TeleMediCare: A Telemedicine Platform for Remote Healthcare Delivery

Business Case Proposal

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1. Executive Summary

TeleMediCare is a telemedicine platform designed to provide remote healthcare services to patients in rural and underserved communities (Australian Bureau of Statistics, 2022). The platform utilizes advanced technology to offer a secure and seamless online consultation experience, connecting patients with licensed healthcare professionals (Royal Australian College of General Practitioners, 2019). By harnessing the power of telemedicine, TeleMediCare aims to close the gap between patients and healthcare providers, enhance access to care, and promote better health outcomes. Moreover, telemedicine is in high demand all over the world. In Australia, with over 100 million telehealth services provided to around 17 million people from March 2020 to March 2022, and the Medicare benefits for these services exceeded $5 billion, and more than 92,000 doctors are using telehealth to help their patients (Health, 2022).

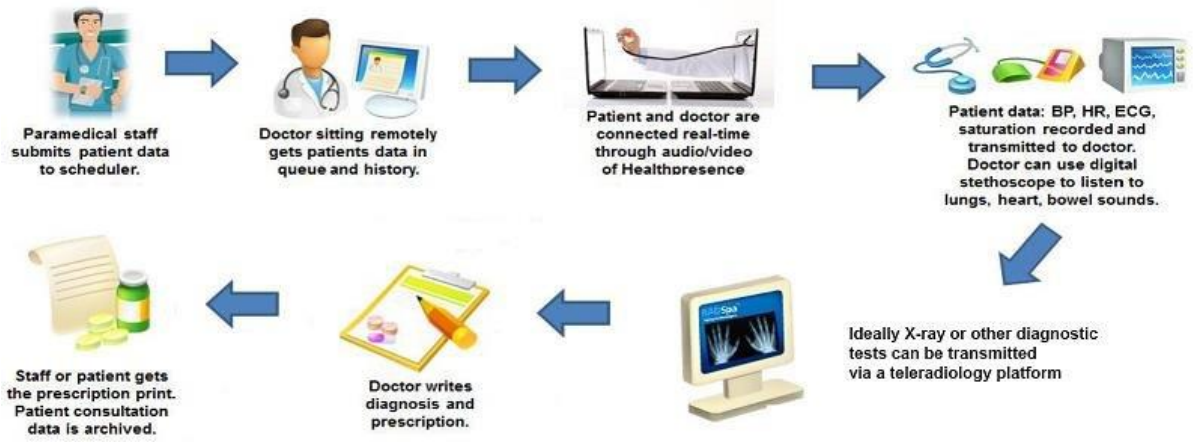

Fig 1.1: TeleMediCare system process

(Fouad, H. (2014). Continuous Health-monitoring for early Detection of Patient by Web Telemedicine System - Scientific Figure on ResearchGate. Available from: https://www.researchgate.net/figure/Telemedicine-system-process-between-the-doctor-and-patient-through-Ain-Medical-Portal_fig10_264975686)

The proposed project satisfies all the requirements established by Charles Darwin University for the small business grant. TeleMediCare will benefit underserved communities and generate revenue for the company. The project is unique and customized to meet the needs of patients with limited access to traditional healthcare services. TeleMedicare's budget is less than AUD 500,000 and is anticipated to be completed within two years. This business case outlines the project's concept, goals, costs, significant risks, and timeline. A weighted scoring model, which includes market demand, financial projections, and community impact, assesses the project's feasibility.

