



# **Requirement Analysis Report**

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# **(1). Requirements Analysis Report for Tongariro Cinemas**

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Tongariro Cinemas, as an existing enterprise, already has a variety of systems in place in order to ensure the continual function of the business.

## **Client Requirements Analysis for Tongariro Cinemas**

In the case of Tongariro Cinemas, the Client Requirements Analysis will consist of the expected outcome of the final system by the management and other stakeholders of the Cinema Complex. To reiterate, the primary stakeholders of Tongariro Cinemas LTD are management and staff, board members, and the chairman and secretary.

Upon discussing the current state of the company with these respective stakeholders, several verdicts were reached regarding the intended state of systems, management protocols, and other company functions by the end of the modernisation;

- The total cost of the endeavour must not exceed \$50,000/NZD.
- Tongariro Cinemas must have a capable website, capable of allowing management to update and manipulate viewing sessions from the administrative computer within the complex. Additionally, it should allow customers to view these sessions, and create bookings within any available time slots with free seats. Customers must still pay in-person at the time of check-in, so online payment systems are unneeded.
- Old and outdated systems such as the manual bookkeeping of bookings and finances must be updated, and brought to the modern standard. This will include the creation of databases, integration of EFTPOS systems, connection of administrative systems to the web application, etc.
- Management would appreciate the capability to establish a social-media presence by the end of the modernisation, therefore the website must be easy to navigate, and stand up against modern standards of newer generations.
- Whilst the customer-base of Tongariro Cinemas is currently sufficient for the needs of the business, modernisations should allow for future expansion of the business, whether by integration of other sites, or expansion of the current site. The optimisations of the systems should allow for reduced workload, resulting in lower operative costs.

## **Requirements Elicitation for Tongariro Cinemas**

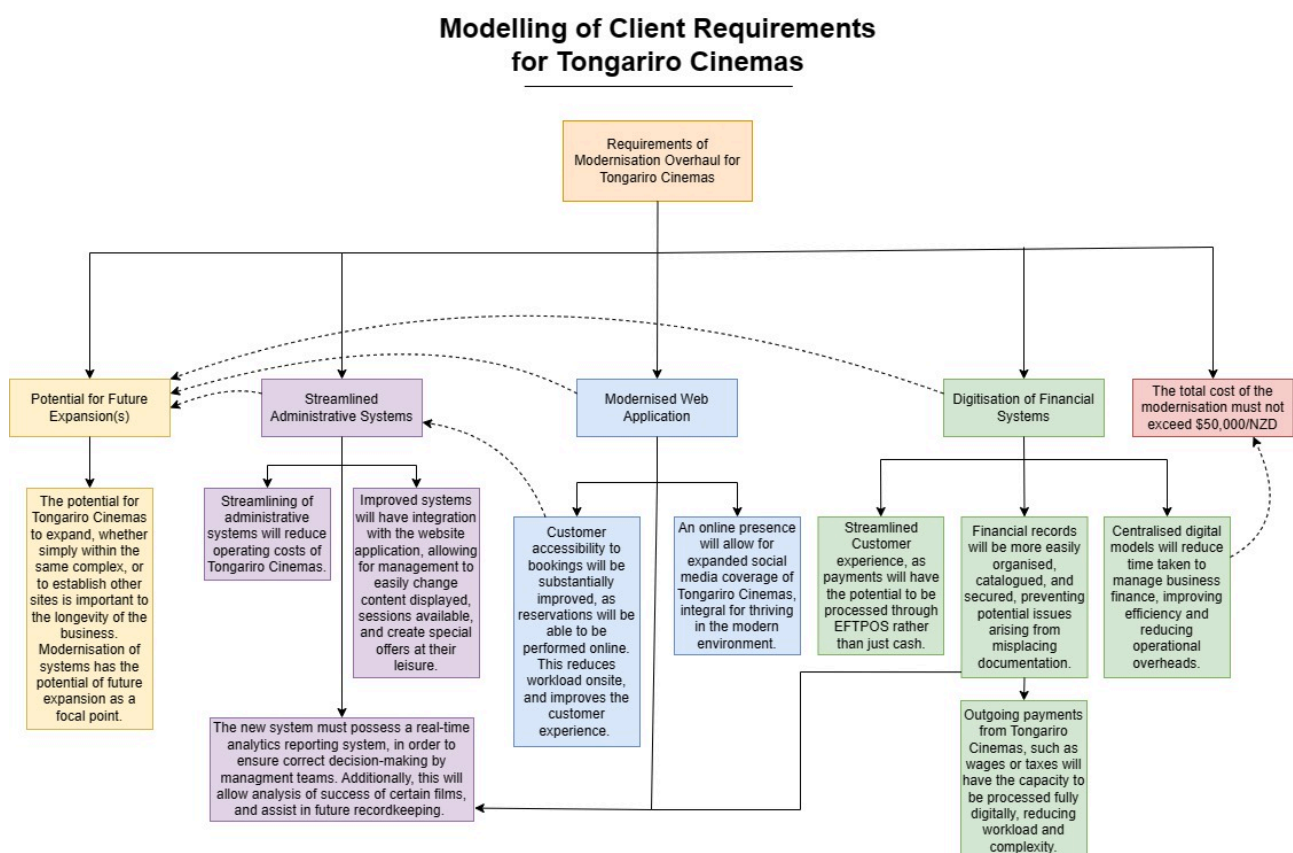
The primary source of Requirement Elicitation for Tongariro Cinemas was speaking to the chairman of the complex, George Tongariro. We met with George on the 8th of March 2023, and interviewed him regarding his goals and visions for the modernisation of the business. This was extremely insightful, as George - having run the business since its inception - had deep knowledge of the existing systems in place, therefore was able to identify many of the systems that are currently running behind the modern standard.

