



ESCOLA SUPERIOR
DE COMUNICAÇÃO SOCIAL

Rok Manager

Project of a mobile application to support for Rise of Kingdoms players

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TRABALHO DE PROJETO SUBMETIDO COMO REQUISITO PARCIAL PARA
OBTENÇÃO DO GRAU DE MESTRE EM AUDIOVISUAL E MULTIMÉDIA

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Anti-Plagiarism Declaration

I hereby declare, on my honor, that I am the author of this work, which is an integral part of the requirements for obtaining a Master's degree in Audiovisual and Multimedia. This is an original work resulting from my own research, and it has never been submitted (in whole or in part) to any other higher education institution for the purpose of obtaining an academic degree or any other qualification. I further attest that all citations are properly identified. I also affirm that all quotations included here are duly acknowledged, and I am fully aware that plagiarism may lead to the annulment of this work, titled "RokManager: Project of a Mobile Application to Support RoK Players."

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Resumo

O objetivo deste projeto foi desenvolver uma aplicação móvel concebida para apoiar os jogadores do videojogo “Rise of Kingdoms” (RoK). RoK é um jogo de construção de cidades e de guerra para dispositivos móveis que enfatiza a estratégia e o planeamento para aumentar o envolvimento dos jogadores. Categorizado no género de gacha, jogos que envolvem gastar dinheiro virtual ou real em acessórios dentro do jogo num contexto de recompensas aleatórias, evoluiu de um jogo de telemóvel para computador em 2022 atendendo à procura dos jogadores dessa forma os jogadores não tem a necessidade de utilizar “software” de terceiros para aceder ao jogo no computador.

Na criação desta aplicação integra-se um conjunto abrangente de funcionalidades destinadas a agregar toda a informação relevante do jogo e apresentá-la de forma direta e eficaz, colmatando assim a necessidade de os jogadores gastarem horas excessivas em pesquisa externa ao jogo ou em longas sessões de jogo para compreender diversas táticas e estratégias de jogo.

Esta aplicação procura centralizar toda a informação relevante para os jogadores numa única plataforma, adaptada especificamente aos seus utilizadores. Alcançar este objetivo requer que o processo de conceção da aplicação se concentre profundamente nas necessidades e objetivos dos utilizadores, sendo estes os elementos centrais da aplicação.

Este projeto visa desenvolver um protótipo de uma aplicação móvel que fornece informações cruciais do jogo. Ao fazê-lo, pretende atuar como um portal para os jogadores, oferecendo uma variedade de funcionalidades de uma forma amigável e eficaz. Tal como os desenvolvedores do jogo, esta aplicação é projetada para atender às necessidades e preferências dos seus utilizadores.

Palavras-chave: Aplicações Móveis, Experiência do Utilizador (UX), User Interface (UI), Jogos de Telemóvel, Rise of Kingdoms

Abstract

The objective of this project is to develop a mobile application designed to support players of the video game "Rise of Kingdoms". "Rise of Kingdoms" is a city-building and war game for mobile devices that emphasizes strategy and planning to increase player engagement and dedication. Widely categorized within the gacha game genre, these video games involve spending in-game currency or real money on accessories within the context of random loot boxes. It has evolved from being solely a mobile game to also being available on the desktop platform in 2022, catering to players' demand for desktop accessibility without the need for third-party software.

This application integrates a comprehensive set of features aimed at aggregating all relevant game information and presenting it directly and effectively. This approach addresses the need for players to avoid spending excessive hours on external research or long gaming sessions to understand various game theories and strategies.

In an era where information is easily accessible, this application seeks to centralize all relevant information for players on a single platform, specifically tailored to its users. Achieving this goal requires that the app design process deeply focuses on the users' needs and objectives, positioning them as the central elements of the application.

This project aims to develop a prototype of a mobile application that provides crucial information that is not accessible within the game without prior knowledge. By doing so, it intends to act as a portal for players, offering a variety of functionalities in a user-friendly and effective manner. Much like the game's developers, this application is designed to meet the needs and preferences of its users.

Keywords: Mobile Apps, User Experience (UX), User Interface (UI), Mobile Games, Rise of Kingdoms

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Introduction

Mobile apps are now a significant part of our lives, yet it was not so long ago that they were a rarity. The first cell phone, the Motorola DynaTAC 8000X, was developed in 1973 by Martin Cooper. At a time when carrying phones was hardly conceivable, this device paved the way for numerous advancements. It required no physical lines and was not tethered, making it a game-changer in mobile communication (Chantel, 2023). The industry quickly evolved, and in 1994, IBM launched the first smartphone in history, known as The Simon Personal Communicator (SPC). This device featured a screen, a built-in calculator, email capabilities, and network connectivity (Johnson, 2019).

The mobile sector experienced significant development in 1997 with the release of the Nokia 6110, which quickly highlighted the potential for mobile gaming (Chantel, 2023). Recognizing the opportunities presented by people frequently carrying mobile devices, the gaming industry soon began to explore this new sector. Taneli Armanto, a Finnish software engineer, developed the game Snake, which was included as a pre-installed app on the Nokia 6110 (Chantel, 2023). The success of Snake, reaching an outstanding market value of 152 billion euros, created a trend that paved the way for the growth of mobile games (Johnson, 2019). Today, mobile gaming constitutes approximately 51 percent of the revenue generated by the gaming sector (Clement, 2024).

Steve Jobs envisioned a mobile phone as early as 1983 that would allow people to connect with each other, access various applications, and even function as a daily computer. This vision was realized in 2007 with the launch of the first iPhone, which revolutionized the mobile phone industry and marked the beginning of modern smartphones, followed by the introduction of the App Store in 2008, which initially featured 500 apps. This milestone propelled the mobile industry into high gear, leading to the establishment of various app stores such as Google Play, the Amazon App Store, and BlackBerry's App World, significantly accelerating app development across platforms (Johnson, 2019).

The App Store provided a significant boost to the gaming community by allowing developers to update their games post-release with continuous patches. It increased the variety of games available to users, extending the vast array of game categories and enabling audiences to discover new games and genres. The proliferation of mobile devices with different characteristics presented developers with new opportunities for game

creation, such as leveraging the touch screen sensitivity of the iPhone or the numerous buttons of the BlackBerry. Additionally, the integration of GPS systems facilitated more interactive and engaging experiences for users (Akekelwa, 2023).

In the rapidly evolving technology industry, mobile app development has significantly expanded, paralleling advancements in technology. Today, nearly 96% of the global population accesses the internet via mobile devices. This widespread use has made mobile applications the preferred choice for many users, thanks to their simplicity, compactness, and ability to provide instant feedback (Petrosyan, 2024). Smartphone and tablet users have access to hundreds of thousands of gaming apps available on platforms like Google Play, Apple's App Store, and other similar app stores. In 2021, the global number of gaming app downloads reached an impressive 55.5 billion (Clement, 2024).

However, the realm of app development is not without its challenges. While mobile apps offer considerable advantages (Phongtraychack & Dolgaya, 2018) such as ease of use, seamless communication, and instant access to information, there are notable downsides. Not all users can access mobile apps due to their operating system, the specific version they operate, or their reluctance to pay for apps, particularly those priced over 99 cents (Parker, 2023).

Personalization and self-monitoring are important factors for some users when deciding whether to continue using a mobile app. The core strengths of an app relate to how easily it can be incorporated into a person's daily routine and its dependability—whether it can be used everywhere or only in certain locations (Junker et al., 2024).

Developing an app involves navigating numerous challenges, from accommodating extensive information within the limited screen space of mobile devices to overcoming the reduced processing power compared to PCs. Moreover, the absence of a mouse or pointer can make navigation particularly challenging on mobile platforms, complicating user interaction with apps that contain numerous features, potentially leading to slower performance on smaller screens (Phongtraychack & Dolgaya, 2018).

The challenges presented in mobile app development underscore the crucial role of UX/UI. This field extends beyond mere layout design to profoundly understanding and addressing user needs, transforming functional specifications into intuitive user experiences. When developers create an app, they are not merely building for themselves; they are crafting a tailored experience for a specific target audience (Thomas & Jayanthila, 2020). By implementing effective UX/UI strategies, they convert ordinary users into loyal

customers who enjoy and continue to engage with the app rather than abandoning it after minimal use (GeeksforGeeks, 2023).

The rapid growth of technology in the gaming sector has led to the swift adaptation and integration of new features and interactive experiences (Mäyrä, 2015), particularly in the mobile sector, which now accounts for the largest portion of gaming revenue (Research, 2022). Mobile gaming has significantly expanded its market presence by making games more accessible to a broader audience (Zandt & Richter, 2023). This shift has transformed short, casual gaming sessions into extended periods of gameplay, and the addition of cross-platform functionality has enabled more dynamic and complex gaming experiences for players (Mäyrä, 2015).

However, this rapid growth has also resulted in certain areas not being developed to the same level, leading to challenges that this project aims to address. With the incorporation of new features and cross-platform play, a substantial amount of game-specific information is often left behind, forcing players to search for it independently. This lack of easily accessible information hampers the ability of players to fully enjoy and engage with the game without spending excessive time learning and understanding its intricacies.

To address this issue, this project was undertaken as part of the final project for a master's program in audiovisual and multimedia, involves developing a concept and structuring features to consolidate all pertinent information about the game "Rise of Kingdoms" into a mobile application designed to support players. This app will provide comprehensive information and resources, reducing the need for extensive independent research and enhancing the overall gaming experience.

"Rise of Kingdoms" (RoK) is a complex game that requires strategic and long-term planning, resource management, and in-depth knowledge about commanders, equipment sets and in-game fighting mechanics to fully enjoy the game. This complexity naturally creates a need for resources to help players navigate these challenges.

The game was chosen as the focus of this application for several compelling reasons. Over the past three years, the master's student has actively engaged with "Rise of Kingdoms" in various roles, ranging from a regular player to a leader. During this time, they have frequently been approached by both new and veteran players seeking advice on improving their gameplay and optimizing their accounts. This experience led them to create targeted guides covering topics such as equipment optimization and commander upgrades.

Feedback from players often indicated a strong desire for a centralized resource where such information could be easily accessed, highlighting a clear need for a dedicated application. As both a player and community member, the student observed a consistent demand for comprehensive guides and tools to help players enhance their gameplay. Many players expressed the need for a platform to learn about the game without spending hours watching videos, live streams, or conducting extensive online research on basic game mechanics that are not covered within the game itself. This further reinforces the importance of developing a specialized application to meet these needs effectively.

Despite the game's popularity, with over 100 million downloads, communities with members around 190 thousand members in the official Discord community, 190 thousand players on Reddit and 1.5 million followers on Facebook (Knezovic, 2023), existing apps that attempt to consolidate game information often lack key features crucial for informing players about what to expect in the game and how to progress when facing challenges. This app aims to fill that gap. The "Rise of Kingdoms" community is highly active and engaging, with players frequently seeking advice and sharing tips on Discord servers and Facebook groups. An app that consolidates this knowledge and presents it in an easily consumable format is designed to significantly enhance the gaming experience for the "Rise of Kingdoms" community. It allows players to access crucial information quickly, empowering them to make informed decisions about gameplay strategies, commander upgrades, and equipment optimization.

This centralized platform intends to enable players to optimize their gaming experience more efficiently, reducing the time they need to spend learning and searching for game information. It addresses a growing issue in the community: the lack of proper information channels. By providing all the necessary information in one place, the app will promote a healthier growth within the gaming scene.

The structure of the project is outlined as follows: Chapter 1 lays the foundation by discussing the theoretical aspects of user experience (UX) and user interface (UI), explaining how they differ from each other and how they complement one another. It covers the concepts of usability and adaptability of UX in everyday life and its incorporation into our mobile usage, emphasizing the influence of video games on the creation of applications and the complexities of "Rise of Kingdoms". Chapter 2 provides essential research to guide the design and development of the app. It includes both a competitor analysis and an investigation with players and potential users. The player investigation revealed what users

want in an app, including their motivations and highlighted key aspects that potential users prioritize, such as ease of use, relevant features, and user engagement. The competitor analysis highlighted the current market's features, strengths, and weaknesses. This research aims to develop an app that addresses market gaps and aligns with player feedback and desires. Chapter 3 details the design process of the mobile app, from its initial concept to the final prototype, covering each development stage, including site map structuring and usability testing to gather comprehensive player feedback. The project is entirely described in Chapter 4, where the final app proposal is presented with an in-depth analysis of its features. The ultimate goal of this project is to craft a mobile application that compiles all relevant game-related information and relates it to the players, not only meeting but exceeding their expectations, turning casual users into dedicated and loyal enthusiasts.

Chapter 1 Theoretical Framework:

1.1 Ux Design

The term "UX" emerged to address the gap in research focused on the quality of interactive products in use, emphasizing enjoyment rather than simply functionality. Thus, UX is a broader term that encompasses a continuum from research to practice. It focuses on the dynamics of the experience and how all components of a complex system—personal characteristics, products or services, and individual contexts—can be integrated to shape the user's experience (Vilar et al., 2023).

“We can trace UX design all the way back to the ancient Romans. They developed theories of aesthetics to construct amazing buildings that have stood the test of time. Vitruvius, a renowned Roman architect who wrote the first-ever book on architecture, asserted that good design must have the qualities of durability, usefulness and aesthetics. These qualities are as important to UX design today as they were millennia ago. User Experience design is in the process of the creation of all products and services placing the user as the centerpiece of all end products” (IxDF, 2016).

