

## The Chatbot revolution and the Indian HR professionals

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### ABSTRACT:

The new age technologies have integrated internet of things with products and services at an incredible speed. This exponential growth is impacting the society and individuals in every sphere. The new digital products and solutions are changing and redesigning the market to an extent where becoming a part of this transformation is considered imperative. Human resource professionals in any organization are engaged in a multitude tasks that revolve around creating strategies and practices for recruitment, training, compensation and development of all the employees. HR understands that they are the source of competitive advantage for their company, that's why they have moved on to the platform called e-HRM. The HR chatbots are redefining the role of HR in the organization. By innovatively solving core people challenges, HR chatbots are helping improve efficiency and optimizing manual processes. The HR chatbots are creating opportunities for responsiveness in the realm of HR.

**Keywords:** Human resource, Technology, digital, chatbots, recruitments, Artificial intelligence

### HR PROFESSIONAL'S RESPONSIBILITIES

A human resource professional plays a key role in binding the employees together, developing their skills, motivating them to the prime level and making sure that they continue to maintain their commitment towards the organization. In today's dynamic business landscape, the HR profession has transformed as a consequence of the emergence of technology. Nowadays HR people not only enable employees to attain their full potential but also find ways for improving business operations. They must deal with the numerous complexities of a highly competitive market, and parse through huge volumes of incoming resumes, in the chase of the best talent. As the traditional activities of HR have become automated by the softwares, they can now focus on strategic issues of the company.

## RAPIDLY CHANGING TECHNOLOGY

With the lightning speed of technological evolution, it is no wonder that more people are finding value in the Internet. The technology has took off and is delivering faster connections to the World wide web with technologies such as mobile, social media, smartphones, big data, and cloud which are better than the preceding IT-based technologies. It is time India's new leadership supports and fuels the digital economy to turn it into a major growth enabler. Technologies are increasingly going to be redefining the future of work and jobs.

## CHATBOTS

A chatbot is a computer program which conducts a conversation in natural language via auditory or textual methods, understands the intent of the user, and sends a response on the basis of business rules and data collected from the the organisation. A chatbot is a software program, used by organizations to automate conversations with humans to answer their queries, based on a pre-set list of rules and algorithms. Chatbots make use of Artificial Intelligence and Natural Language Processing (NLP) to mimic the conversations with people and work together with them to extract and give out limited and useful information. Artificial Intelligence Markup Language works as the brain of the chatbot. Phone calls, emails and even web forms fail to offer this kind of a split-second reaction, which is given by majority of present-day chatbots. Various e-commerce organisations are looking at ways to use chatbots for improving their customer experiences or to enhance customer service.

## REVIEW OF LITERATURE

AI is a branch of computer technology dedicated to making digital computers of computer-controlled robots do tasks that are generally identified as requiring intelligence (or thinking) like that of a human brain (Copeland, B.J, 2018). The chatbot technology falls under the category of Weak AI (Deryugina, 2010). A chatbot is not an actual thinking machine, but rather a machine feigning intelligence after imitating human conversation patterns. Hill et al. (2015) find that people communicate with chatbots for longer durations (but with shorter messages) than they would with another human. Moreover, the human – chatbot communication lacks much of the richness of vocabulary found in conversations among people and exhibits greater profanity.

The chatbot technology has then been used for many things, like for retrieving information, answering questions, helping make fact based decision, as a shopping assistant, as a museum guide, language partner, or in education, among other things. (Shawar and Atwell, 2007)

ELIZA is programmed to imitate a Rogerian psychotherapist and works by identifying keywords and then mapping them to an associated rule which transforms the input sentence and then outputs a response, this is called pattern matching. If no keyword was found a content-free remark or an earlier rule transformation is retrieved and printed (Weizenbaum, 1966).