Additionally, we performed a stakeholder analysis, ensuring that all new and existing parties are accounted for. Notably, Tongariro Cinemas' interactions with film licensing companies will shift greatly, from primarily telephone-based (*and overall, rather inconvenient*) to fully digital. One stakeholder that is NOT affected by the changes in modernisation of the premises at this time is the Café, leased by Moriarty Catering Co. - none of the systems overhauled belong to the café, therefore the general operation of the lessee will be unaffected.

Finally, we performed a Document Analysis/Review of the existing documentation of systems at Tongariro Cinemas, making clear that the financial systems (*currently entirely analogue*) are entirely out-of-date, and not up to the modern standard. Financial records were performed entirely by hand, including processing of customer payments, deduction of taxes, processing of employee payments, and financial reinvestment within the business. Worryingly, some of this documentation was incomplete, meaning the current storage and organisational systems are also lacking. These issues further reinforced the need for a fully digital financial management suite, and full modernisation of management systems.

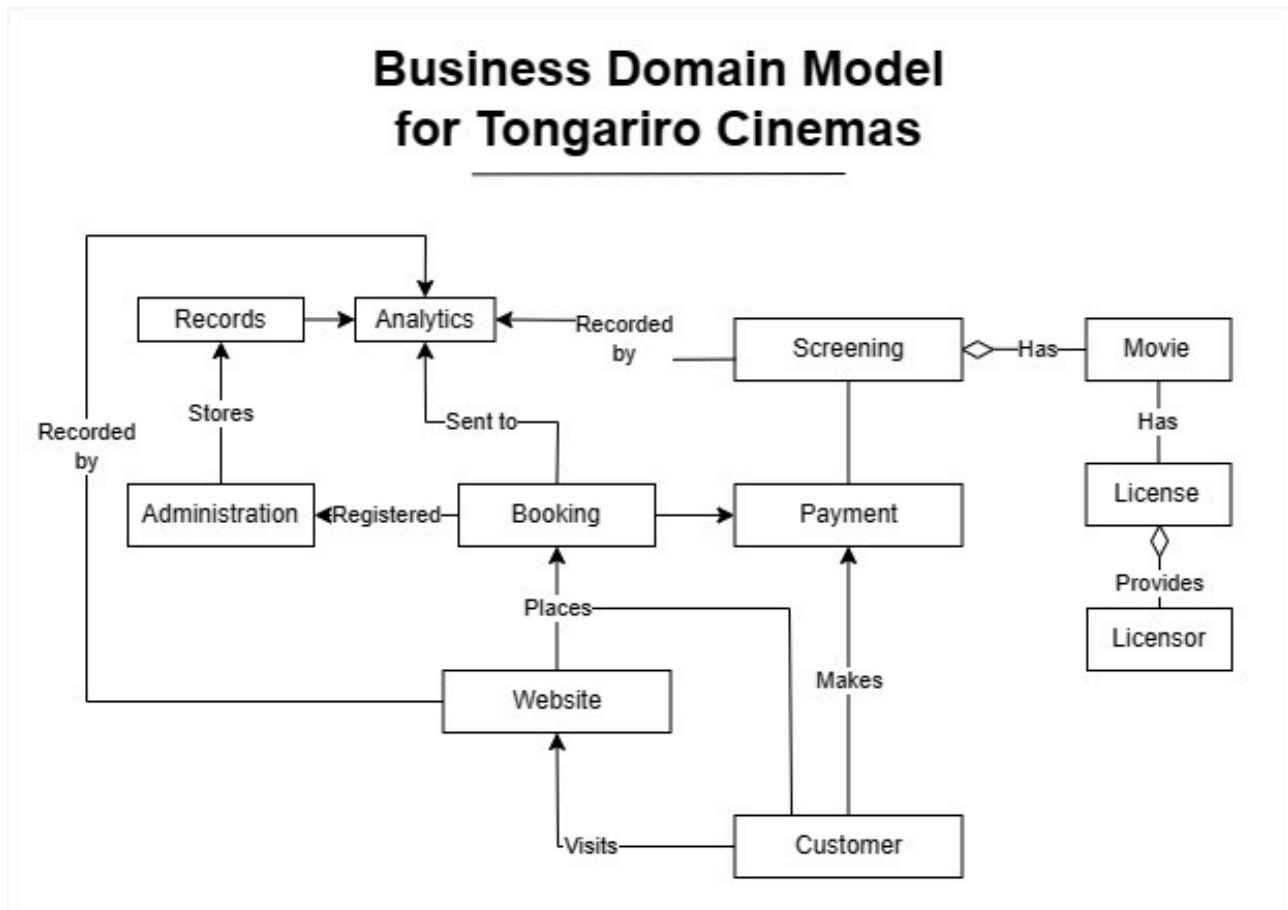
## Modelling Requirements for Tongariro Cinemas

The modelling of requirements effectively consists of the means that will be undertaken in order to fulfil above objectives, presented as a visual medium. The requirements model is available below.



## Business Domain Model for Tongariro Cinemas

A business domain model is a collection of terminology, areas of application, and topics related to the functioning of a business. It is used to represent the general means of the business functioning at an introductory level - it conveys meaning as to how the business functions without delving into specifics. The model of Tongariro Cinemas' business domain is available below.



