Artificial Intelligence to support TB Communities at the last mile

To strengthen Tuberculosis (TB) outreach especially to the key and vulnerable population (KVPs), the artificial intelligence (AI) initiatives can play a key role to provide personalized support and care delivery. The OneImpact platform is a multi-channel suite to allow people affected by TB engage through mobile app, web-based chatbot and even through social media channels i.e. WhatsApp and Instagram and use an AI-enabled conversational Chatbot.

AI-Enabled Development Approach for TB:

The design and development process of the chatbot involved a human centric approach where the information seeking needs and perceptions of the end users were prioritised ensuring productive engagements for the targeted audience.

A multidisciplinary team comprising AI experts, language specialists, content creators, and design thinkers came together to conceptualise the bot's design. The team collaboratively built a comprehensive knowledge base, curating accurate and easy to understand information related to tuberculosis, its management, and related issues.
The AI conversational model, powered by advanced natural language processing techniques, was trained using a vast dataset of diverse TB related queries, ensuring accuracy and relevance in its responses.

Key use cases for people affected by TB

Information Dissemination: The AI based Chat BOT developed for One Impact has the feature to provide the information through its traditional Menu based options and also based on the queries that the user would share. The BOT uses a confined repository of verified documents shared by STOP TB, this ensures that the responses that are not only accurate but also nuanced and personalized, closely mimicking human-like interaction.

Personalized conversation: The BOT uses contextual understanding to refine responses by analysing the user's query and intent. It prompts follow-up questions to provide more precise and relevant answers, mimicking a natural and personalized conversation flow.
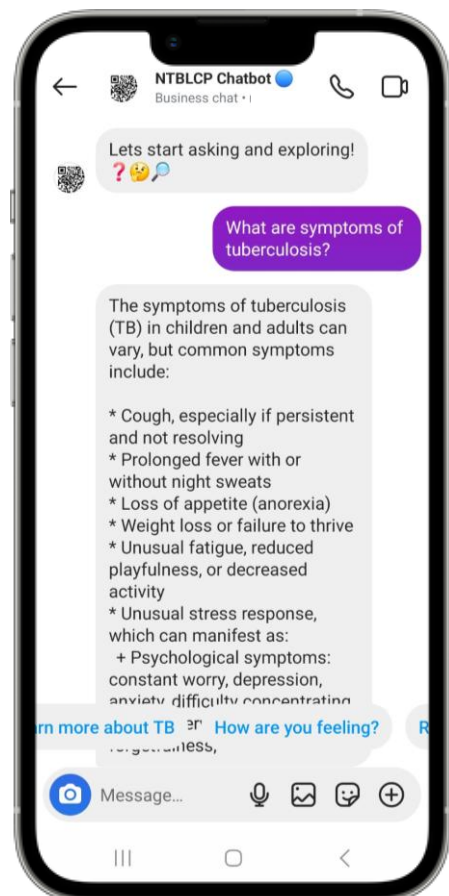
The BOT encourages meaningful user interactions by:
- Nudging users at regular intervals to keep them engaged.
- Making information retrieval or issue reporting effortless.
- Utilizing feedback mechanisms, user surveys, and data analytics to continuously refine its approach.

Challenge Reporting: Apart from providing listed options for issue reporting, using the AI based framework, the BOT will prompt the user based on the question if he/she wants to report a problem. This will help the users to engage better and also help in getting more insights into service delivery barriers which would have been unnoticed.
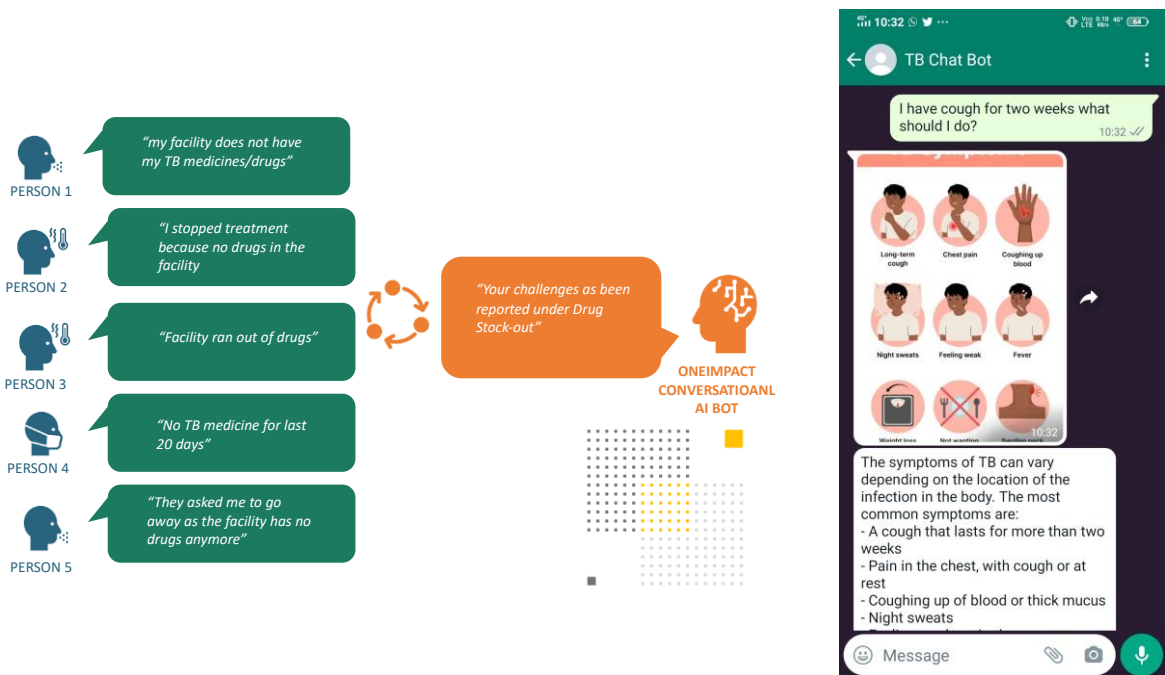
Symptom checker: A simple interactive self-screening survey has been incorporated within the conversation flow allowing users to gauge their risk of having TB and further encouraging them to take necessary action.