Chatbots can be used to improve the communication between doctor-patient (DP) and clinic patient (CP). The researchers claim that using chatbots for this purpose (DP and CP communication) could reduce costs and time on routine operations (Abashev, Grigoryev, Grigorian, & Boyko, 2016).

More implementations of chatbots are: credit score coach, lawyer, personal stylist, food orderer, personal concierge, doctor, pension or finance advisor, teacher, newsreader, toy, accountant, and lastly, as a partner (Jee, 2017). Supervised learning and hybrid intelligence approaches are more extensive and costly, but can result in systems that are better at on-the-fly problem solving and take less time to achieve goals. (Wilson et al., 2017)

McTear (2016) describes that one of the core aspects of conversational interfaces is the design of the dialogue management strategy, in which the system's conversational behaviour is defined. Between the period from 2007 to 2015, chatbots were participating in a third to a half of all online interactions (Tsvetkova et al., 2016) and the rate at which new chatbots are being deployed has increased since then. Adding together, chatbots and conversational agents are anticipated to be important interfaces in Virtual Reality (VR) environments. (Beilby & Zakos, 2014)

## **OBJECTIVES:**

1. To understand the concept and applications of chatbot .
2. To identify the benefits of chatbots for HR and businesses.
3. To identify the challenges HR faces while adopting chatbots

## RESEARCH METHODOLOGY:

This paper is a review based descriptive study in which secondary data like company reports, blogs of experts, websites, research papers, and magazines have been used on the same subject.

## WORKING OF A CHATBOT

Bot is a way of segregating a piece of data (word or sentence) into multiple categories (intent) understood by the Chatbot. It can also be considered as a method of extracting generic tags from an unstructured text. An efficient bot must have the ability to offer relevant answers, for this purpose the Chatbot uses four parameters - Text Classifiers, Suitable Algorithms, Artificial Neural Networks and Natural Language Processing.

For reducing the work of the Text classifiers, it is assumed that the set of words belong to a particular class and with every input, each word gets counted for its occurrence. Its common types are counted and are assigned a score. Higher is the score of the class the more likely it will be associated with the input sentences.

The Chatbot personality can be determined by the kind of Artificial Neural Networks used at its end. A Neural Network is a deep learning model committed to hold a set of sequences. Artificial Neural Networks comprises of processing elements and is organized in three interconnected layers such as input, a hidden layer, and the output.

NLP is a skill of a machine to decode and process human understandable language within the context in which it is spoken. The important elements of NLP that are currently taken in use by most bots are listed below:

- **Name Entity Recognition (NER):** The power to recognize and identify names in a given sequence of words can be carried by Name Entity Recognition (NER)
- **Optical Character Recognition (OCR):** The determination of corresponding text from the image of the printed text.
- **Speech Recognition:** When the user speaks, the voice-enabled bot should be smart enough to recognize the speech and convert to a textual representation.

- **Sentiment Analysis:** Through emotional comments of the consumers, big brands try to judge the performance of their businesses. The positive, negative and neutral comments if analyzed will get a better insight on the business potential.

To design any Chatbot, the designer must be familiar with a number of techniques:

- 1) Parsing: this technique includes analysing the input text and manipulating it by using a number of NLP functions
- 2) Pattern matching: it is the technique that is used in most Chatbots and it is quite common in question-answer systems depending on matching types.
- 3) AIML: it is one of the core techniques used in the Chatbot design.
- 4) Chat Script: it is the technique which helps when no matches occur in AIML. It contemplates on the best syntax to put up a sensible default answer. It gives a set of functionalities such as variable concepts, facts, and logical and/or.
- 5) SQL and relational database: it is a technique used in Chatbot design so that the Chatbot remembers previous conversations.
- 6) Markov Chain: is used in Chatbots to build responses that are more applicable probabilistically and are more correct. The idea of Markov Chains is that there is a fixed probability of occurrences for each letter or word in the same textual data set.
- 7) Language tricks: It refers to sentences or phrases available in Chatbots in order to add variety to the knowledge base in order to make it more convincing.