## Verifying and Validating Requirements for Tongariro Cinemas

In order to verify the requirements of the upgrades for Tongariro Cinemas, an extensive process was and is being undertaken; stakeholders in Tongariro Cinemas are constantly collaborated with throughout the process of development in order to ensure that proceeds are as expected and anticipated. The comprehensive design of the systems ensures that all aspects of intended design are present. Clear and concise communications between teams ensures that no aspects of design are "lost in translation", therefore also allowing information to be readable at a glance - even to someone unfamiliar with the project.

The validity of the web application system so far has been proven through the aforementioned collaboration, as well as extensive prototyping of the expected outcome of the web application - we have used this prototype in order to "iron out" any misconstrued or miscommunications between the application development team and the directing board of Tongariro Cinemas.

## Analyse Non-Functional Requirements for Tongariro Cinemas

When overhauling a system such as that within Tongariro Cinemas, there are a variety of non-functional requirements that also must be taken account of. These determine not what the system consists of, but rather how the system is expected to perform following modernisation.

The first of these is an optimisation of workflow and reduction of total workload. Overall, the current means of operating Tongariro Cinemas is highly labour-intensive relative to the industry standard, as many processes that could otherwise be automated or optimised are instead performed manually. From handling of finances manually within ledgers, to licensing deals, to management of staff and wages - everything is currently done manually, with little to no computational assistance. The success of this criteria will be easily measured based on how long it takes to perform a certain task - for example the time it takes to process an employee pay check before and after optimisation.

