



Fortifying Healthcare

By Tech Power

This Sprint 1 report demonstrates a clear understanding of a real-world organisational problem that can be addressed through mobile and wireless technology. The chosen organisation Waikato District Health Board (WDHB) is highly relevant given its recent history of cyber-attacks, and the report provides a well-sourced background on both the institution and the incident.

The organisational background is well-documented, and the business process section clearly identifies the scope of services provided by WDHB (now under Health NZ), as well as the key data storage and digital infrastructure functions. The discussion of the 2021 ransomware incident is detailed and provides critical insight into vulnerabilities in outdated IT infrastructure, including unpatched systems and the consequences of not complying with ransom demands.

The business impact is described in human and technical terms, and there is good use of public data and news sources to support the analysis. The proposed direction—leveraging wireless technologies to address these vulnerabilities—is timely and appropriate, though the actual mobile/wireless component is only briefly mentioned and would need deeper exploration in subsequent sprints. Some suggestions to improve:

- ☐ A diagram showing the business process before and after the attack would enhance clarity
- ☐ The conclusion could briefly list possible wireless technologies to be explored (even as a preview for next sprints)
- ☐ Minor grammatical errors and phrasing issues should be polished

Marks: 7.5 out of 10

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Lecturer name	Mr Akbar Hossain
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Name	ID	Signature	Date
Umajini Ravi	2025003781	<i>R. Umajini</i>	02/08/2025
Nabin K C	2025003724	<i>K. C. Nabin</i>	02/08/2025
S S E Jayantha Kumara	2025003875	<i>Jayantha</i>	02/08/2025
W M Sathya Paramie Wimalaweera	2025003692	<i>S. Paramie</i>	02/08/2025

Abstract

The health authority of Māori and New Zealand Health sector currently faced a significant cyber-attack. The research engages to expand and observe Māori health and comfort although increasing the transformation changes throughout the New Zealand healthcare system. This study aims to determine how to protect sensitive data from cyber-attack using wireless technology trends. Based on a review of literature on cyber-attacks to the health care system, this assignment mainly focused on the recent cyber-attack, which was in the 2021, the ransomware cyber-attack at the Waikato DHB (WDHB). After analysis of the reviews, this report addresses the organization and the business process of the organization. After identifying the current system and its weaknesses, we hope to resolve the problem of cyber-attacks using wireless technology methods. In the upcoming sprints will deliver more details about the solutions using wireless technology.

Keywords: Cyber-attacks, Health system, wireless technology, business process, organization background, Waikato District Health Board (WDHB).

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1. Introduction

The aim of the assessment is to research a problem/challenge within an organization that can be solved by using wireless/mobile technology and its impact by considering related firms. In sprint 1 of the assessment 2, we researched and identified an organization facing a real-world problem that could be addressed and solved using wireless technology. In this report, a clear picture of the organization background, and the organization's business process have been indicated.

2. Waikato District Health Board

2.1. Background

The New Zealand Public Health and Disability Act 2000 established the foundation for the Waikato District Health Board (DHB) on 1st of January 2000. It was one of 20 District Health Boards in New Zealand formed to financing, planning and servicing health care and disability services to regionally specified communities. Waikato DHB was responsible to the Minister of Health and prioritized public duty and service ethics as a Crown Entity (Annual Report Waikato District Health Board, 2022).

Waikato DHB's vision is ***“Healthy people. Excellent care”*** which means all the Waikato region people will be servicing by proper care and equitable healthcare services. Further their mission statement is ***“Enable us all to manage our health and wellbeing & Provide excellent care through smarter, innovative delivery”*** (Annual Report Waikato District Health Board, 2022).

In the Waikato region there is a high population of Māori, approximately around 24% of people are served by Waikato DHB. Iwi-Māori partnership boards are in partnership with Waikato DHB to give culturally based services and merge Māori rituals to Māori people (Inphysec, 2022). In the 2021/2022 financial year, Waikato DHB has raised approximately \$1.8 billion to reduce the health inequities, mainly focused in Māori and countryside (Annual Report Waikato District Health Board, 2022). At the end of June 2022, Waikato DHB had a staff of 15,414 employees including full time employees (Annual Report Waikato District Health Board, 2022).

The main services of Waikato DHB are as follows (Annual Report Waikato District Health Board, 2022).

- Health Service Planning and Funding.
- Operating five hospitals.
- Monitoring the performance and quality of the hospitals.
- Storing and maintaining patients' data.

