

## **ROLE OF ARTIFICIAL INTELLIGENCE IN EMPLOYEE ENGAGEMENT AND RETENTION**

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### **Abstract**

With attrition rates sky rocketing at more than 10% in top 3 industries and increasing alarmingly every year, it has become crucial for organisations to work towards retaining their employees by keeping them engaged and looking after their needs along with keeping the organisational goal in mind. According to the Work Institute and the 2018 Retention Report companies are expected to spend \$680bn in turnover costs by 2020. They also estimated the top 50 reasons why workers plan to abandon their jobs. Career growth and work-life balance or lack of them were the most often cited factors, such as benefits and incentives, well-being and management behaviour. Artificial intelligence in recent times has taken ‘understanding employees’ to a different horizon. With the help of Big Data Analysis, Machine learning etc, bots have become powerful enough to measure and understand trends and accordingly predict the decisions that a human might take.

Converging big data and machine learning with human touch is the key to the effective use of AI for retention and engagement. It is imperative that the company and HR understands the balance between aiding technology to help them and the human nuances of working with people. As employees are developing in their jobs and careers, predictors can be looked at. These predictors or indicators might tell us if the employee is planning to leave or if he is unhappy. This study aims to understand and find out the role of artificial intelligence in employee engagement and as a result of that; employee retention. There is a rich opportunity to explore this arena and a variety of methods under AI to unravel these kinds of issues.

**Keywords:** Artificial Intelligence, Employee Attrition, Employee Engagement, Employee Retention, HR Analytics, Analytics

## **Introduction**

Since the advent of Human Resources, it has always been credited as a people function without much scope for technological advancements, except in areas of automating compensation, learning and development etc. But in recent times, technology has engulfed all sectors and departments and opened new doors for research. The practical implementation of AI to HR concerns poses a variety of difficulties. They vary from realistic to philosophical, including the fact that the essence of data science research, as applied to humans, has significant contradictions with standards that are usually used by populations as important for human decision making.

Employee retention boils down to a number of reasons, but research has collated and shown that it is majorly about engagement, says the Corporate Leadership Council. This study found that highly motivated workers are 87 percent less likely to leave their jobs, including more than 50,000 employees from 59 international corporations. AI is a strong advocate of engagement; it will drive companies to know just who their employees are and what they want and demand from the organisation. There are multiple advantages to having AI in an organisation. AI related data analysis will read and tell why the unemployment rate are high and what the reasons might be for them to leave the company. The emotion analysis will also describe the actions and motivation of workers and, in essence, recognise markers or predictors that are the warning flags of a career strategy for employees.

Sophisticated emotion research can determine when many persons feel irritated, anxious and bored at work using text analysis and natural language processing (NLP) and biometrics. Once the root cause of the symptom or threat area has been identified and recognized, AI will also offer data-based advice on interventions to increase and maintain levels of employee involvement.

## **Systematic Literature Review**

In a study done by McKinsey Global Institute, organizations all over the world have invested around \$40 billion in Artificial Intelligence technology in 2016. A majority of this funding went into research and development, approximately 10% was given to the implementation of AI technologies towards refining operations and increasing engagement. Artificial intelligence

has shown terrific opportunity and can bring about change when it comes to employee engagement. Using artificial intelligence driven solutions, companies can engage off-site and on-site employees by providing 24 x 7 assistance and support, measuring performance in real-time, enhancing learning and development activities and providing better methods of conflict resolution.

About 42 million people abandoned their employers in 2018, a detailed nationwide report carried out by the Work Institute shows. They published their 2018 Retention Survey, the one of its kind, marking their second review on national attrition and retention in the workplace. Using a statistically based approach and data from more than 2,34,000 exit interviews, this uncovers the grass root level triggers of attrition to expose the true reasons why employees left their jobs for better opportunities.

