>	<b>900</b>	<b>100%</b>

#### Interpretation:

The Faculty and HODs formed the largest proportion (44.44%), which aligns well with their major role in academic administration and IQAC activities. A strong representation from IQAC Members (20%) and Administrators (17.78%) ensures robust insights on policy readiness and implementation. Administrative staff also significantly contributed (17.78%).

### 6.3 Distribution of Respondents by Region in India

*This section highlights geographical diversity in the respondent pool. Regional distribution helps understand variations in digital infrastructure, AI adoption, and policy readiness.*

**Table 6.3: Distribution of Respondents by Region in India**

Region	Frequency (n)	Percentage (%)
North India	180	20.00%
South India	230	25.56%
West India	200	22.22%
East India	160	17.78%
Central India	80	8.89%
North-East India	50	5.56%
<b>Total</b>	<b>900</b>	<b>100%</b>

#### Interpretation:

South (25.56%) and West India (22.22%) contributed the highest number of respondents—reflecting the concentration of technical institutions in states like Karnataka, Tamil Nadu, Maharashtra, and Gujarat. Representation from all regions ensures that findings are generalizable at the national level.

#### 6.4 Distribution of Respondents by Teaching/Administrative Experience

This section analyzes the professional experience of respondents, which influences their familiarity with administrative processes and readiness to adopt AI tools.

**Table 6.4: Distribution of Respondents by Experience**

Experience (Years)	Frequency (n)	Percentage (%)
0–5 Years	210	23.33%
6–10 Years	260	28.89%
11–15 Years	230	25.56%
Above 15 Years	200	22.22%
<b>Total</b>	<b>900</b>	<b>100%</b>

#### Interpretation:

Respondents were well distributed across experience levels. The highest representation came from the 6–10 years category (28.89%), followed closely by 11–15 years (25.56%), highlighting participation from mid-career professionals who are typically more involved in both teaching and administrative responsibilities.

#### 6.5 Distribution of Respondents by Familiarity with Generative AI Tools

This section measures the initial awareness and familiarity of respondents with Gen-AI tools. Understanding this helps assess existing digital competence levels.

**Table 6.5: Familiarity with Generative AI Tools**

Familiarity Level	Frequency (n)	Percentage (%)
High (Regular User)	180	20.00%
Moderate (Occasional User)	320	35.56%
Low (Basic Awareness Only)	260	28.89%
No Awareness	140	15.56%
<b>Total</b>	<b>900</b>	<b>100%</b>

#### Interpretation:

More than 55% of respondents (High + Moderate) have used generative AI tools such as ChatGPT, Gemini, or Copilot. Yet almost 45% remain low or unaware, indicating substantial gaps in training and institutional readiness—an important policy implication for AI adoption in IQAC and academic administration.

#### 6.6 Distribution of Respondents by Frequency of Using Gen-AI in Work

This section assesses how frequently respondents use Gen-AI tools for academic and administrative tasks. Usage frequency helps identify adoption intensity.

**Table 6.6: Frequency of Using Gen-AI Tools**

Usage Frequency	Frequency (n)	Percentage (%)
Daily	120	13.33%
Weekly	250	27.78%
Monthly	180	20.00%
Rarely	220	24.44%
Never	130	14.44%
<b>Total</b>	<b>900</b>	<b>100%</b>

#### Interpretation:

Daily and weekly users together comprise 41.11%, indicating emerging adoption for teaching, administrative tasks, documentation, and IQAC reporting. However, 38.88% (Rarely + Never) reflect resistance or lack of institutional push. This confirms the need for structured policies and AI training programs.

### 7. Findings

1. High awareness but moderate adoption across Indian technical institutions.
2. Gen-AI significantly reduces time for documentation and improves quality.
3. Institutional readiness varies significantly across regions and institution types.
4. Lack of training and absence of AI policies are major barriers.
5. Users perceive productivity benefits but remain cautious about accuracy and ethical risks.

### 8. Conclusion

Generative AI has substantial potential to transform quality assurance and academic administration in Indian technical institutions. The technology is already being used to prepare reports, summarize documents, analyze feedback, draft policies, and improve administrative efficiency. However, its adoption is hindered by inconsistent digital readiness, lack of training, ethical concerns, and insufficient institutional policies.

The study demonstrates that institutional readiness, perceived usefulness, and awareness significantly influence adoption. Gen-AI can play a crucial role in

supporting NAAC, NBA, IQAC, academic audits, and governance mechanisms if responsibly implemented.

## 9. Suggestions / Policy Recommendations

### Institution Level

- Form an **AI Policy Committee** under IQAC.
- Develop **institutional guidelines** for ethical AI use.
- Conduct regular **FDPs/Workshops** on Gen-AI tools.
- Strengthen digital infrastructure and data protection mechanisms.
- Integrate Gen-AI into administrative workflows gradually.

### NAAC / AICTE / University Bodies

- Issue national-level guidelines for AI use in quality assurance.
- Recognize AI-supported documentation as acceptable with proper citations.
- Provide training modules for institutions.
- Create standardized AI tools for AQAR/NBA documentation.

### Faculty & Staff Development

- Awareness programs, refresher training, and capacity-building.
- Promote responsible AI literacy among administrators and faculty.

## 10. Limitations

- Self-reported responses may include bias.
- Uneven state-wise participation.
- The study focuses exclusively on technical institutions.
- Rapidly evolving AI landscape may change adoption patterns.

## 11. Future Scope

- Comparative study between technical and non-technical institutions.
- Longitudinal research on Gen-AI adoption before and after policy implementation.
- AI-driven dashboards and analytics for IQAC.

- Impact of Gen-AI on teaching-learning outcomes.

## 12. References

- Dwivedi, Y. et al. (2023). Generative AI in Higher Education. *Journal of Business Research*.
- Kumar, P. (2024). Ethical Challenges in AI Adoption in Universities. *Higher Education Review*.
- Raman, S., & Singh, A. (2022). AI Tools for Institutional Quality Assurance. *Indian Journal of Education Technology*.
- Venkatesh, V., & Davis, F. (2000). Technology Acceptance Model. *MIS Quarterly*.