

Deploying Medical Chatbots for the benefit of Health-Care Industry

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Abstract

Chatbots Market by Component, Deployment (On-premise and Cloud-based), Application (Symptom Checking, Medication Assistance and Guidance, Coverage and Claims Management, Appointment Management), End User, and Geography - Global Forecast to 2025", published by **Meticulous Research®**, the global healthcare chatbots market is expected to grow at a CAGR of 25.1% from 2019 to reach \$703.2 million by 2025.

Whether it be Answering Patient Call 24 x 7, Streamline appointment scheduling, Automate routine or collecting feedback, chatbots have proved their presence. Hence I propose the idea of using medical chatbots for the benefit of healthcare industry.

1.Problem Statement-

The problem statement is to deploy medical chatbots in the healthcare industry to improve the service to benefit the patients, keeping in mind the "Patient-First" policy. Nowadays patients want more information about their medical conditions, drugs prescribed, over and above the very low doctor to patient ratio is leading to deployment of ai powered chat bots which provide round the clock assistance and attend to the queries of patients.

2. Market/Customer/Business Assessment-

2.1 HealthCare market by end users-

- a) Healthcare payers
- b) Healthcare providers.
- c) Patients

2.2 Healthcare Chatbots Market by Component

- Software
- Service

2.3 Healthcare Chatbots Market by Deployment

- On-premise
- Cloud-based

2.4 Healthcare Chatbots Market by Application

- Symptom Checking

- Medication Assistance & Guidance
- Coverage & Claims Management
- Appointment Management

2.5 Healthcare Chatbots Market by Geography

- North America
 - U.S.
 - Canada
- Europe
 - U.K.
 - Germany
 - France
 - Rest of Europe
- Asia-Pacific (APAC)
- Rest of the World

3. Target Specifications-

Since most of the people nowadays use smart phone, AI Chatbots would hence come very handy to them. One of the targeted audience is the healthcare institute itself. Taking feedbacks from patients would help improve the organization's website. Other Targeted audiences are patients, healthcare providers and healthcare payers.

4. External Search-

Following websites I have used to analyze the effect of AI chatbots in the healthcare industries.

- <https://www.chatbot.com/chatbot-for-healthcare/>
- <https://www.devteam.space/blog/benefits-of-chatbots-in-healthcare-business/>
- <https://www.globenewswire.com/news-release/2020/01/15/1970794/0/en/Healthcare-Chatbots-Market-worth-703-2-million-by-2025-Exclusive-Report-by-Meticulous-Research.html>

4.1 Benchmarking-

Benchmarking is essential to check whether any further investment in chatbots for a particular business is essential or not.

I will broadly classify the benchmarking into 4 main pre-deployment benchmarking types-

- No of enquiries in a day/month/year.
- No of unresolved enquiries in day/month/year.
- Customer service employee workload. That is the amount of time spent in communicating with the client in person.
- Amount of time required to resolve the customer query ticket.

4.2 Patents

a) <https://patents.google.com/patent/US9369410B2/en>

In one aspect, the invention concerns a method of operating a chatbot to engage in a conversation with a correspondent the method comprises building a profile having plural profile variables for the correspondent; and during the conversation with the correspondent; selecting a node in the conversation data structure for processing based on the one or more profile variables, and processing the node to follow a conversation path based on the node's coded instructions and/or relationship with other nodes. In another aspect, the method comprises the steps of attempting to match the conversation data structure of the chatbot; if a matched node is found, selecting the matched node for processing; but if a matched node is not found, selecting a node for processing using a fuzzy search, or using a default procedure.

4.3 Applicable Constraints

- a) Basic assistance is required.
- b) Lack of human context.
- c) High, installation cost.
- d) Lack of decision-making.
- e) Repetition.
- f) No empathy.

4.4 Applicable Regulation-

- a) Many states, (for example California) banned companies to make chatbots human-like.
- b) In US article 22 of GDPR regulation has prevented bots to be primary source in consumer-decision process.
- c) According to the new GDPR rules chatbots cannot retain information from users without prior conse

5 Business Opportunities-

- a) Increase customer engagement.
- b) Making product more scalable.
- c) Reduce customer service cost.
- d) Bring balance between human touch and automation.
- e) Gain customer based data to get insights.
- f) Gain more customer satisfactions.

6 Final Product Prototype-

Developing a medical chatbot-

- a) Formulate the project scope: Deciding all the services which the chatbot will offer, e.g. meeting, scheduling, appointment booking, creating records, etc.
- b) Building a software development team: Following agile methodology in this project. Scrum is the proven technique to manage agile projects. The project manager will be the scrum master.
- c) Provisioning required IT infrastructure: some reputed aws cloud service providers are AWS Elastic Beanstalk and AWS Amplify.
- d) Sign up for Microsoft Healthcare Bot.
- e) Getting test automation id
- f) UI design

Web app development: One can code the web app using [Node.js](#), the popular open-source runtime environment that helps to create scalable and performant web apps. Following steps are taken:

- Code the app using the [Eclipse IDE](#), and [this Node.js plugin](#).
- Integrate database resources on AWS Elastic Beanstalk using [this guide](#).
- Integrate the Microsoft Health Bot API in the code.
- Test the app, and deploy it using [this AWS documentation](#).

g)Android ios app development

Conclusion-

Patients share the maximum percentage of end-users over and above it is expected to grow at a CAGR rate of 23%. Chatbots have slowly started to dominate the healthcare industry, mainly due to a) Extensive internet connectivity among citizens b) Rise of mobile usage and downloads of apps c) Heavy investment done by healthcare industries.

Although much of chatbot's potential is untapped, but the ethical grounds of every development should not be ignored in the process of maturing and progressing the potential of a chatbot.

Some of the names of the best medical chatbots are mentioned below-

Other major players operating in this market include Your.MD, Baidu, Buoy Health, PACT Care, Woebot Labs, and GYANT among others.