The study notes that the rising employment environment and competitive markets allow a large percentage of workers to make career changes when current employers don't fulfil their needs and aspirations. An analysis by the Work Institute reports that employees will slip 42 million, or one in four, from their employment in 2018, and that approximately 77 percent, or three-fourths, of this turnover can be halted or avoided by employer.

\$600 billion was approximately spent by the companies in turnover costs in 2018 and looking at the trend, one can expect it to increase to \$680 billion by 2020.

The President of Work Institute, Danny Nelms had stated that Employees and candidates in the market always have better options to look forward to. They find jobs that are more suited to their preferences and expectations.

While several reports favour workers resigning for better roles from their employers, this study indicates that work-life balance, professional growth prospects and weak or uncooperative management are consistently the main challenges that drive employees to leave.

The 2018 Retention Study outlines the 50 key reasons why workers have opted to abandon their positions and divided them into 10 subcategories, 7 of which are deemed to be avoidable and preventable by employers. The top five types of reasons why people leave work are as follows:

- 1) Career Growth – Little or low ability to rise in jobs and employment. (21%)
- 2) Work-Life Balance – Improved work-life balance, comprising of more favorable hours, flexible arrangements and faster travel times (13 %)
- 3) Action Boss – Unprofessional, disrespectful supervisors. (11 %)
- 4) Mental Wellness-Personal or family health problems. (9%)
- 5) Compensation – Compensation has been discussed more frequently than benefits. (9%)

The study lists other primary understandings, such as when workers are most likely to resign or abandon their jobs. Around 40% of workers leave in 12 months after boarding, with a cumulative first-year turnover of eight years. The number of employees who reported being aware of unethical, immoral or dishonest conduct at their former place of employment increased to 6.1 per cent last year, a 500 per cent rise from 2010.

According to one study by the International Data Company (IDC), one of the key reason's workers abandon their jobs is because they find they expend so much time on superficial activities and not enough time concentrating on more meaningful stuff. Using a framework for automating repetitive operations is a smart way to boost staff productivity. They will be able to spend their time on activities that provide greater work satisfaction, which ultimately leads to less attrition.

One of the most advanced, unorthodox and straightforward approaches in the field of quantitative labor force analysis is quantitative retention analysis (Westfall 2017). Algorithms (or also statistical representations rendered in many iterations of Excel) now used by thousands of companies determine which workers are preparing or at risk of leaving the firm. In certain cases, algorithms have known these individuals for a long time, while they have consciously developed an impulse to give up (Beygelman 2018). In their day-to-day activities, jobs and behaviour, workers send out several messages about their attitudes, helping organisations to create mathematical models that identify and measure turnover. Using this stuff, managers (or the AI itself may interfere to prevent talent from leaving, through the use of personalized promotions, rewards and appreciation (Grillo 2015).

Joberate, for example, a statistical analytics approach that uses machine intelligence, looks at employee social media behaviors on publicly available social media sites such as LinkedIn and Twitter, to evaluate patterns in job-seeking behavior. If, for example, an employee has an

online profile and changes his / her work records, qualifications or joins the Job Hunters Group — and performs these or other practises on several occasions — Joberate 's programme can steadily raise the "J-Score" of the employee. The J-Score is not only an indicator of success in the field of job searching, it records other events related to work searching practises. If the J-Score of an employee reaches and then crosses a certain number, the probability that the employee will be able to leave at some point in the next 120 days' increases if nothing is done to stop it. To date, it has proved remarkably reliable to be true in more than 90% of cases over a four-year period (Beygelman 2018).

### **Research Gap**

There are numerous studies on Technology in Human Resources and Artificial Intelligence in Recruitment but hardly any in Artificial Intelligence in HR as a whole, or engagement and retention in particular. Various factors are discussed which deter companies from adopting Artificial Intelligence at workplace especially in Human Resource functions. The most known on being the cost, data security concerns and lack of awareness. The studies are aimed at technology, while AI are yet to be explored fully. The gap identified is the need for an exploratory study.