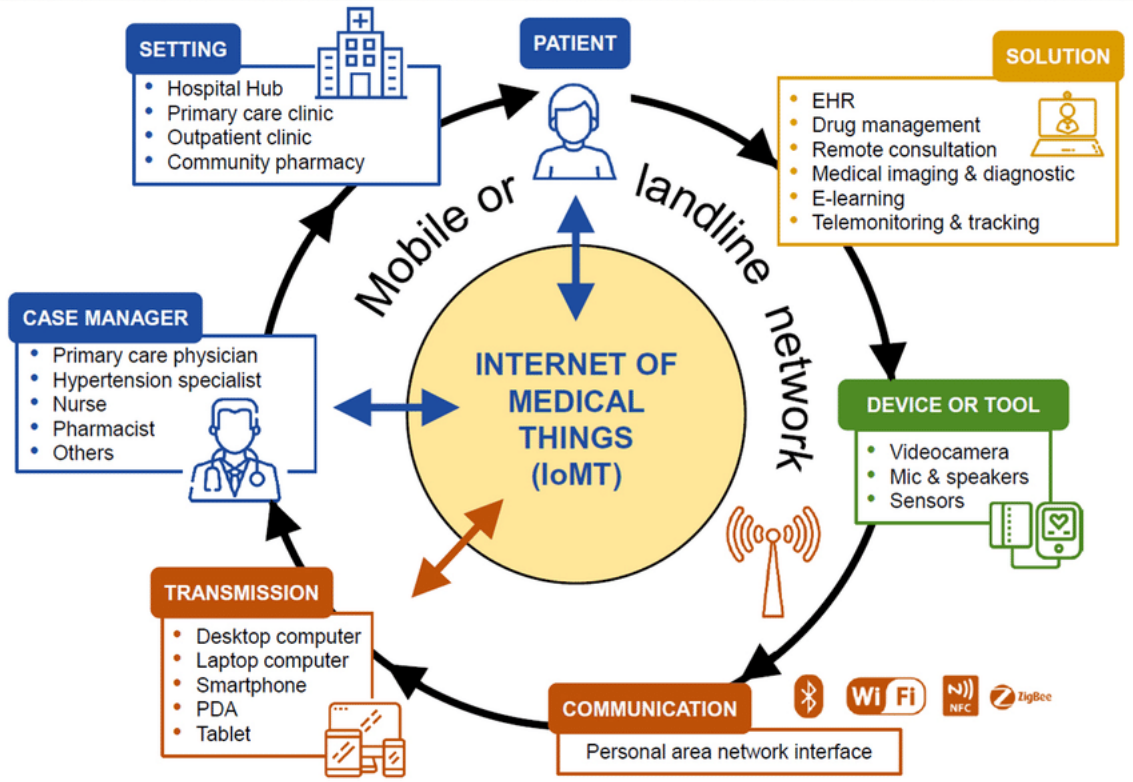

Fig 1.2: TeleMediCare services and their workflow

(Omboni, S. (2021). Connected health: in the right place at the right time - Scientific Figure on ResearchGate. Available from: https://www.researchgate.net/figure/Diagram-of-most-common-telemedicine-services-and-their-workflow-EHR-Electronic-health_fig1_349846329)

2. Quantitative Analysis

a. Weighted Scoring Model

TeleMediCare viability is quantified using a weighted scoring model, which considers various factors contributing to the project's success. The model assigns a score to each element based on its importance and then calculates an overall score for the project. The following factors were considered on a scale of 1 to 100:

1. Market demand (weight = 30%)
2. Financial projections (weight = 25%)
3. Community impact (weight = 20%)
4. Technical feasibility (weight = 15%)
5. Regulatory compliance (weight = 10%)

Let us assume the scores for each factor are:

1. Market demand: 90
2. Financial projections: 80
3. Community impact: 70
4. Technical feasibility: 90
5. Regulatory compliance: 60

Criteria	Weight	Score	Weighted Score
Market demand	30%	90	27
Financial projections	25%	80	20
Community impact	20%	70	14
Technical feasibility	15%	90	13.5
Regulatory compliance	10%	60	6
Overall Weighted Score	100%		**80.5**

Fig 2.a.1: Weighted scoring model for TeleMediCare

Based on the weighted scoring model, TeleMediCare has an overall score of 80.5 out of 100, indicating that the project is viable and has the potential to succeed. Market demand and financial projections were the two highest-scoring factors, indicating a strong need for telemedicine services in underserved communities and that the project has the potential to generate a significant return on investment.

b. Net Present Value (NPV)

TeleMediCare will generate revenue through a subscription-based model. Patients will pay a fee to use the platform, and medical professionals will pay a fee to enlist their services on the platform. In the first year, TeleMediCare is expected to generate AUD 300,000 in revenue, which is anticipated to increase to AUD 550,000 by the end of year two.