## CHATBOTS & HR

Chatbots are artificial intelligence programs that conduct conversations. They provide a variety of functions in areas of sales, marketing, and customer service, but this article is restricted to considering the way chatbots are changing the world of HR professionals. The capability of machines to impersonate the human mind, is invading the places of work. The aim of HR department is to recruit staff, improve employee engagement, reduce bias and enhance productivity. This is in several ways akin to how recruiters evaluate several applicants, and select worthy candidates as they move rapidly to the final hiring stages. The usage of AI has helped the way an HR team converses with the workforce spread over several locations. Chatbots can come to the recruiters' rescue and answer simple candidate queries, such as the application status or

basic questions about the company culture, policies, job details, etc. This saves a substantial amount of time and adds to better candidate experience. Apart from this the bots can also schedule meetings, connect with candidates and act as the personal assistants to recruiters.

HR chatbots can integrate multiple systems of records and retrieve information from varied sources to provide a front-end system of engagement to workforce. New and existing employees can ask the chatbot about anything – leave policy, company policy, benefits, rewards, and so much more. AI can play an important role in talent acquisition, performance management, attrition prediction, identification of unlawful and unethical behaviour of employees, and in their training and development.” Chatbots analyze candidates’ sentences or phrases to detect an underlying pattern and arrives at a response.

As the bulk of the onboarding processes involves repetitive tasks like filling and submitting forms, getting identification cards, enrolling for benefits etc. the HR chatbots are able to answer the repetitive questions and queries with diligence. HR chatbots make the learning for employees simpler by breaking down videos and tutorials into smaller consumable bites. These are then followed by pop-up multiple-choice questions to evaluate what employees have gathered from the learning module. Nowadays, recruitment chatbots can perform an array of functions, including resume parsing and asking relevant questions to reduce the number of candidates for screening, thus making chatbots an effective means for pre-screening the candidates. Chatbots can engage multiple candidates at the same time, and work 24/7, thereby reducing timelines significantly. A conversational HR chatbot improves the efficiency of compliance related processes by answering employee’s queries swiftly, supporting them through the paperwork and joining formalities. Additionally, HR chatbots can also be taught to make the employees aware with respect to new regulations, imminent deadlines or reminders for submitting important documents.

Its ability to scale processes like this may facilitate organizations save their time and cash. They not only give answers however conjointly raise queries related to the worker expertise, their expectations, and their progress.

## BENEFITS

A chatbot will address everyday challenges, and ensure that the recruiter's life turns less complicated thereby reducing the hiring timelines.

- Shorter turnaround times lower the candidate's anxiety and help them to look for alternative opportunities that can be more suited to them.
- Chatbots is helping in assessing real-time feedback. This happens on a scale which is not possible on a human to human level.
- With the help of artificial intelligence, many candidates can be accommodated into the hiring pipeline at the same time, notifying recruiters once they've completed the initial screening processes.
- Chatbots can analyze speech, facial expressions, and voice modulation to integrate the cognitive elements in the recruitment process.
- Chatbots move with the candidates by responding to incoming queries arranging interviews and fixing reminders and follow-up conferences.
- HR chatbots with efficiency conduct initial interviews by removing unconscious recruiter biasness. .
- HR chatbots will reduce the attrition levels by providing insights on worker satisfaction, productivity, engagement, and provide motivation to the staff based on their interactions with employees.
- HR chatbots will leverage the information from Performance Management Systems to match the objectives of performance analysis and integrate it with the rewards and recognition method.
- HR chatbots provides information regarding who performed the best, upcoming learning modules and even suggests areas of improvement to the employees.
- Chatbots help in measuring the employee happiness score, checking their engagement levels, and identifying any potential employee related challenges.