### **Research Methodology**

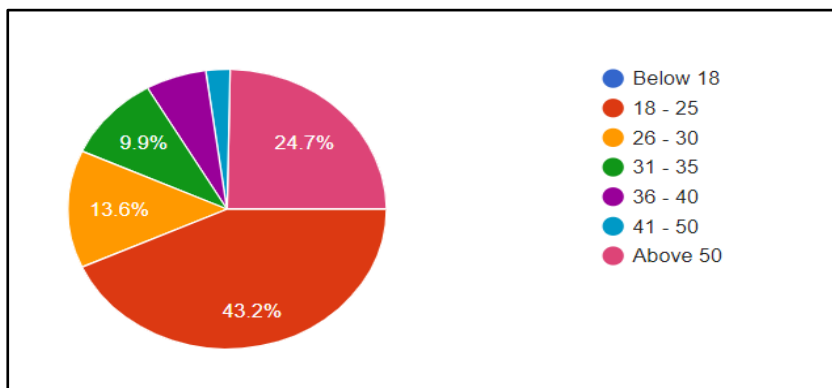
The research is a combination of both quantitative and qualitative measures. The quantitative research will be carried out with the help of a questionnaire. The nature of the study is an analytical approach. The methodological review of the paper is a framework of the methods employed so as to find out the impact of artificial intelligence on Employee Engagement and Employee Retention in an organization.

A well-defined synchronization was made between qualitative and quantitative approaches. First method was a qualitative approach wherein various research papers and secondary data was collected and studied in regard with the relevance of the topic. Secondly, a questionnaire was prepared which collected the primary data responses to fill in the gaps and back up the secondary data found; the questionnaire aims at collecting 130 responses.

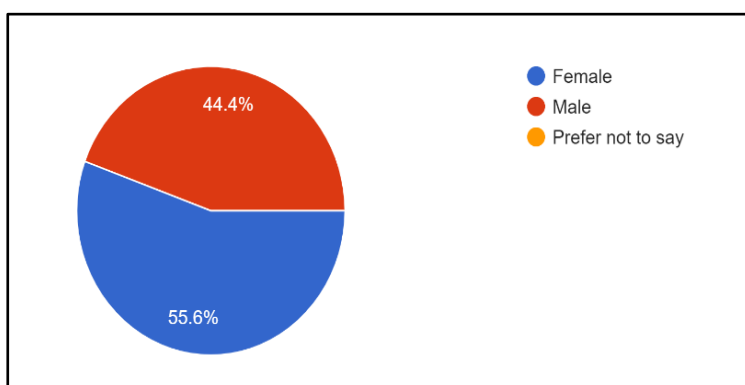
A few interviews were conducted to understand the perspective of Managers in Human Resource Departments and their beliefs of whether or not Artificial Intelligence has a role to play and if it is here to stay. This will be categorized in the qualitative approach.

Majority of the respondents were from the 50+ age group and 4 major industries were noticed in the pool.

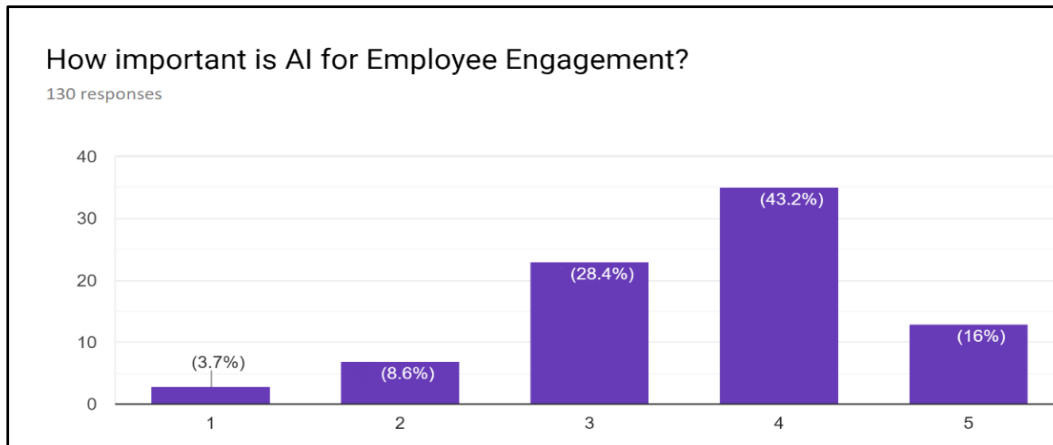
15 was from Education Sector, 11 from Financial Services, 11 from Technology, Telecom and Media communications, 7 from Lifesciences & Healthcare while 7 were from Public Sector Units.