Discount rate	10%					
Assume the project is completed in Year 0			**Year**			
	0	**1**	**2**	**3**	**Total**	
Costs	500,000	180,000	180,000	200,000		
Discount factor	1.00	0.91	0.83	0.75		
Discounted costs	**500,000**	**163,636**	**148,760**	**150,263**	**962,660**	
Benefits	0	300,000	550,000	650,000		
Discount factor	1.00	0.91	0.83	0.75		
Discounted benefits	**0**	**272,727**	**454,545**	**488,355**	**1,215,627**	
Discounted benefits - costs	(500,000)	109,091	305,785	338,092	**252,968**	← **NPV**
Cumulative benefits - costs	(500,000)	(390,909)	(85,124)	252,968		
			↑			
ROI →	**26%**					
	Payback in Year 2					

Fig 2.b.1: NPV Analysis and ROI Calculation of TeleMediCare

Assumptions for the NPV Analysis and ROI of TeleMediCare:

i. **Discount rate:** The discount rate of 10% is assumed to be the appropriate rate for this project, based on the risk profile and the time value of money.

ii. **Cash inflows:** The cash inflows for years 1, 2, and 3 are estimated based on assumptions of the number of patients and medical professionals who will use the platform, as well as the subscription fees and other charges they will pay. These projections are based on market research and industry trends.

iii. **Cost of investment:** The cost of investment is assumed to be AUD 500,000, which is the budget for the project.

iv. **Revenue growth:** The revenue growth of the platform is expected to increase from $300,000 in the first year to $550,000 in the second year and $650,000 in the third year. This growth is based on the assumption that the platform will gain traction and become more widely used over time.

v. **Operating costs:** This analysis includes operating costs such as server maintenance, marketing, and employee salaries based on current market value resources and equipment and technology prices.

vi. **No inflation:** The analysis assumes that there is no inflation in the cash inflows and outflows of the project. Inflation could impact the actual cash flows and profitability of the project.

These assumptions should be reviewed and updated as new information becomes available or as the project progresses to ensure the accuracy of the analysis.

Year	Costs	Benefits	Cum Costs	Cum Benefits	
0	500,000	0	500,000	0	
1	180,000	300,000	680,000	300,000	
2	180,000	550,000	860,000	850,000	
3	200,000	650,000	1,060,000	1,500,000	