User experience (UX) refers to the overall experience a product creates for its users in the real world (Norman & Nielsen, 1998). Traditionally, digital product development focuses on what a product does and what users can achieve with it. This focus often leads to a lack of attention on how the product works, which is where UX comes in (Garrett, 2011). In product development, the UX aspect is often overshadowed, yet it is crucial in determining whether a product is successful or not. UX does not merely concern the product's functionalities but rather its interaction with the world (Garrett, 2011), including factors such as launch timing, the value it offers to users, and whether it meets their needs and desires. A well-designed UX can enhance user satisfaction and ensure that the product resonates with its audience, providing them with joy and a positive experience (Garrett, 2011). User experience embodies the entire interaction process with a product, including its perception, cognitive aspects, and evaluation of aesthetic quality, usability, and functionality (Berni et al., 2023). It is regarded as essential in preventing the development of unoptimized

products (Christoforakos & Diefenbach, 2018; Tiwari et al., 2016) and in promoting prolonged and more enjoyable use of these products (Feng & Wei, 2019). Consider a routine task, such as disabling a phone alarm. The ease or difficulty of this interaction has implications. An inconvenient experience can negatively influence one's mood, impacting subsequent interactions differently than if the experience were streamlined (Garrett, 2011).

User experience design is not limited to the interaction with a product; it also includes the anticipatory and subsequent experiences related to the product. This holistic view recognizes UX as a complex and multifaceted process (Berni et al., 2023). Validating the product being developed is essential, ensuring its design aligns with end-user needs (Norman, 2013). By focusing on these guidelines, consistency and strength are introduced at every stage of an application or website's development. Utilizing user tests during development phases enhances and authenticates the design (Allen & Chudley, 2012).

Fundamentally, UX design integrates various disciplines, including psychology, sociology, design, and technology, aiming to effectively cater to user needs. In essence, UX design addresses the reasons, objectives, and methods of a product's use by its audience. It's imperative to center on the essence of each UX design product, ensuring an optimized and user-friendly experience (Canziba, 2018). The creation and integration of elements that affect a user's experience with a product or service should be incorporated into the development process. Utilizing well-informed data insights on user behavior, tendencies, and perceptions help create more engaging and richer developments (Unger & Chandler, 2023).

1.2 Ux Design vs Ui Design

The terms "user experience" (UX) and "user interface" (UI) have distinct meanings, although they are closely interrelated. UX primarily addresses the needs and emotions of the end user. In contrast, UI, often seen as the complementary counterpart to UX, emphasizes the presentation of content and the visual manifestation of the product, defining the user interface (Erdos, 2019).

UX is often considered an ambiguous and confused concept (Law et al., 2007). According to Sauer et al (2020) the existing definitions of user experience can be categorized into three main types: (1) a holistic view of user experience, (2) an extension of the usability concept, and (3) a primary focus on emotion. These three approaches differ in how they interpret the outcomes of user interaction with a product or device. The "holistic"

approach is considered the most comprehensive and evolving, while the third approach is the slimmest (Sauer et al., 2020). In any field of scientific theory development, it is common to encounter different perspectives, as is the case with user experience, where diversity and subjectivity can lead to varying opinions (Sauer et al., 2020). UI, on the other hand, delves into the final details of the prototype, such as button dimensions and color schemes (Unger & Chandler, 2023).

Central to this entire process is a profound understanding of how to care optimally for the end user's requirements; it isn't solely about crafting a superior UI. It's worth noting that the user experience facet of an application is inherently subjective and mutable, varying with individual interactions and the products. Each user interaction with a determinate product can differ significantly from another (Erdos, 2019).

Both UX and UI are crucial and interdependent elements established by a group, a set of concepts, guidelines and workflows that allow the architect of that experience to have a critical thinking about the product and how this will result in the interactiveness of the product with his end users (Erdos, 2019).

Studies have consistently highlighted the pivotal role of UX design in advancing the features of applications (Bilousova et al., 2021). The primary goal of UX design is to improve the user's interaction with digital platforms, ensuring that these interactions are both intuitive and engaging. The ethos of UX design revolves around achieving the set goals of an application while simultaneously ensuring optimal user satisfaction (Sharma & Tiwari, 2021). It forms the cornerstone of any digital offering, meticulously accounting for user needs and emotions. A significant portion of its focus is devoted to the development of an application's wireframe and to the systematic arrangement of its integral components in accordance with their function (Bilousova et al., 2021). For UX design to be effective, it requires an in-depth grasp of the product's functionalities, the spectrum of user-initiated interactions, and the progression of user engagement patterns (McKay, 2013).

UI design is predominantly concerned with the visual aspect of an application and the enhancement of its interactive capabilities. While UX design focuses on the overall user experience, UI design specifically addresses the visual presentation and the tangible interaction features of a product (Bilousova et al., 2021). As McKay (2013, p3) aptly states, "The concept behind UI is Communication is that a user interface is essentially a conversation between users and a product to perform tasks that achieve users' goals."

User interface design is governed by foundational principles derived from various disciplines such as psychology, which helps us understand human behavior and how users interact with designed elements. Cognitive science aids designers in understanding how users process information, ensuring that interfaces are intuitive and easy to navigate. Human-Computer Interaction (HCI) serves as the backbone of user interactions with technology, providing crucial guidelines for usability and accessibility. Finally, graphic design influences the visual aspects of UI, including elements like alignment, balance, contrast, and typography, to create aesthetically pleasing and functional interfaces.

It is essential that the information presented is both visually engaging and coherent. Additionally, the visual tools implemented should seamlessly integrate with the application's operational framework, ensuring alignment with its primary objectives (Bilousova et al., 2021).

According to Elvis Canziba in 2018, consider, for instance, a booking website where one intends to reserve a flight from India to Europe. The primary objective in this scenario is the flight reservation, which represents the central content. The website presents the user with an interface detailing various flight options, enabling the user to make an informed selection. This entire interactive journey, spanning from flight search to the final booking, epitomizes the UX process. UI Design acts as an adjunct to UX, serving as a conduit for its effective implementation. It represents the user's gateway to our application and must be designed for clarity and simplicity. This ensures that users can navigate the platform with satisfaction, convenience, and efficiency (Canziba, 2018).

The following image (Figure 1) intends to explain how UI & UX interact with each other.



Figure 1-Hands-On UX Design for Developers, Canziba E.

1.3 Usability

1.3.1 What is Usability

In today's technologically driven world, we find ourselves deeply intertwined with the digital realm. Consequently, the domain of Human-Computer Interaction (HCI) has emerged, not only to assess the influence of computer technology on individuals but to address the foundational question for the User Experience sector: How can technological interventions be crafted to significantly impact people? (Dix, 2016).

Extensive research within HCI has been dedicated to outlining usability constructs for digital offerings, devising tools and methodologies to gauge this usability (Lee & Kozar, 2012). The objective is to acute the user's mindset and behavior, understanding their proclivities towards certain systems or products, and discerning what compels repeated engagement rather than a singular interaction (Lee & Kozar, 2012).

Within the realm of HCI, the term 'usability' has been frequently invoked. It is broadly defined by ISO 9241-11 as "the degree to which a product can be utilized by designated users to attain specific objectives with effectiveness, efficiency, and satisfaction within a given usage context." This suggests that usability is realized through the user's engagement with a digital medium and the extent to which the product fulfills their expectations and requirements. Conversely, in Software Engineering (SE), the ISO 9126-1 describes usability as "the software product's aptitude to be comprehended, assimilated, operated, found appealing by the user, and adherence to standards/guidelines when deployed under defined conditions." Here, usability is perceived as a distinct quality attribute of a digital product.

According to Shackel (1981), usability is defined as "the capability to be used by humans easily and effectively" (p. 24). Subsequently, other definitions have been proposed (Bevan et al., 1991), which categorize usability into four perspectives: (1) Product-oriented, which views usability as an inherent characteristic of a product; (2) User-oriented, which considers usability as related to the user's mental capacity to use a product and their attitude towards it; (3) Performance-oriented, which describes usability as the quality of interaction between the user and the product; and (4) Context-oriented, which posits that usability is contingent upon the user group being studied, the tasks they are performing, and the environment in which these tasks are carried out (Sauer et al., 2020).

These varied interpretations inherently influence usability evaluations, as each approach might emphasize diverse facets of 'usability', be it task efficiency or interface learnability. To

determine if a product is usable, three conditions must be met (Punchoojit & Hongwarittorn, 2017):

- 1- The product should be easy for users to become familiar with and quickly understand during their first use.
- 2- Users should be able to effortlessly achieve their objectives while using the product.
- 3- The user interface should be easily memorable for future visits.

Usability is the standard that ensures these three criteria are met, guaranteeing the product is user-friendly (Punchoojit & Hongwarittorn, 2017).

Although definitions of usability can vary, they generally encompass several common elements. These typically include objective performance metrics such as error rate, retention rate, and learning curve, as well as subjective outcomes like user satisfaction and enjoyment while navigating the app. By addressing both objective and subjective factors, usability ensures an overall valuable user experience (Sauer et al., 2020). Assessing a digital product's usability typically involves gathering data from specific user activities during their interaction with the product, aiming for a desired usability level (Fernandez et al., 2011).

In the realm of usability standards, while ISO 9241-11 and ISO 9126-1 are frequently referenced by experts, Jakob Nielsen's heuristic method has gained widespread recognition for its comprehensibility. Nielsen (2012) delineates usability into five distinct facets: learnability, efficiency, memorability, error minimization, and user satisfaction. This framework suggests that a product should intuitively guide users in understanding its operational nuances, facilitate a productive user experience, and have functionalities that users can easily recall. Additionally, the system should actively prevent user errors, thereby acting as a protective layer (Abrahão et al., 2008). Usability has been defined by various authors as being easy to learn, effective to use, and enjoyable from the user's perspective (Sharp et al., 2007).

In today's business landscape, the importance of usability is paramount. Many companies face challenges with high abandonment rates and user complaints about site navigation. However, these issues can be mitigated through effective UX strategies. For example, McAfee reduced support-related costs by 90% after incorporating usability testing and understanding their clients' preferences (IxDF, 2023). Usability significantly influences brand perception, user trust, and market presence, reinforcing brand affinity through modern aesthetics and immersive user experiences (Paunovic, 2019)

As businesses increasingly migrate online, a seamless digital interface becomes essential. Poor web experiences can drive customers away, while user-friendly designs can captivate and convert them, underscoring the critical role of usability in digital success (Fernandez et al., 2011).

1.3.2 Usability vs UX vs UI

Pertaining to products, websites, web applications, or other systems, user experience (UX) encompasses the totality of an end user's interaction (Norman & Nielsen, 1998). This experience is not merely confined to the completion of a task or the finality of the product. It encapsulates a lifecycle that commences with the user acquiring the product, extends through its utilization, and culminates in its eventual disposition (Groot, 2015).

The UX process emphasizes the importance of aligning the emotional aspects of user experiences with the product, system, or service. It is essential that these experiences resonate with users' needs, beliefs, motivations, and expectations. A comprehensive and empathetic understanding of users' desired experiences is fundamental for defining requirements that accurately reflect user needs. This approach fosters empathy within the design process, motivating designers to adopt the user's perspective while developing a product (Vilar et al., 2023). This intricate process aims to optimize the quality of user interaction. Within the realm of UX, both User Interface (UI) and Usability are integral components (Groot, 2015). Understanding user experience (UX) enhances the designer's workflow, making the process more efficient. UX is a crucial tool in a designer's arsenal when developing a product, as it encompasses a wider array of elements compared to user interface (UI). UX integrates UI within its framework, building upon it to create a comprehensive and seamless user experience (Sharma & Tiwari, 2021).

While UX, UI, and usability are interconnected, they each focus on different aspects of the user's interaction with a product. UX embodies the overall experience and satisfaction a user derives from interacting with a product, system, or service (Berni et al., 2023). It goes beyond the interface to include all aspects of the user's interaction, involving an understanding of users' needs, beliefs, motivations, and expectations to create empathetic and relevant designs (Berni et al., 2023). UI focuses on the visual and interactive elements, ensuring that they are visually appealing and easy to use. This includes the design of screens, buttons, icons, and other elements that users interact with (McKay,

2013). Usability refers to the ease with which users can learn to use a product, achieve their goals, and recall how to use it after a period of not using it (Punchoojit & Hongwarittorn, 2017). It works as a way to measure both objective and subjective interactions with the product designed (Sauer et al., 2020). Understanding these distinctions is crucial for developing products that not only look good but also provide a useful and enjoyable experience for users.

Drawing a metaphorical parallel, consider the experience of a fancy restaurant. UX embodies the holistic journey from entering the establishment to exiting, inclusive of the ambiance, lighting, and service. In contrast, UI is analogous to the preparation of the meal, while Usability aligns with the efficiency of the food service. While both Usability and UI are indispensable for an enriching and seamless user experience, they represent components of a more expansive framework as noted in Figure 2 (UserPilot, 2022).