The second non-functional requirement is a reduction in general operational costs. As with any business venture, Tongariro Cinemas' total profits are equal to revenue minus operational costs, therefore - as a private enterprise - monetary optimisation is a driving factor. The aforementioned reduction of workload and improvement in overall employee productivity should substantially reduce the amount of time staff spend on tasks, improving overall output throughout the theatre. Measuring this is as simply as analysing finances before and after (*of course, given a period of time for adjustment*) the optimisations to the system are made.

A third non-functional requirement is the potential for future expansion of the overall system. Whilst the semantics of "expandability" as a function could be debated, the entire premise of expanding Tongariro Cinemas beyond its current form is a relatively new premise; a discussion with the managing director revealed that there were currently no plans to expand the cinema complex, or to open other complexes elsewhere. However, expandability of any business is a necessary option, and it is much better to have the option included than not.

## Defining the Scope of Overhauls for Tongariro Cinemas

It is important to set a reasonable scope for the changes to be made within the Tongariro Cinemas complex; whilst it is important to modernise the existing system and bring it to a standard beyond what is currently in place, this does not mean that all elements currently utilised are in need of replacement.

In the case of the web application, it needs to be built from the ground-up (*as there is no preexisting website*). Therefore, the Minimum Viable Product (MVP) must contain at least: A homepage, a login page, a page listing screenings, a booking page, and a page with contact information for Tongariro Cinemas.

Additionally, as none of the facilities onsite possess capability to work in conjunction with the new system, new devices need to be purchased and set-up in order to allow full use of the new software suite. This means that a (*likely considerable*) portion of the budget is to

be spent on devices for the premises in order to attain complete functionality for all intended use cases.

Finally, in order to ensure that the new computers systems and software can be used correctly once they are in place, a series of staff training sessions will need to be undertaken in order to ensure employees at Tongariro Cinemas possess the necessary knowledge to utilise the systems in place.

In total, Tongariro Cinemas is receiving a completely new suite of online software, an array of administrative and financial management software, a series of new devices (*possibly including a server for website hosting*), and a comprehensive staff re-training programme.

## **Design of Overhauls for Tongariro Cinemas**

A large contributor to the likelihood of success of the web application is successful design. There are a large variety of steps that must be taken in order to ensure a modern, all-encompassing, and overall successful design is put in place;

The first of these are the design principles used during creation of the application. There are a variety of principles of design, including correct proportioning, patterning, colouration, contrast, utilisation of space, and careful page balance. In order to ensure that the final product is appealing for consumers, generally agreed-upon design principles must be followed, as anything not conducive to "the norm" is often seen as garish and unsightly.

The particular modus operandi for the design of the web application is goal-oriented. This means that the bigger picture - the sum-of-all-parts, so to speak, is the focus of the design. The most important feature for Tongariro Cinemas - coming from a position of having no website to speak of at all - is to develop a complete application, in tandem, from scratch.

In order to ensure the web application follows principles of good design, a focus has been placed on ease-of-usability for customers. The design of the web application strives to be unobtrusive, easy to navigate, aesthetically pleasing, and straightforward in its presentation. There is a heavy focus on keeping a clean and sleek User Interface, and ensuring the User Experience overall is easy, free from stress or difficulties, and accessible to any customers who could conceivably want to patronise a Cinema Complex.

## **Conclusion of Requirements Analysis Report for Tongariro Cinemas**

In conclusion, our Team's careful analysis of the needs of the business, constant interactions with shareholders, and consideration of the needs of users has resulted in a large collection of specific, but very achievable requirements for a successful overhaul of Tongariro Cinemas. The route to successful implementation, design methodology, and customer requirements have been fully planned, and are now awaiting commencement. We will maintain contact with Tongariro Cinemas throughout the implementation process, in order to ensure that all plans laid out within this report are successfully implemented.