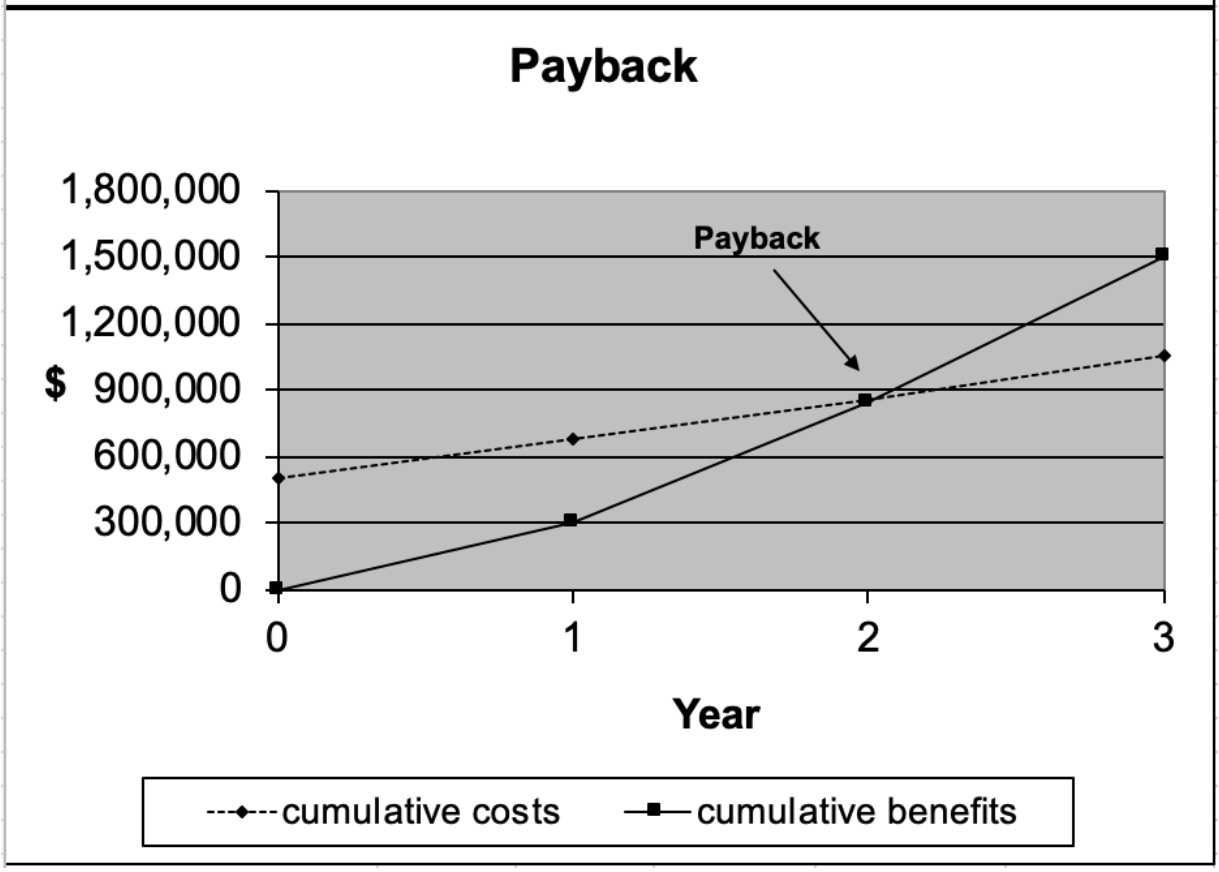

Fig 2.b.2: Estimated payback period for TeleMediCare

c. Expected benefits

The TeleMediCare project is anticipated to bring several benefits to the community, including increased access to healthcare services, improved patient health outcomes, and job creation in the healthcare industry. According to the Australian Bureau of Statistics (2021), rural and underserved communities face challenges accessing healthcare services due to geographic distance and shortage of healthcare providers. TeleMediCare aims to address these challenges by providing remote healthcare services through advanced technology. This will allow patients to receive medical care from licensed healthcare professionals without leaving their homes.

Improved patient health outcomes are also expected due to the TeleMediCare project. By providing patients with healthcare services, the platform can help prevent and manage chronic conditions, improve medication adherence, and provide timely medical advice, among other benefits. The Royal Australian College of General Practitioners (2019) reports that telemedicine can improve health outcomes, particularly for patients with chronic conditions.

The TeleMediCare project also aims to create job opportunities in the healthcare industry. As the platform expands, it will require additional healthcare professionals to provide medical care to patients. This can help address the shortage of healthcare providers in rural and underserved communities and contribute to the growth of the healthcare industry in Australia.

3. Project Concept

a. Objectives

The objectives of TeleMediCare are:

1. To improve access to healthcare services for patients in rural and underserved areas or communities by providing remote consultations and diagnostic services.
2. To leverage innovative technology to streamline the healthcare process, reduce healthcare costs, improve patient health outcomes, and create jobs in the healthcare industry.

The platform aims to utilize the advanced technology to offer a secure and seamless online consultation experience, connecting patients with licensed healthcare professionals, enhancing access to care, and promoting better health outcomes (Australian Bureau of Statistics, 2021; Royal Australian College of General Practitioners, 2019).