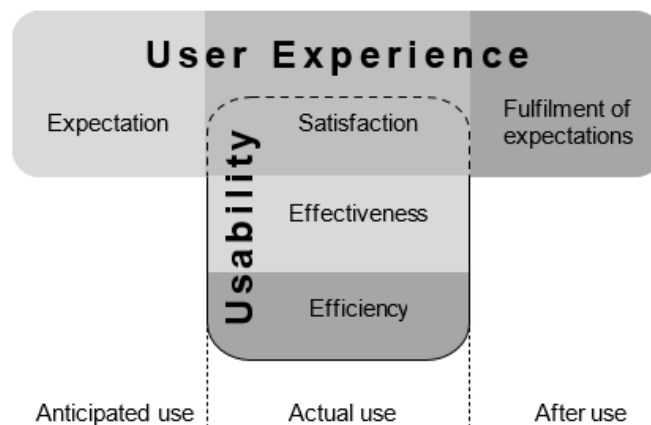


Figure 2-DialogDesign, Rolf Molich

1.3.3 Usability Heuristics

Usability heuristics are essential principles in the design of intuitive and user-friendly interfaces. Often termed "rules of thumb," these guidelines assist designers in crafting products that offer a seamless and understandable user experience (Nielsen, Enhancing the explanatory power of usability heuristics, 1994). Introduced by Jakob Nielsen, usability heuristics have been thoroughly researched and validated within the Human-Computer Interaction (HCI) field. These heuristics emphasize key aspects such as consistency, feedback, and error prevention, aiming to facilitate smooth interactions between users and technology (Nielsen & Molich, 1990). Implementing these principles is crucial for detecting

and addressing usability issues early in the design process, thereby enhancing overall user satisfaction and efficiency (Sauro & Lewis, 2016; Schmettow, 2012). They have become a cornerstone of UX design, providing a dependable framework for assessing and improving the usability of digital products across various sectors (Preece et al., 2015). The following paragraphs will delve into the Usability Heuristics in detail, exploring each principle and its significance in creating user-friendly and efficient interfaces.

Visibility of System Status

The first heuristic emphasizes the importance of systems clearly communicating their status to users through consistent updates and clear feedback mechanisms. This helps users understand current operations and predict subsequent actions based on past interactions (Nielsen, 2024). For example, in an elevator system, pressing a button often results in the button lighting up, indicating a waiting period. When the elevator arrives, the light turns off, often accompanied by a sound, signaling readiness. Such clear communication enhances user understanding and confidence (Harley, 2018).

Match Between System and the Real World

Nielsen's second heuristic emphasizes that systems should use language and concepts familiar to users, aligning with their linguistic and conceptual framework. This approach helps reduce confusion and makes systems more intuitive (Kaley, 2018; Nielsen, Enhancing the explanatory power of usability heuristics, 1994).

Designs should ensure that terms, symbols, and phrases are easily understood without external references. A common design mistake is assuming users will interpret the system as designers do. Thus, understanding user mental models is crucial for design success (Guimarães, 2022). When users struggle with platform terminology, they may feel uncertain, leading many to abandon the system for one that is easier to understand (Kaley, 2018).

User Control and Freedom

Users should have the ability to manage their actions, especially when errors occur. Providing 'back' or 'exit' options allows users to quickly correct mistakes. Navigation aids like 'undo' and 'redo' functions enhance user confidence and control (Harley, 2018).

Consistency and Standards

Maintaining consistency throughout a system is crucial for effective user navigation. Jakob's Law states that users primarily interact with digital products not designed by their creators, emphasizing the need for standardized design elements (Yablonski, 2020). Consistent and ergonomic designs enable intuitive navigation (Guimarães, 2022).

Jakob Nielsen highlighted the importance of usability tests to determine effective navigation structures. He found that designs aligned with common user mental models had an 80% success rate, compared to just 9% for company-centric models. This shows the importance of prioritizing user-friendly designs over internal preferences (Nielsen, 1999).

Error Prevention

This heuristic focuses on anticipating and mitigating user errors in design. Designers should foresee potential mistakes and provide warnings for actions that could lead to significant errors, ensuring a smooth user experience (Guimarães, 2022). Additionally, systems should offer users options to correct or reverse their actions, preventing them from feeling trapped or confused (Molich & Nielsen, 1990).

Recognition Rather Than Recall

User interactions should minimize cognitive load, ensuring that users don't need to recall or understand processes extensively (Nielsen, Enhancing the explanatory power of usability heuristics, 1994). Objects, actions, and options should be clearly visible and easily accessible, reducing the user's memory burden (Liyanage, 2016).

Flexibility and Efficiency of Use

Enhancing user experience involves providing features like keyboard shortcuts (e.g., 'Ctrl+C' for copy) to streamline tasks such as sending emails to multiple recipients. This adaptability ensures ease of use for both novices and experienced users, allowing efficient interaction with the system (Laubheimer, 2020; Molich & Nielsen, 1990).

Aesthetic and Minimalist Design

Contemporary interface design emphasizes simplicity, avoiding clutter with rarely used or irrelevant information. The focus is on presenting essential details clearly. Overloading an interface can distract users from important information. Research shows that users form an initial aesthetic judgment of a site within 50 milliseconds, much faster than reading content (Lindgaard et al., 2006). First impressions are impactful and lasting, with users often favoring visually pleasing designs even if they have usability issues. Aesthetics can enhance brand identity and user perception (Fessenden, 2021). As Don Norman noted, attractive things work better (Molich & Nielsen, 1990).

Help Users Recognize, Diagnose, and Recover from Errors

Systems should respect users by providing clear, concise, and direct feedback when errors occur. It is crucial to quickly identify the problem and offer constructive solutions (Nielsen, 2024). Effective error messages must focus on visibility, clear communication of the issue, and efficient resolution, helping users to continue their interaction seamlessly (Neusesser & Sunwall, 2023).

Help and Documentation

Even the most intuitive systems can benefit from supplementary documentation to aid users in comprehending and efficiently executing tasks. This documentation should be easily accessible and focused on resolving specific user challenges (Guimarães, 2022). There are two primary types of help interfaces: proactive and reactive. Proactive help integrates with the user experience, such as context-specific tooltips. Reactive help addresses user challenges through formats like Q&A or AI chatbots that offer assistance when needed (Joyce, 2020).

1.4 Ux Design in the real world

User experience design has been a constant presence in our world for years, influencing every decision and action we take in our daily lives. This prevalent interaction with UX highlights its critical importance in shaping our experiences and interactions with various systems and products (Garrett, 2011).

A notable figure who significantly advanced real-world user experience was Walt Disney, primarily through the establishment of Disneyland in the 1950s (Dickerson, 2013). This period saw a surge in the popularity of theme parks and fairs, including attractions like "Tomorrowland" and events such as the 1964 World's Fair in New York. However, Disneyland distinguished itself by offering an immersive experience, weaving visitors into the narratives and transforming them into protagonists of their beloved stories (Schwab, 2018). This innovative approach was evident in attractions like "Peter Pan's Flight," where attendees didn't merely observe Peter Pan's adventure; they were part of it, embodied in every aspect of the park, from the architecture to the ride mechanics, to the thematic attire (Nichols, 2018). Moreover, the unique design of Disneyland's layout, featuring a central pathway branching into secondary routes reminiscent of the proverb "all roads lead to Rome," ensured a seamless and enjoyable visitor experience. This design allowed the

customers the flexibility to explore at their own pace, confident in their continual orientation within the park, as emphasized by Walt Disney's assurance that it was impossible to feel lost in Disneyland unless one desired that sensation (Arora, 2023).

The integration of UX design in digital interfaces is intended to serve as an extension of real-world interactions, aiming to enhance user engagement across various systems. By mirroring the intuitive and familiar aspects of physical interactions, UX design seeks to create seamless and engaging digital experiences that indulge the user's needs and expectations (Shadrack, 2024). "Design for the real world" encapsulates crafting experiences that fully immerse users, from visual aesthetics to interface functionality. Therefore, gathering comprehensive data about the target audience is essential for optimizing their overall experience (Khan, 2022). UX design and design for the real world share a common goal: creating solutions that enhance user experiences. Both focus on understanding human behavior and needs to ensure that the interaction between users and products is intuitive, functional, and enjoyable (Khan, 2022).

Design thinking is an innovative method that emphasizes creating empathic experiences by researching and collecting information about end-users. It involves developing pathways and interactive forms to test and solve complex problems, integrating technological and business strategies to find effective solutions (Brown, Design Thinking, 2008). The repetitive nature of prototyping and refining solutions based on feedback is crucial for continuously improving and aligning solutions with user needs and desires (Liedtka, 2015).

Ultimately, we navigate a myriad of expertly crafted UX designs in our daily lives, often without realizing it. These everyday interactions, both significant and trivial, provide a wealth of inspiration for designers to innovate and enhance both digital and physical platforms. The dynamic nature of UX design propels it forward, rendering every interaction a potential precursor to future advancements in the field. In essence, UX is an omnipresent component of our environment (Ben-David, 2018).

1.5 Mobile Ux Design

In the past decade, the number of mobile internet application users has seen a dramatic increase, rising from 738.27 million in 2010 to 4.3 billion in 2020 (Nakamura et al., 2022) in 2022 reaching 6.4 billion and predicted to exceed 7.7 billion by 2028 (Galiya, 2024).

This surge has fundamentally transformed the mobile market, leading to a plethora of mobile application options for consumers. This shift has emphasized the need for developers to prioritize high-quality system design and innovation (Nakamura et al., 2022).

The development of effective mobile UX design starts with understanding the characteristics that define an optimal system. Given the complexity inherent in many mobile applications, achieving a seamless user experience requires meticulous design efforts (IxDF, 2024). A system's excellence is often evaluated by how effortlessly users can navigate its complexities. Achieving this requires comprehensive UX design, which involves examining users' emotional, psychological, and behavioral responses at every stage of interaction - before, during, and after use (Mubin et al., 2018).

Every user has a unique experience with a system, making it complex to develop one that resonates with all end-users (Chapman, 2019). A well-designed mobile UX helps in reducing user errors and improving the overall usability of an application. By understanding users' needs, behaviors, and preferences, designers can create interfaces that are not only visually appealing but also functional and efficient. This is achieved through user research and usability testing, which help in identifying potential problem points and areas for improvement (Sauro & Lewis, 2016). Previous research has highlighted the significant impact of an application's aesthetic appeal on its commercial success, underscoring the critical role UI design plays in an application's profitability (Pratama & Cahyadi, 2020).

This process involves identifying the target market and gaining insights that can enhance system activation. Notably, 75% of app downloads are only opened once, indicating that most apps fail to align with users' core principles: User-Centered Design, Simplicity and Consistency, Responsive and Adaptive Design, Aesthetic and Minimalist Design, and Prototyping and Testing (Chapman, 2019).

The following paragraphs will delve into the users' core principles in more detail, exploring each principle.

User-Centered Design: A product's design must be grounded in a thorough understanding of user needs and constraints, shaped by their opinions and feedback (Norman & Nielsen, 1998).

Simplicity and Consistency: To develop an effective user experience, the product must be easy to understand and navigate. This enhances the user experience by providing a simple and consistent interface that aligns with their natural behaviors and expectations (Preece et al., 2015).

Responsive and Adaptive Design: As the mobile market has expanded, a vast array of smartphones with different sizes, shapes, and orientations have emerged. To ensure the success of an app, it must be developed in a manner that allows accessibility across various platforms and devices (Shneiderman et al., 2016).

Aesthetic: The visual appeal of an application significantly impacts user satisfaction and ongoing engagement. Utilizing a minimalist design approach fosters a sense of trust by presenting information clearly and simply, thereby reducing cognitive overload (Sauro & Lewis, 2016).

Prototyping and Testing: The iterative process of prototyping and refining solutions based on user feedback is crucial for continuously enhancing and aligning the final product with user needs and preferences creating both functional and user-friendly experience (Liedtka, 2015).

1.6 Gamification

The integration of game elements into non-game contexts to influence behavior and enhance emotional engagement is known as gamification (Barney, 2023). This strategy aims to make systems more engaging and encouraging for users, motivating them to perform activities they might otherwise avoid (Huotari & Hamari, Defining gamification: a service marketing perspective, 2012). Huotari (2016) further defines gamification as “a process of enhancing a service with affordances for gameful experiences in order to support the users’ overall value creation.” This definition emphasizes the goal of gamification rather than the process itself, viewing it as the application of game design elements to improve user experience (Azouz et al., 2021).

While gamification has proven effective in various sectors, its application has been particularly noteworthy. For instance, in healthcare, products such as inhalers, Alvio have incorporated entertaining respiratory exercises for children and adults with asthma. This gamified approach has not only improved market performance but also reduced users' dependence on inhalers (Greenwald, 2016). Similarly, in the automotive industry, Ford introduced a gamified dashboard in their Ford Fusion model. Developed in collaboration with Smart Design, the EcoGuide system promotes fuel-efficient driving habits by educating and incentivizing drivers to maintain optimal fuel usage. This is symbolized through visual cues like “efficiency leaves” (Greenwald, 2016).

There are several instances where gamified systems fall short due to inadequate design solutions. This failure can manifest in products that only superficially introduce game mechanics such as badges, leaderboards, and points (Pedreira et al., 2015). Designing a successful gamified system requires addressing fundamental challenges (Morschhauser et al., 2017), including: (1) The source of innovation, which is often dependent on integrating game elements into non-game contexts, leading to potential contradictions; (2) A deep understanding of users' motivational and psychological aspects, as well as designing systems to track player behaviors and tendencies; (3) The aim to influence users' long-term behaviors, rather than just momentary actions. The only way to develop a successful product or system is by centering the development process around the user, thoroughly studying their needs, and managing the outcomes effectively as expressed in Figure 3 (Azouz et al., 2021).

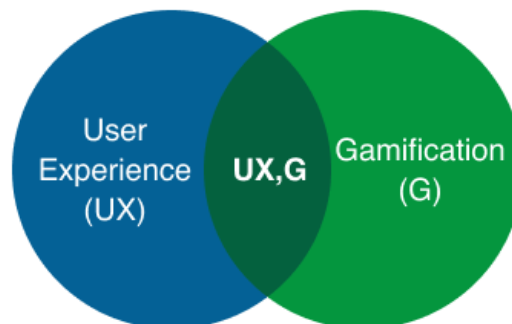


Figure 3- Ux & Gamification

According to a study conducted by Azouz, Karioh, and Lefdaoui (2021), the impact of user experience (UX) on gamification systems was examined to address motivational challenges in user experiences. The research utilized UX tools in the design of gamified products or services and concluded that, although both UX and gamification share the goal of placing the user at the center, they approach this objective from different perspectives. The study found that UX elements positively influenced gamification, particularly emphasizing the persona tool and the adaptability of proposals based on design processes and user testing. The integration of UX design played a crucial role in creating a better framework for designing gamified products. Overall, incorporating UX design to enhance gamified products shows promise and, with further trials and adaptations, can significantly improve the development of such products (Azouz et al., 2021).