Waikato District Health Board was undertaken by Health New Zealand on 1st of July 2022 (Annual Report Waikato District Health Board, 2022).

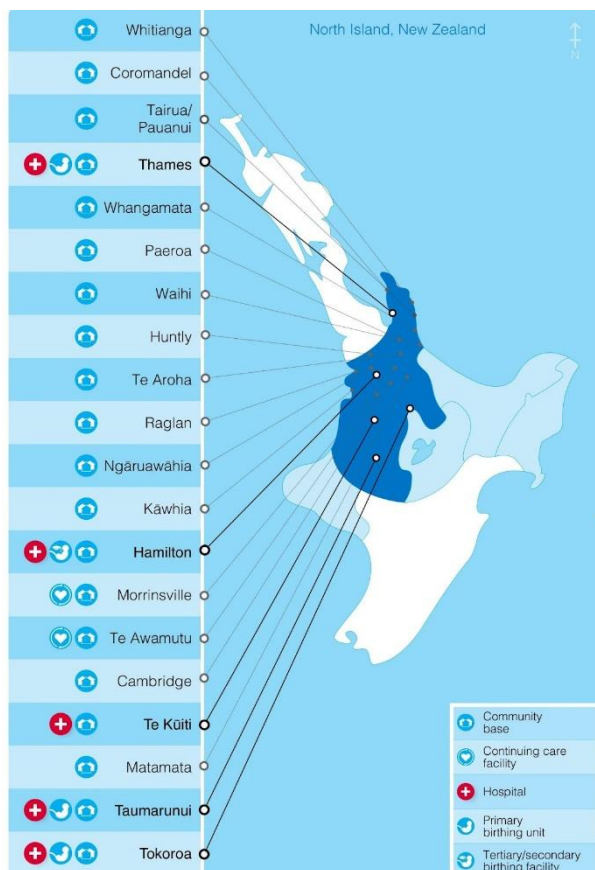


Figure 1 Waikato DHB profile

2.2. Business Process

Waikato District Health Board is the main organization in the North Island, New Zealand. Before Waikato DHB transitioned to Health New Zealand, their main business process was financing, planning, servicing healthcare and disability services to regionally specified communities in collaboration with the government. Waikato Health System Plan (*Te Korowai Waiora*) and Health Emergency Plan (HEP) mainly involves organizing emergency services within the medical field (Annual Report Waikato District Health Board, 2022).

In terms of Service Delivery, DHB provided secondary and tertiary hospital care through Waikato Hospital in Hamilton and rural hospitals located in Te Kuiti, Tokoroa, Tames and Taumarunui which includes community-based services such as mental health, aged care, outpatient care, monitoring and quality assurance. After transitioning, Health New Zealand is expanding its digital equity throughout clinical and consumer facing digital services. In this process, it can support e-consultation, in-home monitoring, enterprise scheduling and shared care planning (Annual Report Waikato District Health Board, 2022).

Waikato DHB's core business processes are storing and maintaining patient details, hospital employee's personal data and financial details of all around the hospitals which is maintained by the organization. Apart from storing the data, Waikato DHB failed and suffered the undergone cyber-attack which affected the whole DHB IT system on 18th of May 2021. The attack shut down some of the major systems such as Electronic Health Records (EHR) and diagnostic services, email and even phone lines which needed instant change back to manual work on paper. As part of the investigations, it was revealed that WDHB has been using outdated software and unpatched firewalls which does not meet the industry standards (RNZ, 2021).

After the incident, the organization had revealed the further exposure of personal details of patients more than 4,200 where 243 records of patient's data have been released to dark web in July because the DHB had not complied with the ransom request (1News, 2021). Health New Zealand may face challenges while monitoring and securing digital assets as these things are decentralized and are constantly evolving. So, the lack of effective real-time monitoring could lead to more vulnerability over time. Since, health services are the basis of human life, the safety regarding digital resource management is not only a technical requirement but also the concern of people and their safety and privacy (Inphysec,2022).



Figure 2 *Waikato DHB Strategy*

3. Conclusion

This report outlines the introduction of the report, organization background, and the organization's business process.

From the referred reports, Waikato DHB gives equitable and culturally responsive healthcare services to the Waikato region with a strong focus on Māori communities. Apart from this business process they projected along with monitoring of five hospitals operations and patients' data management.

However, the organization's dependence on outdated software, systems and lack of cyber security exposed it to a ransomware cyber-attack. We are aiming to give a solution using wireless technology to protect the digitalized data which will be briefly discussed in the coming sprints.

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