## (2). Solution Design

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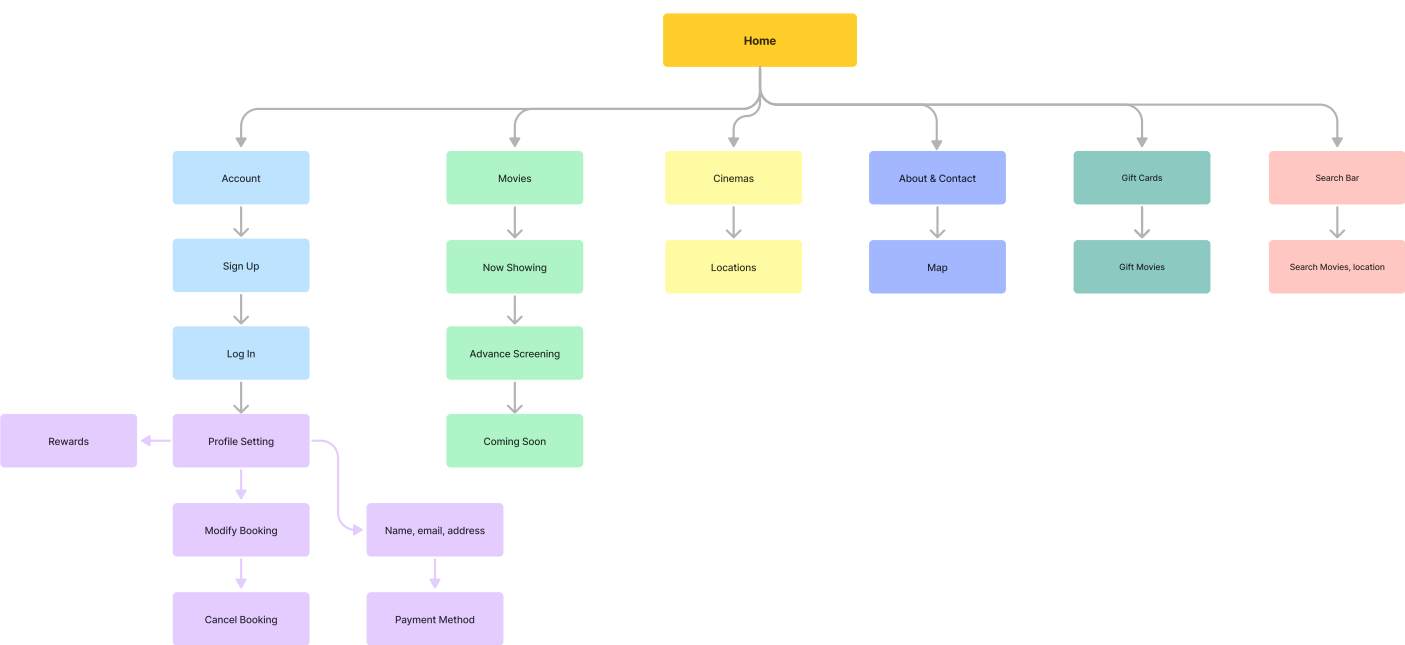
### 1. Solution Design

Based on the findings from the requirements analysis report and the business needs of the client.

1. Define the problem: To enable customers to browse available films, find showtimes, and buy tickets, Tongariro Cinemas requires a website.
2. Gather requirements: The website should allow users to search movies by title, genre, or date. Users should be able to select a movie and view available showtimes. Users should be able to select a seat and purchase tickets. The website should be easy to use and accessible on mobile devices.
3. Analyse the requirements: Modern web technologies will be used to build the website, and it should be scalable to accommodate large traffic volumes. It will be integrated with the new ticketing and payment platforms for the cinema. Regulations governing data privacy must also be followed.
4. Create a high-level design: The website will consist of a front-end user interface built using ReactJS or similar framework. The back-end will consist of a RESTful API built using NodeJS or similar technology. The database will store movie and showtime data and be built using MySQL or similar technology. The website will be hosted on a cloud platform such as AWS.
5. Develop detailed designs: The user interface will be designed using responsive web design principles and optimised for mobile devices. The API will be designed to handle user requests and integrate with the cinema's new systems. The database will be designed to store movie and showtime data, as well as user data for ticket purchases.
6. Test your design: The website will be tested to ensure that it is responsive, functional, and secure. User acceptance testing will be performed to validate that the website meets user requirements.
7. Document your design: The design will be documented in a clear and concise manner. This will include technical specifications, user manuals, and operational procedures.
8. Implement your design: The website will be created and then launched in a live environment. Practices for continuous integration and deployment will be used to guarantee that the website is always safe and secure.

# Site Navigation

2. Site map shows all the pages/views needed.



## Footer