1.7 Mobile Games

Over the past decade, mobile games have experienced remarkable growth, evolving from simple, rudimentary applications to sophisticated, high-quality entertainment options that rival traditional console and PC games (Pacheco & Mateus, 2018). Initially, mobile games were limited by the technological constraints of early mobile devices, offering basic gameplay and graphics. However, advancements in smartphone technology and increased internet accessibility have propelled the mobile gaming industry to new heights (Żarkiewicz, 2024).

In 2024, the mobile game market is projected to generate 91.32 billion euros worldwide, with a 6% growth rate expected in the coming years (Statista, 2024). This substantial growth in revenue from mobile games is driven by high smartphone penetration and strong consumer demand for interactive and immersive gaming experiences (Statista, 2024).

According to Pacheco and Mateus (2018), the proliferation of smartphones and tablets has played a crucial role in the expansion of mobile games, enabling a wider audience to engage with gaming content anytime and anywhere. The accessibility and convenience of mobile devices have democratized gaming, making it possible for people of all ages and backgrounds to participate.

Gacha games, a niche category, have seen exponential growth in recent years, significantly impacting the mobile gaming scene (Marie, 2024). The term "gacha" is derived from "gachapon," a Japanese vending machine introduced in the 1960s that dispenses randomized capsule toys (Cambridge, n.d.).

In the mid-2010s, the modern gacha game emerged, marking a pivotal evolution in this gaming mechanic. This period witnessed the emergence of a diverse array of games, including role-playing games (RPGs), strategy games, and simulations, incorporating gacha mechanics into their designs (Marie, 2024). These mechanics typically involve players spending in-game currency, earned through gameplay or purchased with real money, to acquire random virtual items, characters, or upgrades. The element of chance and the allure of rare, powerful items drive this monetization model, encouraging players to spend money to increase their chances of obtaining desirable rewards (Dang, 2023).

The rapid evolution of gacha games has extended beyond mobile platforms to PC, broadening their target audience and enhancing in-game capabilities through monetary investments for potential randomized rewards (Marie, 2024). The financial impact of gacha

games on the mobile market is substantial. According to Statista, the top five mobile gacha games generated 1.35 billion euros in the first quarter of 2022, with titles such as "Genshin Impact," "Lineage W," "Uma Musume Pretty Derby," "Monster Strike," and "Rise of Kingdoms" leading the market. "Genshin Impact" alone accounted for 525 million euros, demonstrating the genre's significant revenue potential and broad audience appeal (Statista, 2022).

1.8 Real Time Strategy Games

Real Time Strategy (RTS) games have significantly evolved since their dawn. Early titles like "Dune II" laid the foundation by introducing core mechanics such as resource gathering and base building (Robertson & Watson, 2009). The period from 1999 to 2003, considered the peak of RTS games, saw the release of classics like "StarCraft" and "Age of Empires II," which featured advanced AI and complex gameplay, establishing the genre's dominance (Palola, 2019). The strategy games market, including RTS games, was valued at approximately \$30 billion in 2021, with projections indicating continued growth (Wylie, 2024).

Despite their popularity on PCs, RTS games face unique challenges on mobile platforms. Josh Bycer (2018) notes that the screen size and touch controls can hinder the intricate gameplay typical of RTS games. Unlike PC games, which benefit from a full keyboard and mouse, mobile games rely on touch interfaces that can be less precise. However, some mobile RTS games have been working on overcoming these challenges. As a result, "Romance of Three Kingdoms" earned 466 million euros in 2022, and other titles like "Clash of Clans," "Puzzles & Survival," "Rise of Kingdoms," and "State of Survival: Zombie War" each surpassed 380 million euros in revenue (Wylie, 2024).

Game designers have adapted by developing intuitive and dynamic games that perform well on both small phones and larger tablets. These games maintain impressive graphics and integrate engaging multiplayer gameplay, contributing to their success in the mobile market (Angry, 2023).

1.9 Rise of Kingdoms

Rise of Kingdoms (RoK) is a mobile real-time strategy (RTS) game developed by the Chinese company Lilith Games in 2018 (LilithGames, n.d.). Among all games developed by Lilith, Rise of Kingdoms stands out for its significant revenue and broad audience appeal (Figure 4).

| | App | Countries | Price | Last Update | Release Date | Downloads Last Month | Revenue Last Month |
|---|-------------------------------|-----------|-------|-------------|--------------|----------------------|--------------------|
| 1 | Rise of Kingdoms ★★★★★ | 96 | Free | 7 days | 9/20/2018 | 300k | \$8m |
| 2 | Warpath: Ace Shooter ★★★★★ | 95 | Free | 7 days | 11/10/2020 | 200k | \$3m |
| 3 | AFK Arena ★★★★★ | 96 | Free | 44 hours | 4/9/2019 | 70k | \$1m |
| 4 | 剑与家园 ★★★★★ | 97 | Free | 9 days | 6/6/2017 | 6k | \$300k |
| 5 | 小莉鸭-玩家专属社区 ★★★★★ | 1 | Free | 36 months | 9/26/2020 | < 5k | < \$5k |

Figure 4- Lilith Games Top Games Sensor Tower, 2023

Lilith Games has achieved global recognition, being ranked among the top 20 Chinese Global Brand Builders by BrandZ in 2020 (Figure 5) (LilithGames, n.d.).

| 2020 Rank ¹ | Brand | Category | Brand Power | 2020 Rank ¹ | Brand | Category | Brand Power | |
|------------------------|--------------------|----------------------|-------------|------------------------|---------|----------------------|---------------|-----|
| 1 | Alibaba Group | E-commerce | 2064 | 14 | 青岛啤酒 | Alcoholic Drinks | 740 | |
| 2 | ByteDance | Content Apps | 2049 | 15 | 中国国际航空 | Airlines | 701 | |
| 3 | HUAWEI | Consumer Electronics | 1993 | 16 | FUNPLUS | Mobile Gaming | 642 | |
| 4 | mi | Consumer Electronics | 1831 | 17 | DJI | Smart Devices | 626 | |
| 5 | Lenovo | Consumer Electronics | 1828 | 18 | TCL | Home Appliances | 574 | |
| 6 | oppo | Consumer Electronics | 1299 | 19 | LILITH | Mobile Gaming | 503 | |
| 7 | Hisense | Home Appliances | 1134 | 20 | 中国东方航空 | Airlines | 479 | |
| 8 | Haier ² | Home Appliances | 1032 | 21 | ZTE中兴 | Consumer Electronics | 478 | |
| 9 | ONEPLUS | Consumer Electronics | 1017 | 22 | N/A | miHoYo | Mobile Gaming | 459 |
| 10 | vivo | Consumer Electronics | 965 | 23 | 中国银行 | Banks | 456 | |
| 11 | SHEIN | Online Fast Fashion | 901 | 24 | COVACS | Smart Devices | 453 | |
| 12 | Tencent 腾讯 | Mobile Gaming | 804 | 25 | BIGO | Content Apps | 434 | |
| 13 | ANKER | Consumer Electronics | 793 | 26 | zenjoy | Mobile Gaming | 423 | |

Figure 5-Ranking BrandZ, 2020

The game's success can be attributed to its strategic marketing, exemplified by the Japan launch in 2020. This launch used a multiphase approach: a pre-launch announcement, influencer campaigns near the launch date, and a minimalist approach on the launch day, capitalizing on previously generated awareness. Consequently, Japan became the third-largest market for RoK in terms of revenue in 2020 (XMarketing, 2020).

Rise of Kingdoms is a free-to-play game that monetizes through in-game purchases, utilizing gacha-style mechanics. These include random loot box prizes that can be obtained via in-game or real-life currency. The game incorporates gamification elements such as reward bonuses, daily gifts, and notifications to incentivize players to purchase bundles, enhancing their gameplay experience (Knezovic, 2023).

As a real-time strategy (RTS) game, Rok revolves around city building and warfare, offering players a dynamic and interactive gaming experience. In this game, players start by choosing a civilization, each with unique attributes and units, and progress from primitive settlements to advanced structures through architectural upgrades, this progression is intricately showcased through architectural upgrades in the player's domain (González, 2022). New players are placed on new servers, allowing them to develop their cities alongside others at a similar level, providing a protective environment (Zhang, 2020). This communal aspect is further enhanced by the freedom players have to design their cities, fostering a sense of community, as can be seen in Figure 6 (Knezovic, 2023).

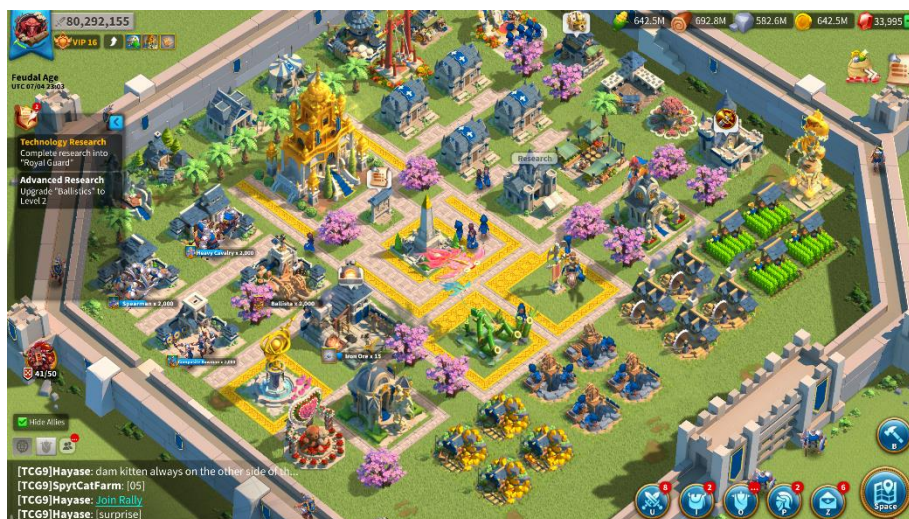


Figure 6- Gameplay Rise of Kingdoms

Players can join alliances early in the game, engaging in multiplayer aspects by helping each other build territories and conquer significant sites, which leads to server domination (Zhang, 2020). Daily and weekly events keep players engaged, rewarding them

with new upgrades and commanders, each with unique abilities suitable for both PvE (player vs environment) and PvP (player vs player) battles (González, 2022; Knezovic, 2023).

PvE events can be tackled solo or with friends, while most PvP battles require alliance cooperation, strengthening players bonds (Zhang, 2020). Conquering a server marks the transition from the early to mid-game phase, leading to larger-scale battles in "Kingdom vs Kingdom" (KvK) events. These events involve coordinated efforts across alliances to conquer new maps and achieve rewards, culminating in a competitive multiplayer battle environment (González, 2022; Zhang, 2020). After completing three KvK (Kingdom vs. Kingdom) events, players transition into the late game phase. During this phase, the King gains the authority to choose the timing and map for their kingdom's (server's) registration in KvK battles. This shift transforms the game into an intense multiplayer battle, emphasizing strategy and precision (Zhang, 2020).

Rise of Kingdoms distinguishes itself from other city-building war games through features that keep players deeply engaged. The game's community is strengthened by bonds formed during gameplay and facilitated by a sophisticated translation system that overcomes language barriers (González, 2022; Zhang, 2020). A standout innovation by Lilith Games is the "infinity zoom" feature, enabling seamless map navigation and enhancing the player's view from their city to the world (González, 2022).

Unlike games such as "Clash of Clans" or "TribalWars," which rely on offline or pre-determined battle sequences, Rise of Kingdoms offers real-time combat control and freedom of movement (BlueStacks, 2021).

These features have solidified Rise of Kingdoms as a leading title in both the mobile RTS and Gacha game categories, a trend that is expected to continue as depicted in Figure 7.

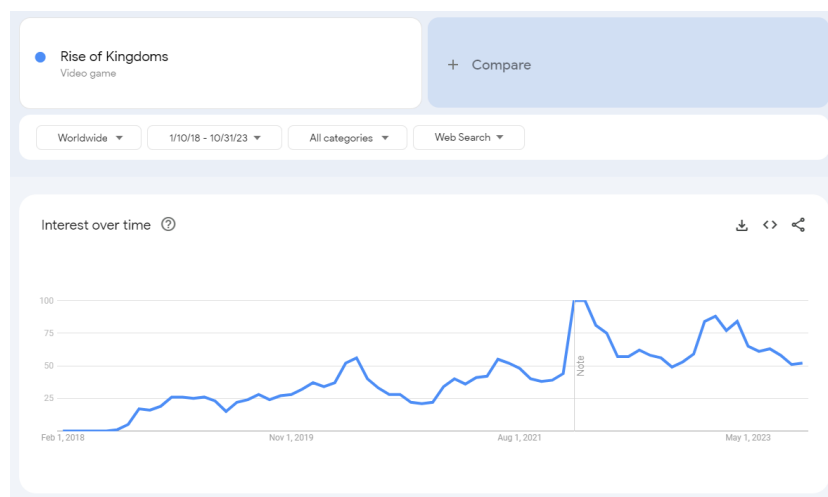


Figure 7- Google's Trend, 2023

Chapter 2 Investigation

2.1 Introduction

The development of the RoK Manager app project was comprehensively guided by a prior investigation that included both a competitor analysis and a survey to identify the needs and preferences of the target audience, that is, actual players of Rise of Kingdoms. This dual approach enabled the identification of both the strengths and weaknesses of existing applications in the market, as well as an understanding of what Rise of Kingdoms players prioritize in a support app, including the features they need, seek and desire.