*Figure 1: Age break up of respondents*

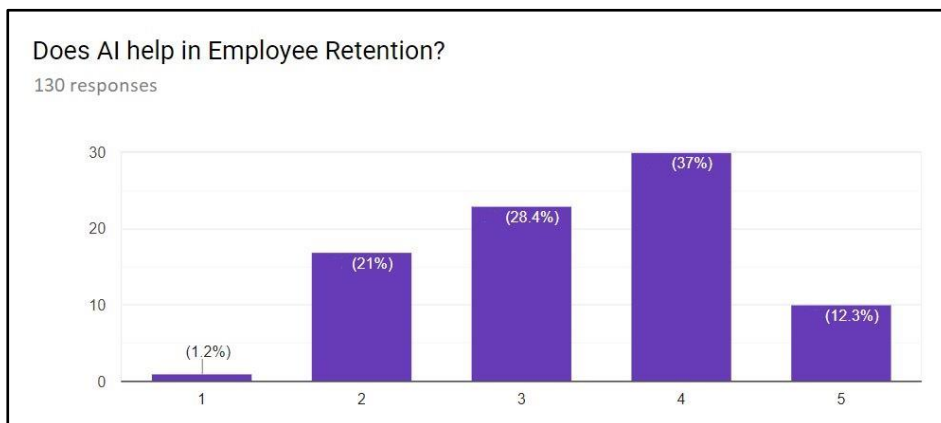


*Figure 2: Gender break up of respondents*



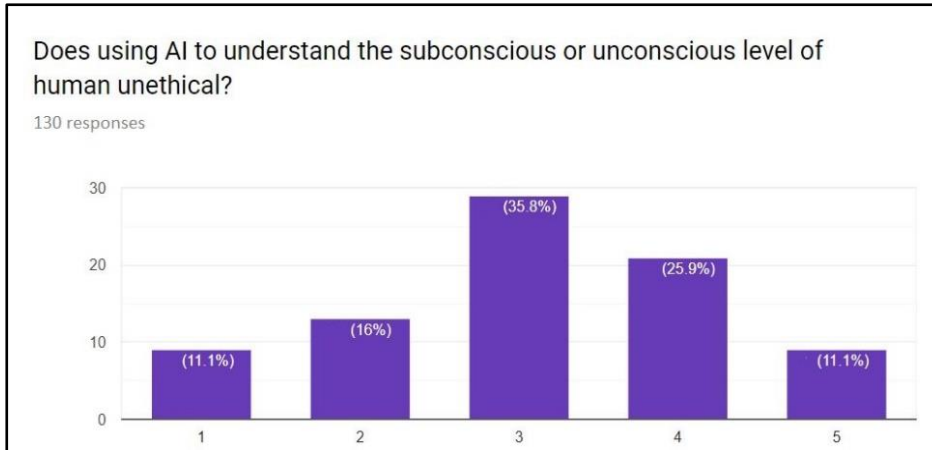
*Figure 3: Importance of AI in Engagement, ranking from 1 – 5.*