Health facility locator: Based on the information provided by the user, the chatbot guides them to their nearest health centers with available TB services. This aims to improve the link between users and their healthcare providers, thereby facilitating timely access to medical advice.

Training of HCWs: The chatbot can also be used to train the outreach workers and community leaders with personalized information about TB care and support services and can be extended to information related to stigma and human rights violations through a natural language queries.

Key features for the AI Chatbot

Mascots: Two different mascots have been designed who have differing personalities and characteristics, allowing users to choose the one that resonates with them. This personalization adds a human touch to the AI-driven interactions, creating a more relatable and trustworthy virtual counselor.

Multi-lingual: The chatbot can be easily configured in local languages to cater to the information

Easy user onboarding: The flow of the chatbot has been designed in such a way that users can access the information they are looking for quickly, with minimum number of clicks, and after a simple registration process.

Visuals/infographics: Inclusion of images and infographics as part of the responses to user queries to grab user attention, simplify the conveyed information and improve its understandability.

User-Friendly Engagement Features: The OI bot offers features like multi – lingual options for improving local reach, also avatar-based characters which make the experience engaging. Use of emojis in responses has been included to keep the conversation more personal. Feedback mechanisms, user surveys, and data analytics can be leveraged to gather insights into user interactions, preferences, and satisfaction levels.

Continuous learning- Continuous training and fine-tuning of the chatbot based on learnings from user feedback and completed conversations which would help optimize its performance to align with the evolving needs of users. seeking needs of diverse users and providing them with a space where they can ask any type of TB- related query in the language they prefer.

Meta data analysis and constant learning: Utilizing generative AI based, open-source Large Language Models (LLMs), the chatbot achieves a high level of understanding and response accuracy. This advanced technological backbone enables sophisticated processing and interpretation of user queries, ensuring that the responses are not only accurate but also meaningful to the users.

By combining advanced AI capabilities with user-centric design, the OI BOT is set to revolutionize TB-related community outreach and service delivery, ensuring information and support are accessible, accurate, and engaging for all.

OneImpact TB CLM

OneImpact TB CLM has been conceptualized and implemented with support from the Stop TB Partnership Challenge Facility for Civil Society, and in partnership with country level TB affected communities and civil society.

Implementation of AI enabled Chatbot

Countries Implementing	Organization Lead
OneImpact Indonesia	Perkumpulan Organisasi Pasien Tuberkulosis Indonesia
OneImpact Nigeria	Debriche Health Development Centre

Further plans to enhance the chatbot into an AI-enabled chatbot

Countries Implementing	Organization Lead
OneImpact Côte d'Ivoire	Alliance Cote Divoire
OneImpact Azerbaijan	Saglamliga Khidmat" Public Union
OneImpact Cameroon	For Impacts In Social Health
OneImpact Dopasi	Dopasi Foundation
OneImpact Ethiopia	Volunteer Health Services
OneImpact Ghanna	Hope For Future Generation
OneImpact Kazakhstan	MAD Consulting Public Fund
OneImpact Mozambique	Associacao Mocambicana Para A Ajuda De Desenvolvimento De Povo Para Povo (ADPP)
OneImpact South Africa	TB HIV Care
OneImpact Tajikistan	Association Stop TB Partnership, Tajikistan
OneImpact Tanzania	Mwitikio Wa Kudhibiti Kifua Kikuu Na UKIMWI Tanzania
OneImpact Ukraine	TB People Ukraine
OneImpact Zimbabwe	Jointed Hands Welfare Organization