A competitor analysis was instrumental in discerning the existing features strategies and pinpointing gaps within the current market offerings. This analysis allowed us to recognize what existing apps lacked and what could be improved, thus providing a clear pathway to uniquely position our app to fill these identified gaps (Lloyd, 2021). It underscores the necessity of designing with the end-user in mind, emphasizing that creating an app unused by its intended audience serves little purpose.

Integrating this analysis with direct feedback from potential users through surveys provided immediate insights into the specific issues and needs of players. Utilizing an online survey is therefore the optimal method for capturing real-time user opinions, facilitating the design of a mobile app that not only meets but exceeds user expectations (Dawer, 2024).

By combining the findings from both the competitor analysis and user surveys, we intended to be better equipped to develop an application that not only addresses the current shortcomings but also enhances the gaming experience by integrating key features desired by the players that are not available in the game, such as guides on how to pair commanders together and the best gear sets for each commander. This comprehensive approach ensures that the RoK Manager app will provide significant value to Rise of Kingdoms players, enhancing their gameplay and supporting their in-game decision-making.

2.1.1 Quantitative study

This research employed a quantitative approach to collect relevant information from potential users of the Rise of Kingdoms (RoK) Support App. The primary goal of the survey was to gather feedback about the Rise of Kingdoms game and the significance of external help in enhancing gameplay and overall understanding of this videogame. Utilizing quantitative research to investigate a large audience is considered highly effective for several reasons. Primarily, it involves gathering numerical data from a substantial sample, enabling the researcher to generalize findings and discern common behaviors or perceptions among the audience (Mander, 2022). The reliability and objectivity of quantitative methods are particularly advantageous when dealing with large sample sizes. This approach uses "close-ended" questions designed to elicit generalized opinions in measurable data, simplifying data analysis and facilitating the use of tables and graphs to better understand the audience. Moreover, quantitative methodology allows for the generalization of findings to the broader population of Rise of Kingdoms players (Creswell & Cresswell, 2018).

An essential benefit of this quantitative approach is its ability to measure the frequency and distribution of responses to survey questions. This capability allows researchers to quantify how much players value external assistance, in what areas do they lack information and identify which aspects of the game they find most challenging. It also enables the comparison of responses across various demographic groups, revealing any variations in feedback among players of different ages, genders, or gaming experience levels (Pandey et al., 2023).

Overall, adopting a quantitative methodology and a survey approach enables efficient data collection and provides valuable insights into what players need to succeed in Rise of Kingdoms, what are the main feature areas they would like to see explored and implemented in a support application, the problems they felt on using similar applications. This approach ensures that the development of the RoK Support App is informed by robust, actionable data, thereby enhancing its effectiveness and relevance to the target audience.

2.1.1.1 Participants and Procedure

To achieve a comprehensive analysis and generate a large sample size, a survey was conducted with players worldwide. This strategy helps identify patterns and trends based on player feedback concerning the game and their needs.

During the survey, participants were randomly selected, and the questionnaire was distributed across various platforms to reach a broader audience of "Rise of Kingdoms" players. After releasing the survey, follow-up messages were sent to increase the number of participants to a minimum goal of 100, ensuring a better sample size pool. This method intentionally excluded those who only briefly played the game—for a day or a week—by targeting communities of deeply involved players. The survey collected data on participant age, sex, and demographics to gauge the game's reach across different regions, as well as the amount of time spent in-game.

The survey was conducted online, leveraging real-time data analysis for efficient data collection. Participants could respond at their convenience, eliminating the need for scheduling and physical deliveries. Online surveys reduce costs by eliminating the need for mailing questionnaires, decrease data entry time, minimize human error, and effectively reach respondents across diverse geographical locations (Cobanoğlu & Çobanoğlu, 2003; Roztocki, 2001). The digital format also allows for a larger and more diverse sample size, enriching the data with a wide range of backgrounds and perspectives (Melo, 2022). This method ensures comprehensive coverage and inclusivity, capturing a broad spectrum of insights from the "Rise of Kingdoms" gaming community.

For this research, the survey was conducted via Google Forms due to its user-friendly and intuitive interface, which provides various customization options for the survey's appearance and question types. This customization helps create a more cohesive survey. Google Forms offers easy integration with other Google services, such as Google Sheets for data storage and analysis. This integration allows easier access and management of the collected data.

Before distributing the survey to the target audience, a pretest was conducted to evaluate the clarity and effectiveness of the main questions in each section. This process was crucial to ensure that the questions were easily understood by participants, appropriately ordered, and comprehensive enough to enhance the survey's fluidity and user-friendliness (Roopa & Rani, 2012).

A pre-test was ordered on March 6th, 2023, the questionnaire was administered to a diverse group of ten players, varying in their experience, demographics, game knowledge, and playing time. After completing the survey, participants were requested to provide constructive feedback to refine the survey's design. Based on this feedback, several questions were reworded for greater clarity, and the sequence of questions was adjusted. Notably, the section on game enjoyment was moved to the end of the survey. This strategic placement aimed to conclude the survey on a reflective note, encouraging participants to express their views on what they dislike about the game and suggest potential improvements. This adjustment underscores the importance of participant input, reinforcing that their perspectives are valued and considered in the ongoing enhancement of the gaming experience.

After applying the changes, the survey was launched online on Google Forms on March 13th, 2023, and remained open until April 4th, 2023. The link to the survey was distributed through various platforms, including game-related Discord servers, fan groups on Facebook, and via in-game email. These platforms were chosen due to their frequent use by players as primary sources of game-related information outside the game. The dissemination of the survey was also done through WOM (word-of-mouth), since some players started sharing with the friends, they have made in game from different servers it allowed the survey to reach a more diverse audience with different types of game-related skills and competencies.

2.1.2 Survey

The questions used in the "Rise of Kingdoms Support Survey" which can be found in Attachment I - Quantitative Study, are designed to gain insights into participants' interactions with external game content, understand their challenges, and identify potential solutions to the difficulties they encounter. Additionally, the survey aims to provide an understanding of the market for "Rise of Kingdoms" support apps by exploring how participants consume related content, whether through other support apps, social media platforms like YouTube, or search engines.

To capture a comprehensive range of responses, the survey includes both open-ended and closed-ended questions. Open-ended questions allow participants to discuss complex issues in detail, such as identifying significant in-game problems and proposing solutions. The majority of the survey consists of close-ended questions—such as multiple-

choice or Likert-scale queries—which facilitate the collection of quantitative data for statistical analysis. This approach enables a swift and straightforward evaluation of responses, exemplified by questions that prompt participants to rate statements like “How frequently do you search for content?” or “What type of content do you search for?”.

These questions were developed with the goal of determining whether most players search for content outside of the game and identifying the different categories they seek. With this information, we obtain a more accurate understanding of the players' willingness to use a platform that aggregates all the information they are searching for, as well as identifying the main features the platform must have to fulfill the players' needs. In the following paragraphs, we examine the different sections of the questionnaire.

Players' Socio-Demographic Data Section: This section collects basic demographic information from participants, including age, gender, and nationality. It includes a filter question to identify "Rise of Kingdoms" players, allowing only those who play the game to proceed, thereby excluding non-players.

Game-Related Data: This section gathers data about participants' behavior related to the game, such as their in-game choices, daily playtime, overall duration of gameplay, focus areas within the game, and spending habits. Additionally, one of the questions differentiates between players who seek external content and those who do not, helping to identify the primary target audience for the app, which aims to consolidate all game-related information into one accessible platform.

RoK Players Who Searched for RoK Content: For those who actively seek external content, this section explores the types of content they engage with, the mediums they use, and their experiences with competing "Rise of Kingdoms" support apps. Multiple-choice questions gather information on the types of content players search for, the platforms they use, and their experiences with existing mobile apps. Rating scales track the frequency with which players search for content, use other mobile apps, and their satisfaction with those apps.

Game Enjoyment: This segment aims to understand why players enjoy "Rise of Kingdoms," as well as their long-term commitments to the game, the biggest issues and problems they perceive, and potential solutions to improve their enjoyment.

Support App: In the final section, participants are introduced to the concept of the mobile app and provided with a list of possible services derived from other apps in the

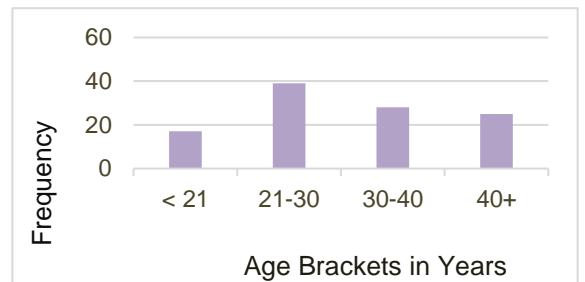
market. Participants give feedback on essential features they would like to see implemented to develop an effective support app via an open-ended question.

This structured approach allows us to gather essential information about players' behaviors, perceptions, needs, and wants related to the game and their search for outside content to enhance their gaming experience. These insights are valuable for developing a tailored support app that meets the needs of "Rise of Kingdoms" players.

2.1.3 Results

In the initial phase, the survey aimed to gather demographic information about the participants, including their age, country, and gender, to better understand the target audience. A total of 109 individuals responded to the survey, of which 93 (85.3%) were male and 16 (14.7%) were female. The respondents' ages ranged from under 21 to over 40 years, with the majority falling within the 21-30 age range (36%), followed by 30-40 years (26%), and over 40 years (23%), as shown in Table 1.

Table 1- Age of the Participants



As depicted in Figure 8, Europe was the most represented continent with 47 respondents, followed by America with 30 respondents, and Asia with 28 respondents. Out of the 109 participants, only 2 reported not playing RoK so were discarded.

The existing data suggests that the target audience for this mobile game tends to be predominantly adult men, with 85% male respondents and 15% female respondents, as illustrated in Table 14 (Attachment I - Quantitative Study, Rise of Kingdoms Support Survey). This result aligns with the study by Knezovic (2023), which indicates that 36% of RoK players are women. However, it is important to consider the limitations of the survey, including potential response bias due to the sample size, for a more accurate representation of the population.

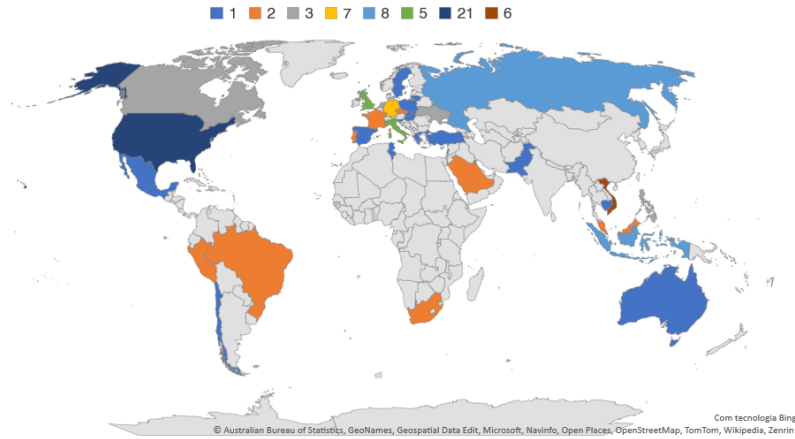


Figure 8- Country of the Participants

In this section, we also examined the behavior of "Rise of Kingdoms" (RoK) players to better characterize our sample based on their in-game time, experience, account focus, spending level, and usage of RoK support content. According to the results, most participants play RoK for over 3 hours per day (56%), while 40% play between 1 and 3 hours per day (Figure 9). Infantry is the most popular account type with 65%, followed by cavalry with 46% (Table 11 in Attachment I). The majority of respondents usually search for RoK support content outside of the game to improve their gameplay (Table 13 in Attachment I).

Table 2-How long have you been playing Rok

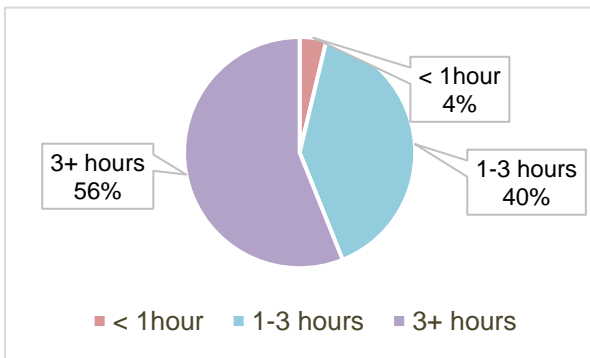
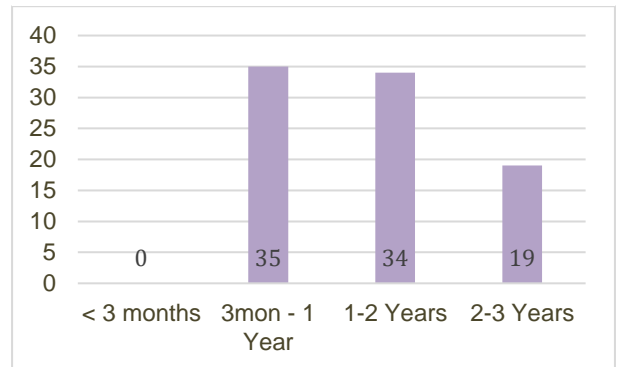


Figure 9-Time Spent In Game



In the next segment, we aim to understand what players search for when looking for game-related content outside the game, where they search for it, and the frequency of these searches. Additionally, we address what features would help players adjust and optimize their gameplay based on their experiences and behaviors.

