COUNTIES MANUKAU CHATBOT

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1 Background

Counties Manukau Health is the second largest District Health Board in New Zealand, serving over half a million people in its population catchment. Patients and community members interact with their services to get information through a website and a call centre. The website can be helpful if a user is short on time. The call centre directly connects the community to a call centre representative. The call centre deals with between 1100 and 1800 calls per day. The website and call centre are seen as a traditional way of providing information, and as a service it needs to be enhanced to improve the overall performance.

2 Rationale

The District Health Board aims to make it significantly easier to access information for users such as patients, friends and whanau. Thus, ensuring that the community feels connected with the accessible resources, our client has determined that a chatbot will provide an easy access point for information through a smart system. Some benefits will include:

1. Reducing the traffic to the call centre, allowing for the improvement in call quality and quantity.
2. Successfully engaging the community and patients with accessible resources and provide patients with an additional way of requesting information.
3.Ensuring customer satisfaction is met by alleviating any inconveniences experienced when. dealing with the website or call centre.
4.Providing analytical data on the most frequently requested information, allowing for further improvement.

3 Objectives

The objective of this project is to provide a working chatbot prototype for the Southern DHB community which will be able to do the following:

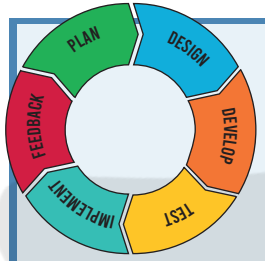
1. Provide 24/7 assistance to Frequently asked questions and enables users to access contact information.
2. Contain information that users will need to know about before their appointment. Such as pandemic information.
3. Allow users to access the chatbot on any device through a web browser.
4. Enable users to access the chatbot free of charge.
5. Allow users to obtain hospital contact details for appointment booking or any other inquiries.
6. Provide users with hospital locations based in Counties Manukau.

4 Goals

The following goals have been identified as necessary for completing the project:

1. Gather requirements from our client through client meetings and the project overview
2.Analyze and design a model based on the assumptions made from client data provided before the covid-19 pandemic
3. Identify functional and non-functional requirements and necessary features to be undertaken in the development of the chatbot
4.Research and identify frameworks available on the market that meet the client's needs
5.Through the chosen framework, develop and implement all high-level requirements in short development cycles driven by testing and feedback from the client
6.Ensure the chatbot meets the requirements and is working according to the Clients expectations

5 Methodology



1. Project Managment Plans

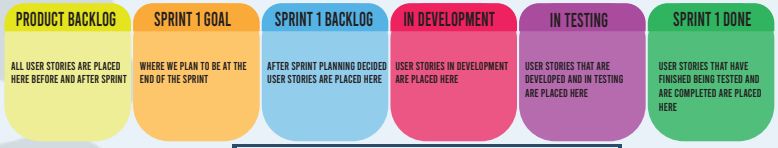
Our project management methodology was made up of project management plans and the developmental approach. Documents include:

- Scope Document
- Quality Assurance Plan
- Change Management Plan
- Communication Managment Plan

- Work Breakdown Structure (Scheduling)
- Stakeholder Register
- Stakeholder Management
- Risk Register
- Issue Register

2. Development Approach

The development approach used for this project was the agile scrum methodology.
This method helps to define the actual implementation tasks based on the scope statement document and provide scheduling sprints for the entire project. Methodology has us break it up into these aspects:



6 Framework

During our research and analysis phase, we concluded that the IBM Watson Assistant framework best suits our client environment, while providing enough features for completion of the project's objectives. We made our analysis via extensive comparison of other competitive framework options. Our decision was made by the specific functionality that IBM Waston provides.
Below are two figures and a checklist showing the reasons why we chose this framework.
Figure 1 shows how the architecture processes user data. Figure 2 shows the interface of the IBM Watson chatbot client.

We have chosen the IBM Watson framework for the following reasons:

1. Improve Performance
2. Reduces speed for resolution
3. Increased Security
4. Increased Value by connecting applications and channels
5. Improves leveraging employee intelligence

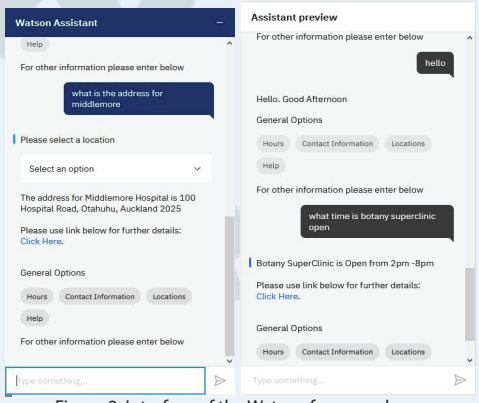


Figure 2. Interface of the Watson framework

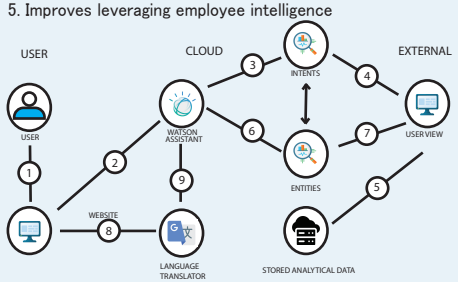


Figure 1. Architecture

We would like to acknowledge Counties Manukau Health and AUT for this opportunity to work collaboratively on this project.

A huge special thank you to our Project Mentor, Dr. Ramesh Lal for all his guidance and hardwork towards the project.

We are also grateful for the support from our client Megan Milmine, Brian Yow, Teresa Burt, Josh Mens and the Southern DHB community. We would also like to thank the AUT BCIS Team and other members who helped us on our journey.

7 Quality Assurance

A quality assurance plan had been implemented to ensure that the project produced high quality work. The following procedures were implemented to ensure project quality.
Project Management plans were reviewed weekly by the project team.
The issue register, risk register, and schedule were reviewed by team to ensure Quality of work.
Meetings were conducted on a regular basis.
Sprint reviews on a three-Week basis were conducted
Testing: User Story acceptance tests, design feedback, and a review of chatbot prototype from client.
Mentor feedback ensuring that all documents were updated accordingly with the right version number.

8 Challenges

Technical
1.Restarting Chatbot
Difficulties: After weeks of chatbot development, we encountered many testing issues.
Solutions: Our job was to make sure we tested each line of code properly, to ensure that the chatbot was running smoothly without any errors.
Non-Technical
1. Covid-19
Difficulties: All on-site sessions with all stakeholders were postponed due to New Zealand being on alert level 3-4.
Solutions: Collaborative effort through online based learning. Using applications such as Microsoft Teams, Zoom and other social application tools.
2. Team Scheduling
Difficulties: During the lockdown period, there were changes towards the assigned team meetings due to the disruption of other commitments.
Solutions: Project manager rescheduled meeting times that was most appropriate to all members to ensure effective collaboration.

Lessons Learned
Consistently communicate with all stakeholders throughout the project no matter the circumstances.
The importance of monitoring and testing the project to ensure that there are no issues

9 Future Development

Future development features
- Facebook implementation
- Passthrough to call centre
- Detection of people at risk

Future development of features may include:
Facebook implementation: The chatbot may be implemented with Facebook to increase retention of returning users and access to new users. Furthermore, Facebook implementation can complete integration between all DHB platforms.
Call centre passthrough: The chatbot can connect users through to a call centre when asked from the chatbot. The call centre can offer more personalized information such as user appointments etc.
Word detection: The chatbot can implement intents and entities of words that may be an indication of someone who is of risk.