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| North Metropolitan TAFE |
| Shire of Chittering Client Project Solution Report 2024 |
| Semester 1 2024 |

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| Douglas Fergusson  22-04-2024 |

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## Executive Summary

This report outlines a strategic initiative aimed at enhancing the technological infrastructure of the Shire of Chittering to improve community engagement and streamline administrative processes. Leveraging insights from the Shire’s Strategic Community Plan and Corporate Business Plan, we propose expanding our existing mobile applications. This approach utilizes established technologies and frameworks, ensuring continuity and ease of adoption by the community. By building on the existing Xamarin and Flutter apps, we aim to introduce advanced functionalities such as real-time notifications and integrated payment systems, which align with the Shire's strategic objectives of fostering community engagement and enhancing administrative efficiency.

## Introduction

### Overview of the Issue

The Shire of Chittering faces challenges with high communication costs and inefficient processes in handling council rates payments. Initial consultations with the Shire's staff and review of community feedback identified a pressing need for improved digital engagement platforms. This project was initiated to address these concerns by leveraging modern technology to create more efficient, cost-effective communication and payment solutions.

### Background

In partnership with North Metropolitan TAFE, the Shire of Chittering has engaged in technological enhancements over the past three years, focusing on developing solutions that improve the quality of community and administrative interactions.

## Stakeholders

* Shire of Chittering
  + Chief Executive Officer
    - Melinda Prinsloo
  + Rangers, Emergency Services & Planning
    - Jodie Connell
  + Residents
  + Business Owners
* North Metropolitan TAFE
  + Supervising Lecturer
    - Aaron Clifford
  + Developers and Project Managers
    - Douglas Fergusson
    - Nathan Bransby
    - Sangay Thinley
    - Yang *'YT'* Lim
    - Daniel Mulenga
    - Bianca Ishikawa

## Strategic Framework

The Shire of Chittering's commitment to enhancing community engagement and improving administrative efficiency is supported by several key strategic documents. These documents outline the vision and operational strategies that guide our current project, ensuring alignment with the broader goals of the community and the operational frameworks established by local governance.

Strategic Community Plan 2022-2032: A 10-year plan developed by the community to set the foundation for future initiatives, including this project. It underscores the long-term vision for growth and sustainability.

Corporate Business Plan 2023-2027: This plan highlights the critical importance of digital transformation and efficient service delivery as key components in achieving the operational objectives of the Shire, directly supporting the goals of this project.

Annual Report 2022-2023: The latest annual report reveals a pressing need for enhanced community engagement and more streamlined administrative processes, both of which are addressed by the proposed technological solutions in this project.

## Business Requirements

### High-Level Objectives/Use Cases

* Streamline the process of paying council rates.
* Enhance the frequency, efficiency, and reach of community announcements.

### Relation to Strategic Plan

* Each solution is designed to align with the Shire’s vision of fostering a connected and technologically enabled community as outlined in the strategic plans.

### Existing Solutions

* The Shire’s website is managed with Spark CMS, a SaaS solution deployed with CouncilConnect by Market Creations Agency, a local company.
* The main Entity Resource Planning (ERP) solution is SynergySoft which is hosted centrally on Shire premises. Reports for rates payments are generated here.
* Previous solutions prepared by TAFE students include a Xamarin app and a Flutter app, which have been moderately successful but require enhancements to meet evolving community needs.
* A WordPress website was produced by 2019 TAFE students to replace the SparkCMS solution, but was ultimately not adopted by the Shire.
* Rates payments are facilitated through BPoint.

## Gap Analysis

| **Current State** | **Desired State** | **Gaps** | **Action to Bridge Gaps** |
| --- | --- | --- | --- |
| Mobile applications with basic functions (Xamarin, Flutter) lacking advanced features. | Comprehensive digital ecosystem with enhanced system integration and mobile apps including full features. | Feature set expansion required to meet modern needs. | Upgrade existing apps or develop new solutions like a PWA that include advanced features such as real-time notifications and integrated payment systems. |
| Limited digital engagement; reliance on traditional methods; minimal use of social media. | High-level digital engagement across all demographics with accessible, user-friendly tools. | Inadequate reach and engagement with community demographics. | Introduce new digital communication channels. Cross-promote adoption of new and existing channels. |
| Use of non-integrated systems leading to inefficiencies. | Streamlined, automated administrative processes through integrated systems. | Lack of system integration. | Deploy solutions to systems that integrate various administrative functions into a single platform, improving efficiency and accuracy. |
| Basic infrastructure not optimized for scalability or integration of sophisticated services. | Advanced infrastructure capable of supporting scalable, secure, integrated digital services. | Infrastructure not suited for advanced, high-traffic solutions. | Deploy solutions to cloud rather than hosting centrally. |

## 

## SWOT Analysis

| **Strengths** | **Weaknesses** |
| --- | --- |
| * Existing technology infrastructure with mobile apps (Xamarin, Flutter). * Strategic alignment with the Shire’s long-term plans. * Established partnership with North Metropolitan TAFE providing fresh ideas and access to new technologies. * Current focus on improving community engagement and administrative efficiency. | * Resource limitations in budget and technical expertise. * Potential resistance to change among shire staff and community members. * High dependency on multiple technology components, complicating project management and integration. * Integration with end-of-life solutions such as ERP. |
| **Opportunities** | **Threats** |
| * Technological advancements that can be leveraged in web and mobile app development. * Availability of grants or funding for community and rural development projects. * Potential to expand services and integrate with other local government or community initiatives. * Ability to incorporate real-time feedback mechanisms to improve services based on user input. | * Rapid technological obsolescence requiring frequent updates. * Cybersecurity risks associated with increased digitization and data handling. * Economic downturns that could affect funding and community's ability to engage with new platforms. * Regulatory changes that could impose new compliance constraints on data management and digital service deployment. |

## Proposed Solutions

To address the identified needs of the Shire of Chittering, we propose two main pathways for developing our digital engagement tools. Each pathway offers unique advantages and aligns with our strategic objectives of enhancing community engagement and streamlining administrative processes.