Among all the content searched online by the participants, the majority looked for tips on optimizing their accounts (40%), followed by information on new and upcoming

events (32%). The least searched content includes gears and commanders, as well as game mechanics and Osiris League content, each accounting for 1% of the total pool of participants can be observed in Table 5.

In Figure 10, the platforms utilized for these searches are outlined. YouTube and search engines dominate the space, with 48% and 36% respectively. YouTube was categorized separately from Social Networking Sites due to the high volume of content creators related to Rise of Kingdoms, such as "Chisgule Gaming," one of the most prominent creators. Chisgule streams on both YouTube and Twitch.tv, with a significant difference in following: 238k subscribers on YouTube, 2.3k followers on Twitch, and 2.4k followers on X (formerly known as Twitter). This disparity highlights where most Rise of Kingdoms players can be found.

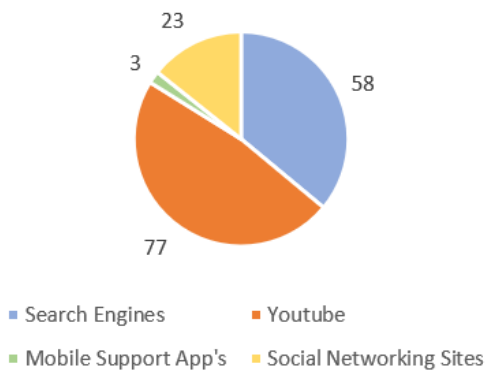
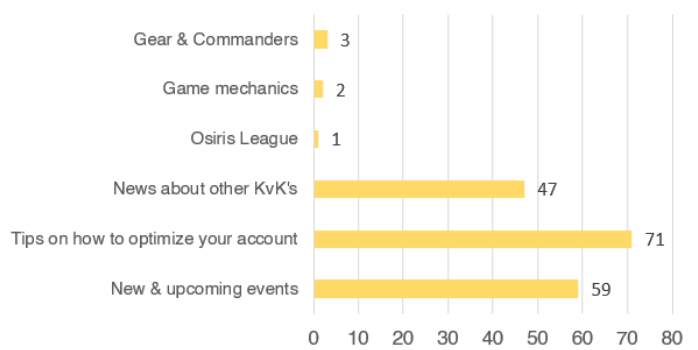


Figure 10-Platforms Used

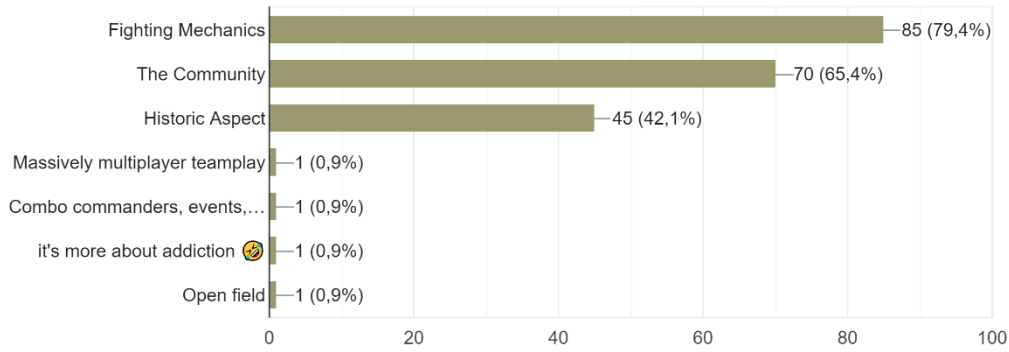
Table 3-Content Searched



When survey participants were asked about the best aspects of using this app, compared to the RoK mobile app they have used in the past or are currently using, the most common responses related to calculating game data such as speedups, resources, and power upgrades. Additionally, some participants sought ways to optimize their gameplay by understanding commander mechanics and combinations.

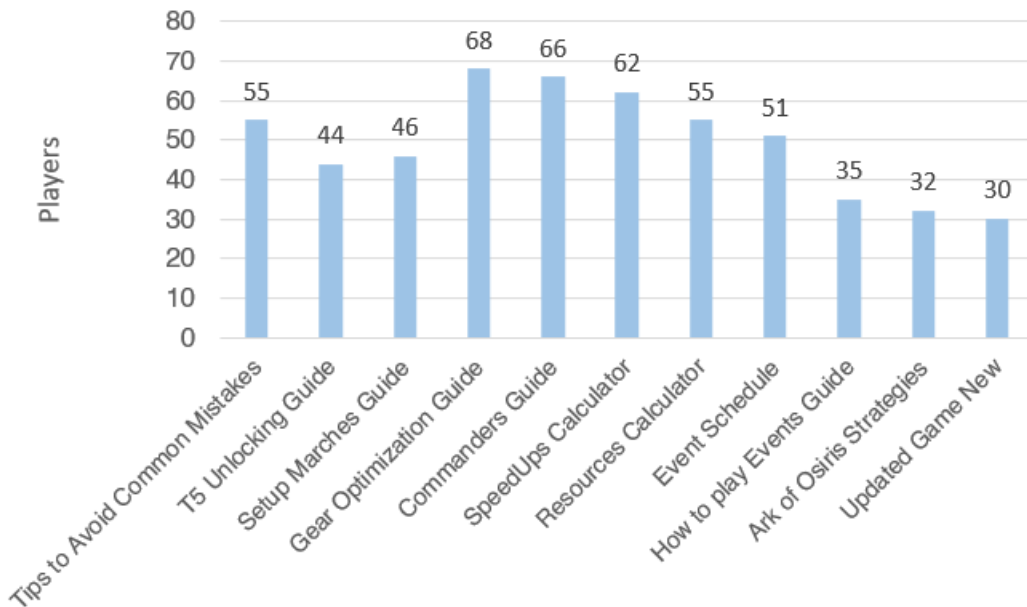
The game enjoyment section of the survey was designed to gather players' opinions and feelings towards the game, providing them with an opportunity to express their satisfaction or dissatisfaction with RoK. Approximately 80% of players cited the innovative fighting mechanics as the main reason for their continued engagement with the game. Furthermore, 65% of participants indicated that the community plays a significant role in their enjoyment, while 42% are drawn to the historical aspects. These three factors are the most appealing factors of the game's appeal in the eyes of the players, as shown in Table 6.

Table 4-What do you like in RoK



In the final section of the survey, we aimed to understand the players' opinions about potential services that could be added to the mobile app. We wanted to identify which features would capture their attention the most and what kind of content they would seek to enhance their gameplay experience. The data collected included various guides, calculators, and tools available to RoK players from websites, apps, and forums ss can be seen in Table 7.

Table 5- Best Services for RoK Support App



Out of the 10 topics, the "Gear Optimization Guide" was the most popular, with 68 players searching for it. It was closely followed by the "Commander's Guide," which interested 66 players. The "Speedups Calculator" was also well received, with 62 players expressing interest in it.

Conversely, the "How to Play Events Guide" and "Ark of Osiris Strategies" were the least popular topics, with only 35 and 32 players interested in them, respectively. "Updated Game News" also had lower interest, with only 30 players expressing interest.

There was also a significant number of players searching for the "Event Schedule" (51), "Tips to Avoid Common Mistakes" (55), and the "Resources Calculator" (55). Additionally, 44 players selected the "T5 Unlocking Guide," and 46 were interested in the "Marches Setup Guide." These results indicate that players are interested in a variety of guides, calculators, and tools to improve their RoK gameplay, with a particular focus on optimizing gear, commanders, and speedups.

2.2 Competitors Analysis

This competitor analysis aimed to identify the services offered by various mobile applications in this niche and how each feature is displayed. To ensure a comprehensive analysis, a search was conducted on Google Play and the Apple Store for RoK Support Apps on April 26, 2023, focusing on applications designed to enhance RoK players' game experience. Three mobile applications were identified: “Rise of Kingdoms - The Companion,” “ROK Helper,” and “ROK Companion (ROKC).” Each of these applications focuses on improving gameplay quality by offering various supportive services to players.

During the survey conducted with our player sample, participants mentioned “RokCalculator” (website) as an alternative that meets their needs, helping them prepare for events or keep track of their personal data.

On April 26, a grid table (Table 8) was created to list the features present in each application. The purpose of this table is to cross-reference the data obtained in this competitor analysis with the features identified in the survey (Chapter 2.1). This cross-referencing allows us to understand which features are lacking in each application based on player feedback about their needs and preferences.

Table 6- Service Table

| Services | ROK - The Companion | ROKHelper | ROK Companion (ROKC) |
|--------------------------|---------------------|-----------|----------------------|
| Tips to Avoid Mistakes | | | |
| T5 Unlocking Guide | X | | |
| Setup Marches Guide | | | |
| Gear Optimization Guide | | | |
| Gear Guide | X | | |
| Commanders Guide | X | | X |
| SpeedUps Calculator | X | | X |
| Resources Calculator | X | | X |
| Event Schedule | X | | X |
| How to play Events Guide | | | |
| Ark of Osiris Strategies | | | |
| Updated Game New | X | | X |
| Title Bot System | | X | |

Rok - The Companion

This app offers a wide range of features, including event timers, resource calculations, and a troop training calculator. The app has a user-friendly interface that is intuitive and easy to navigate. The tabs are well organized, allowing for quick access to the desired features. However, it falls short in the equipment section, functioning as an equipment set maker rather than a guide. Players cannot understand the best combinations between legendary and epic equipment. Additionally, the commander guide could be improved by indicating the best pairings for specific commanders and providing more useful information for players rather than just telling the commander's story, which is already available in the game.

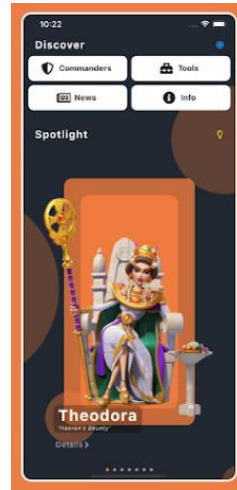


Figure 11-Rok - The Companion1



Figure 12-Rok - The Companion2

ROK Companion (ROKC):

ROKC shares the same strengths as "Rok - The Companion," but it lacks some features found in the former, such as the T5 upgrade guide and the gear guide. Besides including an event timer, it offers various calculators for different in-game resources and data. The app also provides players with the latest videos and news from top content creators. However, the app assists players with a commander guide system that is complemented by an external website, making it a simple tool to access the website rather than showing the commander information directly. The external site does not provide the best equipment sets for commanders – and combos. Additionally, the app can be slow to load certain features and is not updated as frequently as "Rok - The Companion."

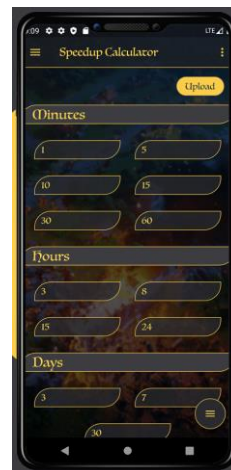


Figure 13-ROKC1



Figure 14-ROKC2

ROK Helper:

This support app has a simple and intuitive UI design. It primarily functions as a title bot, allowing users to place the location of their city and request a title, which then enters a queue. Compared to other apps, it is very one-sided and lacks the diverse features that help guide and improve players' game experiences in multiple ways.

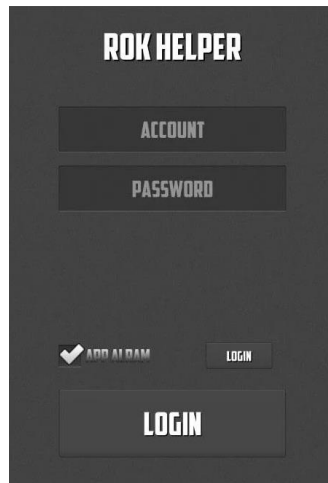


Figure 15-ROKHelper1

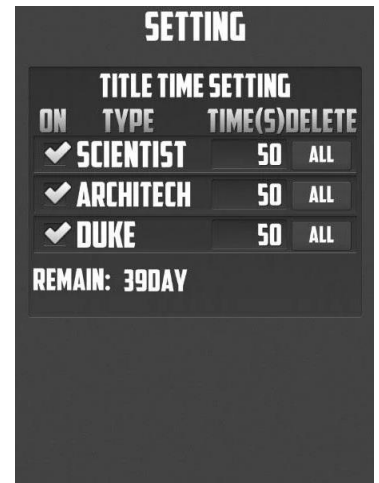


Figure 16-ROKHelper1

2.3 Conclusions

Through this quantitative analysis survey conducted with a diverse group of "Rise of Kingdoms" (RoK) players globally and a thorough competitor analysis of existing RoK mobile apps, we aim to identify the key features for our project: RoK Manager. By addressing gaps in the current market and aligning with player feedback, we intended to design an app that provides essential game information externally.

Our investigation into gaming habits revealed that a significant majority of participants engage with RoK for more than one hour daily, with many dedicating upwards of three hours to in-game activities. Players primarily seek game-related information via YouTube and search engines, focusing on account optimization tips, new and upcoming event information, and strategies for Kingdom vs Kingdom (KvK) battles. Furthermore, the study explored the challenges players face while playing and how they seek resolutions.

When asked about desired features in a RoK support app, the "Gear Optimization Guide" emerged as the most favored option, closely followed by the "Commander's Guide" and the "Speedups Calculator." These preferences highlight a demand for comprehensive support services within the app, including an "Event Schedule," "Tips to Avoid Common Mistakes," "Resources Calculator," "T5 Unlocking Guide," and "Marches Setup Guide."