*56 respondents rated 4 as the importance, while 20 of them rated it a poor 1.*



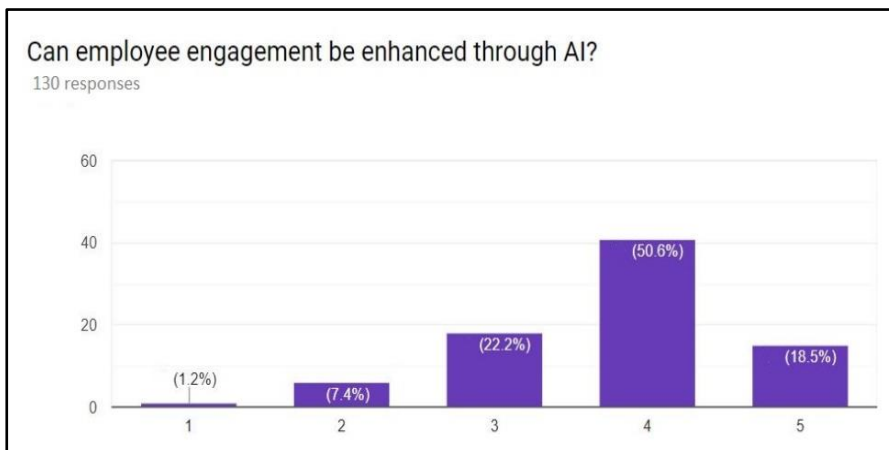
*Figure 4: Importance of AI in Retention, ranking from 1 – 5.*

*16 of them responded with high rating of 5. 48 of them gave a 4, which decreases with every lower rank and 1 person ranked it at 1.*



*Figure 5: Level of unethical to ethical left to right.*

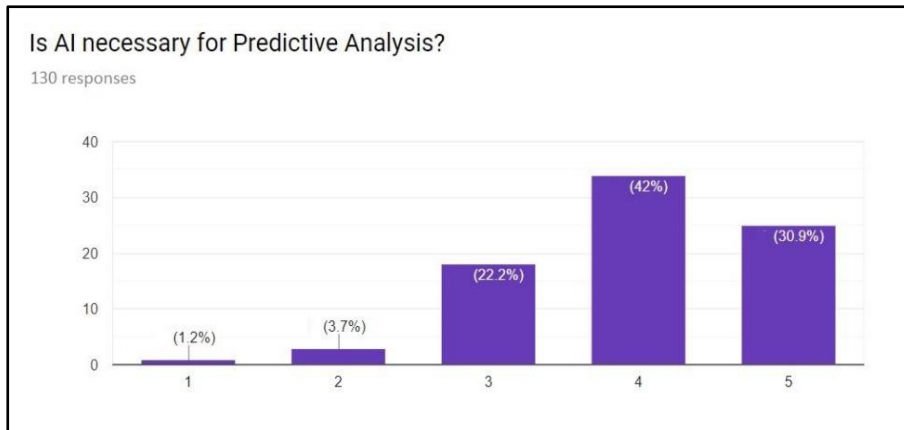
*14 of the respondents voted rank 1, that AI is unethical in encroaching the privacy, 46 of them voted 3, neither high ethical nor unethical. While another 14 said it is highly ethical.*



*Figure 6: Scope of engagement experience to be enhanced through AI ranking from 1 being NO – 5 being YES.*

*Majority of the respondents, 65 of them rated it 4, agreeing to AI enhancing engagement. 24 of them rated it 5, strongly agreeing to the matter.*





**Figure 7: Views on AI’s importance on Predictive Analysis 1 being Highly Disagree to 5 being Strongly Agree.**

*40 respondents rated 5, while 54 of them maintained an “Agree” stance rating it 4. 6 respondents voted below 3.*

**Findings**

The data obtained via the questionnaire is evaluated with the aid of the SPSS. An exploratory factor analysis is carried out to find answers to the study questions.

**KMO measure of sampling adequacy**

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.841
Bartlett's Test of Sphericity	Approx. Chi-Square	222.147
	df	36
	Sig.	.000

KMO is .841 A high value of this statistics (.5-1) indicates the appropriateness of the factor analysis where as a low value (below 0.5) indicates inappropriateness of the factor analysis. The value is in the acceptance region of the factor analysis model.