### Option 1: Upgrade Existing Xamarin and Flutter Apps

Given the existing infrastructure and familiarity within our team, we propose enhancing our current mobile applications developed with Xamarin and Flutter. This approach leverages the established base and user familiarity to integrate advanced functionalities such as:

* Real-time Notifications: Implement push notification systems to alert residents about important community news and events instantly.
* Integrated Payment Systems: Embed functionalities that allow residents to directly pay council rates and other fees through the app, ensuring convenience and improving transaction security.
* User Interface Improvements: Redesign the user interface to enhance user experience, making the apps more intuitive and accessible to a broader demographic.

Advantages of this option include lower development costs and shorter deployment times, leveraging existing investments while providing significant improvements in functionality and user experience.

### Option 2: Progressive Web App (PWA) Conversion

Building on our existing digital assets, we propose converting the website into a Progressive Web App (PWA) that functions seamlessly across all devices. This transformation will expand the website's capabilities to provide an app-like experience, including:

Mobile Notification Service: Implement a system that allows the sending of push notifications directly to users' devices, ensuring timely updates on community news and events.

Home Screen App Icon: Enable users to add the PWA icon to their home screens for quick and easy access, mimicking the functionality of native apps.

This approach allows the Shire staff to continue their established workflows, such as updating information and events on the website, while ensuring that all updates are instantaneously reflected in the PWA. This strategy maintains the benefits of a traditional app while leveraging the broader accessibility of a web-based platform.

**Implementation Options:**

* Enhance Existing Website: Upgrade the existing website to include PWA features like offline capabilities, real-time notifications, and integrated payment systems. This enhancement would leverage the current digital infrastructure to improve user engagement and transaction security.
  + This approach may rely on co-operation with current website CMS vendor.
* Develop New PWA: If enhancements to the existing website are deemed insufficient, we could also consider developing a brand-new PWA from scratch. This would be designed with the latest web technologies to ensure scalability, enhanced security, and superior user experience, supporting a wider array of community services and administrative functions.
* This would be a large task that requires the continued development by shire staff or contracted party.
* Potential existing groundwork project is available in the form of the WordPress solution prepared past TAFE students.

Advantages of this option include leveraging web technology to reduce development and maintenance costs compared to native apps, and providing a uniform experience for users across various platforms.

## Impact Assessment

### Business Impact

* Both solutions aim to reduce operational costs and improve service delivery, aligning with the Shire's business objectives.

### Team's Implementation Capability

* The current team has experience with Xamarin and Flutter, which facilitates enhancements to existing apps. Developing a new PWA will require additional training and resources, but offers long-term benefits through flexibility and control.

### Project Effectiveness

* Enhancing existing apps can provide quick improvements with minimal disruption. A new PWA would be a longer-term investment but offers greater potential for customization and scalability.

### Industry Standards and Practices

* Both options adhere to modern web and mobile development standards, ensuring the solutions are robust and sustainable.

## Cost Analysis and Funding

While a detailed budget has not yet been fully developed, preliminary analysis suggests substantial potential for cost savings and efficiency improvements. The partnership with North Metropolitan TAFE provides valuable resources and expertise at no cost to the Shire, presenting a significant advantage.

Additionally, transitioning from the traditional SMS notification system, which currently costs approximately $1,500 per broadcast via the Telstra Integrated Messaging Service, to a more cost-effective solution like Firebase notifications—which are free, subject to quotas and limits—can substantially reduce communication costs. We are actively exploring various funding options, including grants and strategic partnerships, to support the financial aspects of the project's development, implementation, and ongoing maintenance.

## Project Timeline

This project will be completed in two stages across 2024.

### Stage 1

The first stage will be research and planning.

* Preparing this solution report, action plan, feedback and review with Shire and relevant stake holders.

### Stage 2

The second stage will be development and testing. This will begin in the second semester of 2024. A timeline and action plan will be provided before this commences.

## Conclusion and Recommendation

After thorough evaluation of the different technological approaches to enhance the Shire of Chittering's digital engagement tools, we recommend expanding the existing mobile applications. This strategy capitalizes on the familiarity and existing infrastructure of the current Xamarin and Flutter apps, which can be cost-effectively enhanced to include critical new features like real-time notifications and integrated payment functionalities. This approach not only aligns with our strategic objectives but also offers a pragmatic balance of cost, ease of implementation, and rapid deployment, ensuring immediate improvements and long-term scalability. We will proceed with the detailed planning and development of these enhancements, continuously engaging with community feedback to tailor our solutions to meet their evolving needs.

## Sign-off

This document is pending approval from the project supervisor, ensuring all aspects of the project align with all party's organizational goals and capabilities.