The project's specific goals include satisfying all the requirements established by Charles Darwin University for the small business grant, benefiting underserved communities, and generating revenue for the company. The project is unique and

customized to meet the needs of patients with limited access to traditional healthcare services, with a budget of less than AUD 500,000 and an anticipated completion time of two years.

b. SWOT Analysis

Strengths	Weaknesses
• Innovative use of technology to provide healthcare services (Clemensen et al., 2017). • Ability to reach underserved populations (Australian Digital Health Agency, 2021). • Reduced costs for patients and payers (Clemensen et al., 2017). • Improved patient outcomes (Clemensen et al., 2017).	• Dependence on technology and internet connectivity (Australian Bureau of Statistics, 2021). • Resistance from traditional healthcare providers (Royal Australian College of General Practitioners, 2019). • Limited access to necessary medical equipment in remote areas (World Health Organization, 2010). • Healthcare professionals need specialized training (Clemensen et al., 2017).
Opportunities	**Threats**
• Increased demand for telemedicine services due to the COVID-19 pandemic (Australian Digital Health Agency, 2021). • Partnerships with government agencies and healthcare providers. • Expansion into international markets. • Integration with electronic health record systems (Clemensen et al., 2017).	• Competition from other telemedicine providers. • Changes in government regulations and reimbursement policies. • Data security and privacy concerns (Clemensen et al., 2017). • Limited adoption by patients and healthcare providers (Clemensen et al., 2017).

c. Stakeholders:

The stakeholders for TeleMediCare include:

- Patients and their families.
- Healthcare providers.
- Payers (insurance companies and government agencies).
- TeleMediCare employees and investors.
- Regulatory bodies.

d. Assumptions:

- There is sufficient demand for telemedicine services in rural and underserved areas (Clemensen, Rothmann, & Smith, 2017).
- Patients and healthcare providers will adopt TeleMediCare as a viable alternative to traditional healthcare services.
- TeleMediCare will be able to secure the necessary funding and partnerships to support its operations.
- The regulatory environment will continue to support expanding telemedicine services (Clemensen et al., 2017).

e. Constraints

- Limited budget of less than AUD 500,000.
- Completion of the project within two years.
- Development of software products and tools (Website & Mobile Applications) along with availing medical equipment to deliver telemedicine service.

4. Costs

The estimated costs for the TeleMediCare project are as follows:

1. Development Costs: AUD 200,000
2. Equipment Costs: AUD 100,000
3. Employee Salaries and Benefits: AUD 100,000
4. Marketing and Promotion Costs: AUD 50,000
5. Legal and Regulatory Costs: AUD 25,000
6. Other Miscellaneous Costs: AUD 25,000

The development costs include developing the telemedicine platform, software, and mobile application. The equipment costs include purchasing medical equipment necessary for remote consultations and diagnostic services, such as video conferencing and diagnostic equipment, and medical devices. The employee salaries and benefits include the costs of hiring and training employees, including physicians, nurses, and technical support staff (Bashshur et al., 2014). The marketing and promotion costs include promoting the TeleMediCare services to potential patients and healthcare providers. The legal and regulatory expenses include obtaining necessary licenses and complying with government regulations (Australian Bureau of Statistics, 2021).

The cost estimates were based on industry research and consultations with telemedicine experts and within the grant budget of less than AUD 500,000. A systematic review of telemedicine and face-to-face oral health consultations found that telemedicine consultations were generally less expensive (Gamus & Chodick, 2019).

5. Major Risks

The following are five potential risks associated with the TeleMediCare project:

i. **Technology Risks:** The TeleMediCare project relies heavily on technology, including software and hardware components, which can be prone to failure, bugs, and security breaches (Kim et al., 2020).
ii. **Regulatory Risks:** Telemedicine is a highly regulated industry, and any violations or non-compliance with the relevant laws and regulations could result in legal and financial penalties (ASHRM, 2018).
iii. **Financial Risks:** The TeleMediCare project requires a significant initial investment in development and equipment costs, and if the project fails to generate sufficient revenue, it may result in financial losses (Snoswell et al., 2020).
iv. **Acceptance Risks:** Telemedicine is a relatively new and emerging field, and patients and healthcare providers may need to be more willing to adopt this technology (Powell et al., 2017).
v. **Operational Risks:** The success of the TeleMediCare project relies heavily on the availability and competency of medical personnel and technical support staff. Staffing

shortages or lack of expertise could negatively impact the project's performance (ASHRM, 2018).