**Barletts test of sphericity**

This statistic tests the hypothesis whether the population correlation matrix is an identity matrix. Our chi square test is 222.1 with degree of freedom 36. The value is significant. Both the results indicate an appropriate factor analysis model with significance less than .05

*Communalities*

	Initial	Extraction
Existence of AI in HR	1.000	.641
AI Existence in company	1.000	.382
Increase Efficiency in HR	1.000	.722
AI Employee Engagement	1.000	.677
AI Retention	1.000	.538
AI Predictive Analysis?	1.000	.579
Scope Engagement	1.000	.687
Ethical	1.000	.852
Replace HR	1.000	.815

Extraction Method: Principal Component Analysis.

The communalities describe the amount of variance a variable share with other variables in the study. The above figure shows the initial and extracted communalities. The extracted communality is the estimate of variance in each variable, which can be attributed to factors in the factor solution. The relatively small value 0.382 of the extracted communality suggests that (AI's existence in company) is a misfit for the factor solution and can be dropped.

*Eigenen value**Total Variance Explained*

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	3.758	41.758	41.758
2	1.081	12.008	53.766
3	1.054	11.715	65.481
4			
5			
6			
7			
8			
9			

Extraction Method: Principal Component Analysis.

There are three factors which account for 65% of the total variance explained.

The factors are:

I. Factor is a combination of the variables: Increase efficiency in HR, AI employee engagement and Scope of engagement.

II. Factor: Replace HR

III. Factor: Ethical.

*Interview Questionnaire*

- Are you aware of what Artificial Intelligence is?
- Is it being used in your company in any department?
- Are there any companies which you know use AI?
- What is the scope for AI in the future in your company?
- Is AI being used in HR in any manner?

- Which functions of HR do you think it is most useful in?
- Are you aware of predictive analysis?
- Would predictive analysis help in reducing attrition?
- Would it help in increasing engagement?
- Does capturing data for such analysis count as ethical?
- Would the personal space of an employee get encroached by this?
- In what manner can we use AI to engage an employee?

### *Themes from the Interview*

Yes – Interviewees were aware of the subject

No – Interviewees were not aware of the subject

NA – The theme was not brought up

<u>Themes</u>	<u>Interview ee 1</u>	<u>Interview ee 2</u>	<u>Interview ee 3</u>	<u>Interview ee 4</u>	<u>Interview ee 5</u>
<u>AI in Firm</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>
<u>AI in HR</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>
<u>AI in Recruitment</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>
<u>Engagement</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>
<u>Retention</u>	<u>Yes</u>	<u>Yes</u>	<u>NA</u>	<u>Yes</u>	<u>No</u>
<u>Ethical</u>	<u>Yes</u>	<u>NA</u>	<u>NA</u>	<u>Yes</u>	<u>Yes</u>
<u>Scope</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>
<u>Predictive Analysis</u>	<u>Yes</u>	<u>NA</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>

## Interpretation

1. To understand the extent to which Technology and AI has seeped into HR

- This qualitative understanding was done through the interviews of 6 people from different industries, namely IT, Automobile, Construction, Consultancy.

Technology highly prevalent in every company, with computerized payroll management, Application Tracking Systems, Human Resource Management Systems, automated leaves, performance reviews etc. are all adept with Technology.

2. Find factors which employees think about when AI comes in mind and its usefulness.

- This was measured with the help of a Questionnaire and Factor Analysis, where it was found There are three factors which account for 64% of the total variance explained. The factors are:

I Factor is a combination of the variables: Increase efficiency in HR, AI employee engagement and Scope of engagement.

II Factor: Replace HR

III Factor: Ethical.