The competitor analysis revealed a significant gap in the availability of in-depth guides and tips for gameplay improvement. Based on the survey, we found that players desire a range of key features not fully represented in the current market apps, such as tips on avoiding common mistakes and a section for march setups that helps with pairing commanders effectively.

The absence of these key features in existing market apps presents a viable opportunity for a RoK support application tailored to users' genuine needs and preferences. By incorporating the features players desire, in addition to existing app functionalities, we can create a more comprehensive platform that provides extensive game information. Our app includes the following sections: "Gear Optimization Guide," "Commander's Guide," "Speedups Calculator," "Event Schedule," "Tips to Avoid Common Mistakes," "Resources Calculator," "T5 Unlocking Guide," and "Marches Setup Guide."

By focusing on delivering an optimized product that addresses all player desires, we keep players informed of imminent updates and potentially reduce the time spent mastering basic game fundamentals to less than an hour daily, as opposed to the current scenario where players invest extended periods learning and adapting to gameplay changes, gear, and march optimizations.

Chapter 3 Project:

3.1 Project Context

3.1.1 Context & Vindication

Mobile gaming has rapidly ascended to become a dominant force in the global gaming industry. Since the introduction of the first mobile game less than three decades ago, this segment has evolved into a substantial part of the entertainment sector. By 2022, the mobile gaming market was valued at approximately \$140.5 billion and is projected to exceed \$173.4 billion by 2026 (Clement, 2024), fueled by increased mobile adoption and smartphone usage worldwide. This growth accounts for about 51% of total video game revenue globally, particularly strong in regions like the United States and the Asia-Pacific, emphasizing its role as a key player in the gaming industry's expansion (Clement, 2024).

Among the popular genres, city builders and war games have carved out a significant niche within mobile gaming, blending strategic planning with interactive gameplay (Allsop, 2024). These games, which involve managing cities or bases and engaging in tactical conflicts, cater to those who relish in-depth strategy and resource management. Titles such as "Clash of Clans," "Game of War," and "Rise of Kingdoms" have not only become household names but have also pioneered social interactions within the gaming community, through alliances and global competitions (Gonçalves et al., 2023; Zhang, 2020).

"Rise of Kingdoms" by Lilith Games exemplifies innovation within this genre by integrating city-building with real-time strategy (RTS) elements, distinguished by a seamless world map where players interact in real-time. This setup enhances the gameplay, allowing immediate responses and strategic decisions without the delays common in segmented game formats (González, 2022). Furthermore, its unique commander system, featuring historical figures with specialized abilities, adds both a strategic and educational dimension, enriching the player's engagement and experience (Zhang, 2020). These characteristics have positioned "Rise of Kingdoms" as a standout title in the mobile gaming market, demonstrating the significant impact of the changes it brought to the genre (Knezovic, 2024). With the game earning 3.1 billion euros in revenue (Tower, 2024), it highlights the ongoing potential of mobile games in shaping the future of entertainment and interactive media.

The need for a centralized resource that allows players to access in-game information is underscored by findings from our investigation, revealing that a significant portion of the player base is highly active, with 56% spending over three hours daily on the game. Furthermore, a substantial number of participants actively seek strategies to enhance their gameplay, with 68% of the players looking for optimization tips. Our project is designed to be a comprehensive resource, enabling players to efficiently acquire and share game knowledge in one centralized location. Currently, players often turn to various platforms such as YouTube, Discord, or other online sources for information or the new ones don't even know where to get this information. While there are existing applications like "ROK - The Companion" and "ROK Companion (ROKC)" that attempt to compile game information for players, they often fail to fully meet the players' needs and expectations. This gap is evidenced in Chapter 2.2, Table 12, and Chapter 2.1.3, Table 9, where 98% of participants reported relying on different methods rather than mobile apps to fulfill their information needs.

By addressing these shortcomings, our project aims to provide a more targeted and user-friendly solution, ensuring that players have access to all the necessary information in one place, thereby enhancing their overall gaming experience.

3.1.2 Target

The RoK Manager app, presented in this project, is designed to cater to a diverse global audience, engaging players across continents. As evidenced by the demographic spread detailed in Chapter 2.1.3, Table 2 of our study, this diversity creates a need for an inclusive and comprehensive platform that addresses the varied informational and strategic requirements of worldwide players. The app aims to consolidate fragmented sources of information, making it easier for players to access the guidance they need without having to navigate multiple platforms.

The widespread appeal of Rise of Kingdoms is greatly facilitated by its built-in translation feature, which allows seamless communication across different language barriers. Additionally, the game uses the universal UTC time for in-game events and battles, ensuring accessibility for players worldwide (Zhang, 2020). Rise of Kingdoms supports multiple languages, including but not limited to English, Chinese, Spanish, German, French, Portuguese, Russian, Japanese, Korean, and Arabic. This multilingual support engages a

global audience, making it easier for players from diverse regions to connect, strategize, and compete effectively.

The primary demographic for Rise of Kingdoms, based on survey data, shows that players are predominantly aged above 21 years old. This aligns with the general age distribution of mobile gamers, which peaks at ages 25-34 with 21.8%, and 35-44 with 19.1% (Zauderer, 2024). The existing data suggests that late Gen Z and Millennials constitute the majority of the mobile gaming demographic (Knezovic, 2024). The game still shows a male predominance, with only 36% of players being women (Knezovic, 2023). Despite the broader trend of nearly equal mobile game participation among men (53.6%) and women (46.4%), Rise of Kingdoms has not yet reflected this gender parity (Knezovic, 2024).

These players are drawn to city builders and strategic war games that offer long-term engagement rather than short-term entertainment. Notably, Rise of Kingdoms retains approximately 41% of its players after download and 9% continue actively playing after 30 days, indicating a strong ongoing engagement compared to other games in the genre (Knezovic, 2023). These statistics reveal a committed player base that appreciates the game's mechanics, real-time battle experiences, and unrestricted movements, which distinctly set it apart from other titles like Clash of Clans or Top War (González, 2022).

Our support app is crafted for dedicated Rise of Kingdoms players who seek to enhance their gameplay experience. These players are deeply engaged in the game's strategic and competitive elements, aiming to boost performance through optimizing commander upgrades, refining equipment setups, and mastering complex mechanics. By providing a centralized resource that consolidates essential game information, our app intends to equip these committed players with the tools and insights needed to excel. This focus on optimization and advanced strategies makes our app an invaluable asset for those serious about their Rise of Kingdoms journey.

Additionally, our app aims to support new players who might otherwise abandon the game due to its complexities. By offering clear, accessible guidance, we help turn casual players into passionate, knowledgeable players, creating a deeper connection with the game.

The app is structured to support players at various stages of their gaming experience:

1. **Beginners:** The app can be an invaluable resource for new players, offering crucial guidance and tips to circumvent common pitfalls. It provides straightforward, step-by-step instructions that help novices quickly grasp game fundamentals, enhancing their overall experience and fostering skill development.
2. **Intermediate Players:** For those who have acquired a basic understanding of the game, the app offers detailed strategies on how to invest in commanders, optimize equipment, and manage resources effectively. These tools are designed to help intermediate players refine their tactics and progress more efficiently.
3. **Advanced Players:** Experienced players will benefit from the app's advanced features, including in-depth guides on commander pairings, comprehensive event schedules, and specialized optimization tools. These resources allow advanced players to fine-tune their strategies, maximize their in-game potential, and stay up to date with the latest updates and community events.

Overall, the Rise of Kingdoms Support App is designed to serve as a comprehensive companion tool that enriches the gaming experience for a dedicated player base, fostering a deeper engagement with the game through tailored content and strategic insights.

3.1.3 Planning

The development of this app adhered to a structured design process to ensure the final product effectively met the needs of the "Rise of Kingdoms" player base. In this section, we provide an overview of the key steps involved.

Before the creation of the sitemap, the information acquired in Chapter 2 was thoroughly considered to determine the key features needed for the app. This chapter provided critical insights into user preferences, pain points, and desired functionalities, gathered through the survey and competitor analysis. The feedback highlighted the need of features such as equipment optimization, commander upgrades, and a speedups calculator.

Afterward, a sitemap was developed to outline the app's architecture. This provided a clear structure for organizing content and features, ensuring that key elements were logically placed and easily accessible. The initial sitemap was tested for clarity and efficiency, and feedback from this phase informed necessary redesigns to improve navigational pathways and ensure an intuitive user journey. Following the sitemap, breadboarding techniques were employed to sketch rough layouts of individual pages. This step focused on the functional arrangement of content without delving into detailed design elements, prioritizing usability and flow.

With a refined sitemap, the first wireframes and Prototype 1.0 were developed. This prototype incorporated basic design elements and interactivity to simulate the user experience based on other apps for inspiration. Rigorous tests were conducted to gather user feedback, which was crucial for identifying areas needing improvement. Insights from this testing guided the development of Prototype 2.0. This iteration included revised wireframes that addressed any issues found and introduced new features as needed. Prototype 2.0 was then tested to ensure it was user-friendly, adaptable across different devices, and accessible to all players. This stage was critical for fine-tuning the interface and ensuring the app met the diverse needs of its users.

Incorporating all feedback and insights from all the tests, the final prototype was created. This version featured polished designs, fully integrated features, and thorough optimization to ensure the best possible user experience. Each of these steps was crucial for developing an app that intends to be both functional and engaging. The goal was to create an app that enhances the gaming experience for "Rise of Kingdoms" players, making gameplay more enjoyable and efficient.

3.1.4 Description

The focus of this project is to address common gameplay mistakes frequently made by novice players and to offer specific guides aimed at optimizing their experience. Data collected during the research that supported this project reveals that players often seek external content to enhance their gameplay enjoyment. This identifies an opportunity for our support app to fill gaps left by existing Rise of Kingdoms support apps, which often lack features deemed as essential by our target audience, as previously discussed in Table 12 of Chapter 2.2. Our app intends to provide players with tips and tricks on how to avoid crucial mistakes, such as optimal investment in specific troop types, how to migrate to a different kingdom and which are the best civilizations based on all different choices players can make in-game. Given the long-term nature of the game, strategic planning is vital to maximize enjoyment and engagement at all stages, not just for temporary satisfaction.

“RisePad” was the first name of the application in its earlier development, conceived to differentiate from competitors that commonly use the acronym "RoK" or the full game title in their branding. The choice of "RisePad" was inspired by the functionality of mobile and iPad devices, which are preferred by players for their expansive display during battles. However, feedback during the last testing phase indicated that the name did not accurately reflected the app’s purpose. Consequently, a more descriptive name, "RoK Manager" or "RM," was adopted to better align with industry norms while clearly indicating the app’s functionality, based on user’s feedback during the high-fidelity tests.

The name "RoK Manager" introduces a clear reference to "Rise of Kingdoms" (RoK), making it immediately recognizable to players of the game. Additionally, the term "Manager" implies comprehensive tools and functionalities will be available to enhance and optimize the gameplay experience. By integrating these key features directly into the app, "RoK Manager" aims at enabling players to access tools and knowledge, allowing them to excel in the game and achieve maximum satisfaction.

Key Features:

Tips to Avoid Mistakes:

The app offers a curated collection of tips and insights gathered from experienced players, enabling users to avoid common pitfalls and mistakes. By highlighting key gameplay strategies and tactics, players can make informed decisions to maximize their success.

Guide: Unlocking Tier 5 Units Faster & Efficiently:

This feature provides a step-by-step guide on efficiently progressing toward unlocking Tier 5 units, the strongest unit level in the game. It outlines the necessary requirements, resource management techniques, and recommended approaches to expedite the unit unlocking process, helping players reach higher tiers with ease.

Guide: Commander Investment & Pairings:

This feature assists assist players in making wise investment decisions. The app offers a personalized and comprehensive guide on commander selection and pairings. It provides detailed information on each commander's strengths, weaknesses.

Equipment Set Optimization:

Optimizing equipment sets is crucial for maximizing combat effectiveness. This feature of RoK Manager offers a comprehensive help that advises users on the best equipment combinations for various commanders and play styles. This enables players to strategically enhance their armies and gain a competitive edge.

Resource Calculation:

Effective resource management is the key to success in Rise of Kingdoms. The app includes a resource calculator that enables players to accurately track their resources, and their future war consumption. This valuable tool facilitates informed decision-making and efficient resource allocation.

Game Event Schedule:

The app features an up-to-date game event schedule, providing players with detailed information on upcoming events, such as alliance battles, kingdom wars, and special events. This enables users to plan their gameplay, coordinate strategies, and make the most of valuable in-game opportunities.

3.2 Project Development

3.2.1 Conception

To conceptualize this mobile application, an initial design was crafted to include key features essential for the app's functionality. This approach facilitates a smoother and more efficient creative process, ensuring that the app's structure aligns with its intended objectives.

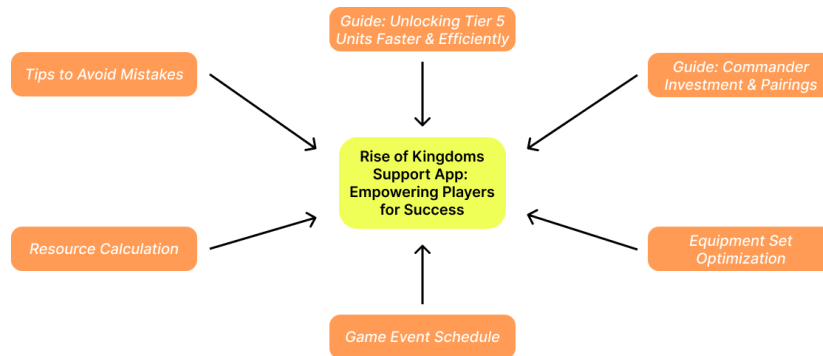


Figure 17-First Design Conception

Figure 17 provides a detailed map of the key features, outlining six essential services that the project aims to fulfill: “Tips to Avoid Mistakes,” “Guide: Unlocking Tier 5 Units Faster & Efficiently,” “Guide: Commander Investment & Pairings,” “Equipment Set Optimization,” “Resource Calculation,” and “Game Event Schedule.” Building upon this foundation, variations of the app were developed, as shown in Figures 18 and 19.