## PRECAUTIONARY STEPS WHILE USING CHATBOTS

There are three basic needs in terms of the technical infrastructure:

1. **HR system**
2. **Data**
3. **Analysis**

Artificial intelligence systems are as good as the data we place into them. Better is the data that we feed in, the better will be the output company gets. But algorithmic discrimination can occur in some cases as the historical data might contain implicit racial, gender or ideological biases. The chatbot designers need to be careful while they select the input data and while preparing the underlying algorithms. Chatbots may not figure out all types of queries. A constant data analysis is required to ensure queries are answered correctly.

Apart from the predictive validity of the analysis, it can also lead to privacy intrusion and other legal issues. Information shared by the bots need not be 100% accurate and often the responses can come across as unclear or unspecific. The corporate companies which plan to invest in chatbots for HR programs must fully disclose the use of such technology for initial screening. This helps to drive out any doubts and manages to meet the candidate expectations.

## RECENT CHATBOTS IN INDIAN WORKPLACE

**People Strong:-** The company developed India's first HR Chabot 'Jinie'. It acts as employee's personal work assistance and helps in work-related queries such as applying for leaves, collating and completing employee data, answering company policy-related questions.

Phenom people launched a chatbot - PhenomChatbot that allows candidates to search for jobs, ask questions and get answers about registered companies, and receive personalized job recommendations.



Param.ai, a Hyderabad-based hiring startup that uses AI, which automatically pre-screens resumes for companies and tells them if the candidate is good, bad or average, depending on past hiring patterns. Artificial Intelligence covers aspects from sourcing resumes, screening, scheduling meetings and interviews to candidate engagement, employee development and employee services.

Mettl Dark Personality Inventory (MDPI), personality diagnostic tool was launched by Mettl, a talent assessment and skill measurement company. This tool is designed to be used as a hiring and screening tool to help employers gain access to otherwise hidden information about a job applicant through psychometric, aptitude and coding tests.

Mindtree believes that AI plays a very important role in their selection process. It is not just about dealing out with huge amount of data, but also about finding correct resumes, eliminating biasness and discovering deceptive resumes. The company has been using AI applications comprehensively in all its verticals, especially HR.

Bajaj Allianz General Insurance Company uses Talview Behavioral Insights (TBI)—a job competency tool that leverages psycholinguistics to evaluate candidate response in order to build behavioural profiles of the candidates. For hiring employees from multiple cities across the country they are using an automated video interviewing solution, developed by Microsoft in partnership with Talview,.

The focus of HR at Tech Mahindra is to ‘value-add’ in roles that are more complex. Hence they are automating their mundane tasks. The fundamental employee queries that were earlier managed by the HR team are now handled by a chatbot called UVO at Tech Mahindra. Tech Mahindra HR are using an AI-led system that helps in filtering the right profile as per the job description because finding a suitable candidate’s profile from a large resume database can be very time-consuming.

## CONCLUSION

Hiring, talent management and acquisition, and the search for tomorrow’s business leaders is going to become an enriching and revitalized pathway. This is the right time for

HR professionals to capitalize on the chatbots and keep the employees delighted and loyal towards their organization. The chatbots have reached their maturity state. In the upcoming days, companies are likely to have a large number of diverse bots for managing different tasks. Personal bot assistants will become more rampant when they would be integrated with enterprise resource planning systems. Currently the bots utilize text for interacting, but conversational interfaces are improving swiftly, and will likely be the way bots interact with both recruiters and candidates in the future.

It can be assumed that each chatbot will have a different level of AI, depending on its interaction with other robots. The chatbots can be channeled to create an insight driven HR department. In order to fully realise the RoI from chatbot deployment, it is necessary to define the business requirements and identify the use cases to be met through the chatbot. KPIs should be identified and measured to gauge the performance of the bot, and necessary alterations need to be made in order to achieve the desired results. In India the early adapters are reaping substantial benefits. As they can be implemented quickly and easily they are becoming valuable resources for HR people but at the same time the department should choose it wisely to meet their needs and hence avoid embarrassing situations in future

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