3. To measure role of AI in engagement and retention

- This was also understood through the interviews where all the 6 respondents believed that AI as of now does not directly have any effect on engagement and retention, but it does on recruitment. In a few years where wearables and mood predictive analysis can be formulated, it can focus on engagement and retention.

A few themes which were brought upon in addressing the hesitation to adopt Artificial Intelligence were:

Financial barriers are to be blamed for slow implementation for HR assistance and administrative tasks. Other reasons which all interviewees spoke about were:

- Talent gap: it can be difficult and costly to recruit or find specialized or skilled people who hold expertise in this field.
- Privacy Concerns: confidential HR data must be given access to in a safe manner and should be available only to the authorized person.
- Regular Updates: Every month a new update or change comes with every new technology, AI too needs extensive learning and regular updation of knowledge.

- Measuring return on investments: Companies do not have a vast understanding of how to measure data using AI especially for Human Resources.
- Reducing bias in HR decision: To stay ahead in the competitive world of today, there should be transactional benefit from spending exorbitant money on AI. AI should be helping humans make decisions which will eliminate bias and ease the administrative tasks.

Through the interviews, we also gain the following insights:

### ***Good first impression***

The initial interview process is what serves as your first experience with the employee. Using AI in combination with an integrated Task Monitoring System (ATS) in the first stage of recruitment process would save time and money for both the organisation and the employee. AI-based procurement, skills and expertise matching, and outreach can ease a company's impression.

### ***Training and Skill-Growth***

The number of millennials in business companies is increasing exponentially, and they are not engaged in obsolete learning resources. In comparison, workers are no longer able to go to traditional, conventional learning processes, instead of having immersive training that teaches essential work skills. With AI, companies may break away from conventional eLearning programmes and out of date corporate preparation. AI-based learning tools also aim to make training sessions enjoyable and meaningful, adding to the experience.

### ***Artificial intelligence for right employee engagement***

AI resources effectively help the workers to listen and understand their attitude. They allow the employer to know just what an employee needs from the organisation, to have the right material, such as job opportunities to coaching advice. With AI algorithms, organisations will now be able to build HR plans that address the individual needs of workers, rather than being constrained by the HR team's preparation tools.

### ***Employee brand sentiment***

Today's workforce not just needs a healthier environment but still depends on a positive company narrative that enhances their potential career 's reputation. Acting in the business for a respected company is a big boost to the confidence of the workers. The organisation would help with the use of AI resources in making employees a stronger first impression, a

customized upskilling and training experience, and a superior employee engagement process. These aspects boost the consumer's views and expectations resulting in a stronger reputation of the firm. In today's global market, the success of the business is determined by solving the dearth of resources with well-designed strategies. Success relies heavily on recruiting and retaining outstanding workers by dramatically enhancing their level of work satisfaction. The modern age arrives with infinite and exciting opportunities, and now adopting AI to the fullest is a necessity and top priority for HR executives who want their businesses to stand apart in their markets.

### **Limitations**

1. The sample size contained of many industries, but only a few representatives to acquire data from. Hence, the sample representation could have been better.
2. Some industries were unintentionally left out from the study, they could not be tapped into.
3. More rigorous statistical tools could have been used for data analysis.
4. More studies are yet to be done for literature review of the role of artificial intelligence in employee engagement and retention.
5. Implementation of AI in companies isn't prevalent. More research and execution of such technology is waited for better understanding.

### **Directions for future research**

There is copious scope for further research on this topic, considering that we only limited our study to only 130 individuals and 5 interviews for qualitative understanding and took limited metrics.

Involvement of employees in suggesting ways to engage them through AI and further result in retention could be a parameter which can be checked to measure the matter at hand. Large number of studies and inventions are yet to be made to understand impact of artificial intelligence on companies and employees. Behavioural, predictive and analytical studies and observations are yet to be made to dwell deeper into the subject.

Since the study has taken individuals based on ease of access and convenience, a larger sample can be taken based on age and geographies. Different age groups portray different

mindsets and different geographies may have different priorities in focus when it comes to employees.

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