To mitigate these risks, the following risk management strategies will be implemented:

i. **Technology Risks:** Regular software updates, security assessments, and system backups will be conducted to ensure the reliability and security of the TeleMediCare system (Kim et al., 2020).
ii. **Regulatory Risks:** The TeleMediCare project will comply with all relevant laws and regulations, and legal counsel will be consulted to ensure ongoing compliance (ASHRM, 2018).
iii. **Financial Risks:** A detailed financial analysis and forecast will be conducted to ensure the project is financially viable, and contingency plans will be developed to manage any unforeseen economic challenges (Snoswell et al., 2020).
iv. **Acceptance Risks:** Extensive patient and healthcare provider education and outreach programs will be implemented to increase awareness and promote the adoption of TeleMediCare services (Powell et al., 2017).
v. **Operational Risks:** Adequate staffing levels will be maintained, and training and professional development programs will be implemented to ensure staff competency and operational efficiency (ASHRM, 2018).

6. Timescale

a. Estimated Time to Complete the Project

The estimated time to complete the project is two years. The first year will be dedicated to planning, designing, developing, and testing the telemedicine platform and implementing a pilot program in a select population segment. The second year will focus on expanding the pilot program to a broader community, scaling up the infrastructure, and conducting evaluations to measure the impact and effectiveness of the platform.

b. Major Milestones

The major milestones of the project are:

Milestone 1: Initiation, Planning, and Research (6 months)

- Conduct a needs assessment to identify specific telemedicine needs of the community and stakeholders, such as healthcare providers, patients, and caregivers.
- Conduct market research to identify the target audience and competitors.
- Develop a detailed project plan and timeline, identifying key deliverables, milestones, and resources needed.
- Develop a project charter, including defining the project's scope, goals, and objectives.
- Identify and engage with key stakeholders, including healthcare providers, policymakers, and patient advocates.
- Ensure compliance with relevant laws and regulations, such as the Privacy Act 1988 and the Therapeutic Goods Act 1989.

Milestone 2: Design and Development (9 months)

- Develop the telemedicine platform, including its software and hardware components, and ensure its compatibility with existing healthcare systems.
- Develop user interface and user experience design, including conducting user testing to ensure usability and accessibility.
- Develop functional and technical specifications, including data security and privacy protocols.
- Conduct quality assurance and testing to ensure the platform functions properly and meets all regulatory requirements.

Milestone 3: Pilot Program and Rollout (6 months)

- Conduct a pilot program in a select segment of the population, such as elderly or rural patients, to assess the effectiveness of the telemedicine platform in improving health outcomes, reducing healthcare costs, and enhancing patient satisfaction.
- Develop marketing and promotional strategies to generate awareness.
- Roll out the software to all users and provide training to users and healthcare providers.

- Conduct ongoing user testing and monitoring to identify issues and make necessary improvements.

Milestone 4: Evaluation and Growth (3 months)

- Evaluate user feedback and performance metrics to measure the impact of the telemedicine platform on various outcomes, such as health-related quality of life, hospitalization rates, medication adherence, and cost-effectiveness.
- Plan and execute strategies for growth and expansion, including expanding the platform's features and functionalities.
- Continuously monitor and evaluate the platform's performance and make necessary improvements.

The estimated time to complete the TeleMediCare project is 24 months, and it is essential to note that this timeline is subject to change based on unforeseen circumstances or project delays. Furthermore, it will be important to regularly review and adjust the timeline as necessary to ensure that the project stays on track and is completed within the desired timeframe.

7. Conclusion

In conclusion, the TeleMediCare project is a promising initiative that can improve access to healthcare services for communities by enabling remote consultations, diagnosis, and treatment through a telemedicine platform. The project has been analyzed using a weighted scoring model, NPV, and payback period demonstrating its viability and potential for success, although several risks must be managed throughout its lifecycle (Ryu, 2012). Furthermore, the project is aligned with the growing global interest in telemedicine to improve access to healthcare services, particularly in remote and rural areas, and stakeholders have recognized its potential benefits (Australian Institute of Health and Welfare, 2018). However, it is essential to address the potential risks associated with the project, such as technical, regulatory, financial, privacy, and security risks, to ensure its success. Regular review and adjustment of the project timeline are also necessary to ensure that the project stays on track and is completed within the desired timeframe.

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