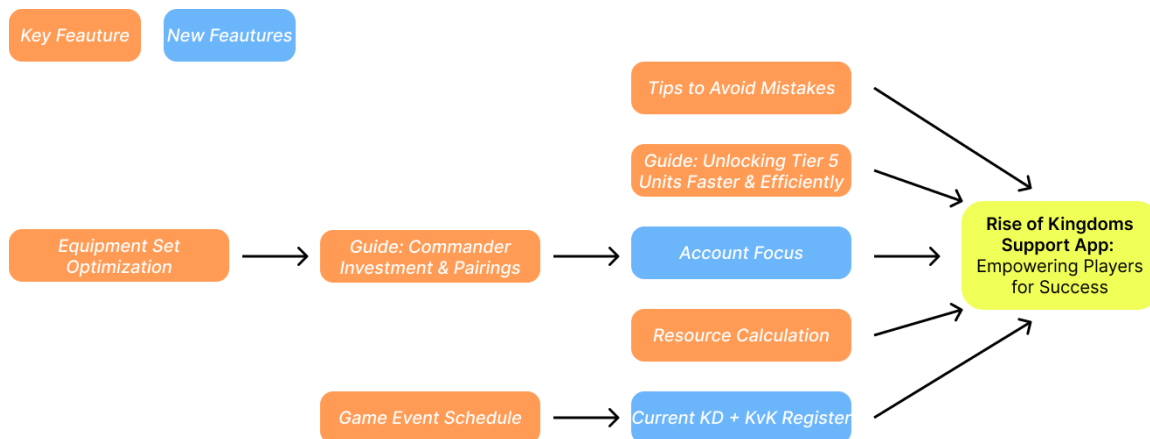


Figure 18- Second Design Conception

These images illustrate the app's creative design process, showing its evolution and refinement. Figure 18 showcases the initial structure for arranging the app's main features. This was followed by Figure 19, which expanded on the design, creating a more application-like layout that emphasized the placement of key features in the menu, while allowing for the addition of new complementary features. This iterative process ensured that the app remained intuitive and efficient, providing a comprehensive tool for "Rise of Kingdoms" players.



Figure 19- Third Design Conception

3.2.2 Sitemap & Breadboarding

3.2.2.1 Sitemap Version 1

The design of the RoK Manager app's sitemap was meticulously developed through a comprehensive competitor analysis and insights gleaned from the preferences of its target audience, as established by research process previous to the conception of this project. With this strategy, we initially identified the key functionalities most valued by Rise of Kingdoms players and then adapted them into our project, developing the app around user needs. Through a competitor analysis, we pinpointed essential features and navigational efficiencies, such as a personal user space and a detailed commander page that offers insights not explicitly available in the game. This layout ensures a user-friendly interface, simplifying navigation across various app sections.

The carefully crafted sitemap intends to usability by enabling easy access to vital features like gear optimization guides, commander investments, and real-time event updates. These components are deliberately tailored to meet the needs of the gaming community, aiming to significantly improve their overall experience by providing a comprehensive support tool that aligns with their in-game requirements.

Drawing from the data gathered during the research process previous to this project conception also attending to the results of the competitor analysis, it is evident that this sitemap effectively serves as a structured framework for the RoK Manager app. The app not only addresses specific challenges identified by players, such as the lack of clear information on the equipment system and commander pairings, but also ensures a smooth, engaging user experience. By consistently involving users during its development, it aimed to present all necessary and desired information in a simple and easy-to-understand format.

The first iteration of the sitemap can be seen in Figure 20.

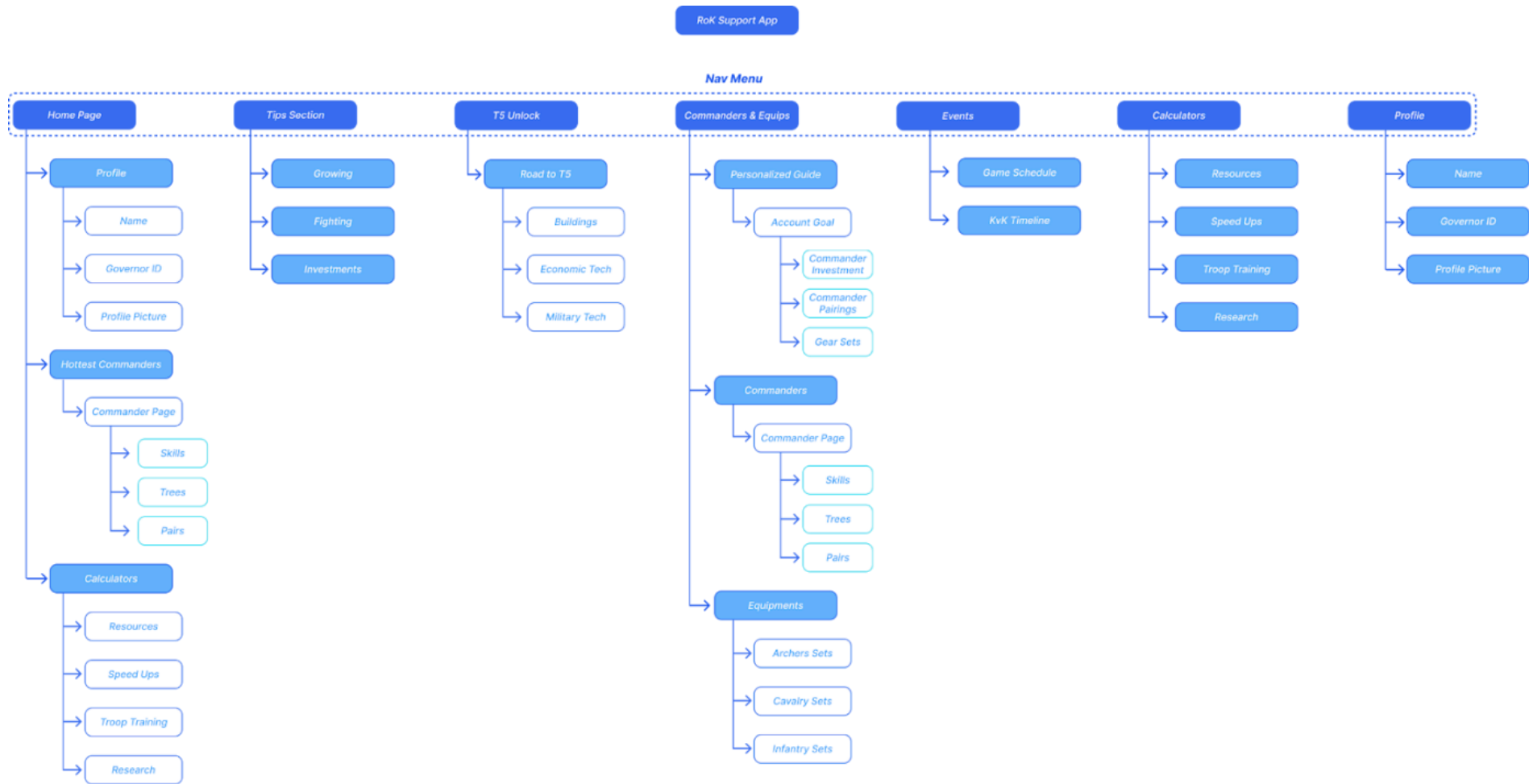


Figure 20-Sitemap V1

3.2.2.2 Sitemap V1 UI Test

The aim of these assessments is to evaluate the app's usability by engaging participants in the successful completion of specific tasks created by the designer that align with their specific user needs. Each task corresponded to a basic action commonly performed by players upon launching the app. The sample group comprised 7-10 participants, encompassing individuals with diverse levels of proficiency in the game.

Task 1: You are a new player in the game, and you want to prepare your equipment & commanders based on your account objectives

Task 2: As a RoK player, you are interested to see if there is a next event that you can participate in. How do you find it in the app?

Task 3: How many days of speed-ups do you have in your account?

Task 4: You log into the app, and you must find which commanders are the best and their best pairings

Task 5: You want to calculate how many resources you need to unlock t5. How do you do it?

The usability test results and participant feedback reveal significant insights into the app's current state and areas for improvement. With a 60% success rate and a 43% directness rate, it is clear that while a majority of participants were able to complete the tasks, there were notable navigation challenges and inefficiencies. On average, participants took 1 minute and 56 seconds to complete the tasks, with some variations, see Figure 21.

Results

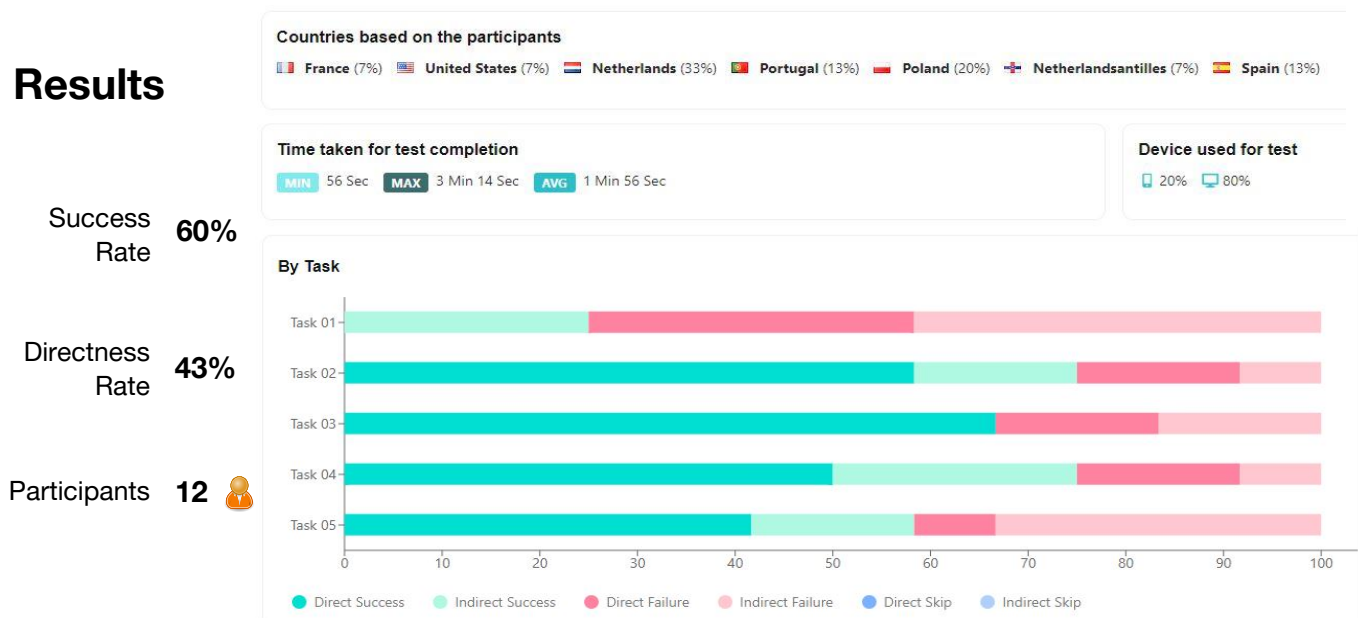


Figure 21-Sitemap V1 Tests

Tasks 2-4 demonstrated a higher success rate, indicating that once participants became familiar with the navigation, they could complete these tasks more efficiently. However, Task 5 was problematic due to its ambiguous wording, leading to varied interpretations among participants and lower success rates. Feedback from participants highlighted key issues: some found the navigation confusing initially, particularly when confronted with the profile option on the homepage.

The wording of the tasks was another point of confusion, with several participants expressing uncertainty about the required actions. Despite these issues, some participants found navigation between pages easy once they understood the interface. Simplifying navigation was essential, including re-evaluating the placement of the profile option on the homepage and considering its relocation to reduce confusion. The overall navigation structure should be smoother to make it more intuitive and user-friendly.

3.2.2.3 Sitemap V2 & Ui Test

The second version of the app's structure is presented in Figure 22, which incorporates adjustments based on the findings from the initial test. It was observed that many participants experienced confusion when attempting to create their own personalized guide due to the placement of the profile section on the homepage. As a result, the personalized guide feature has been relocated to the homepage for easier accessibility, replacing the previous profile section. This modification aims to determine the most effective placement of the personalized guide, whether it should be on the homepage, in the commander's section, or in both areas, depending on the participants' preferred navigation.

Given the participation and feedback gathered from the initial test, which involved 12 participants who struggled with task comprehension due to inconclusive wording, a second test was conducted to evaluate the app framework. This subsequent test included a sample size of 24 players who participated in testing the revised version. The following paragraph delves into the proposed tasks, while Figure 22 highlights version 2 of the sitemap.

Task 1: You are searching for tips on how to grow, where do you find it?

Task 2: Which military tech do you need to unlock t5 faster?

Task 3: How do you see the amount of speedups you have?

Task 4: How would you create a specific guide that shows which commanders to invest on for your account?

Task 5: Where do you find the best pairings for your new commander?

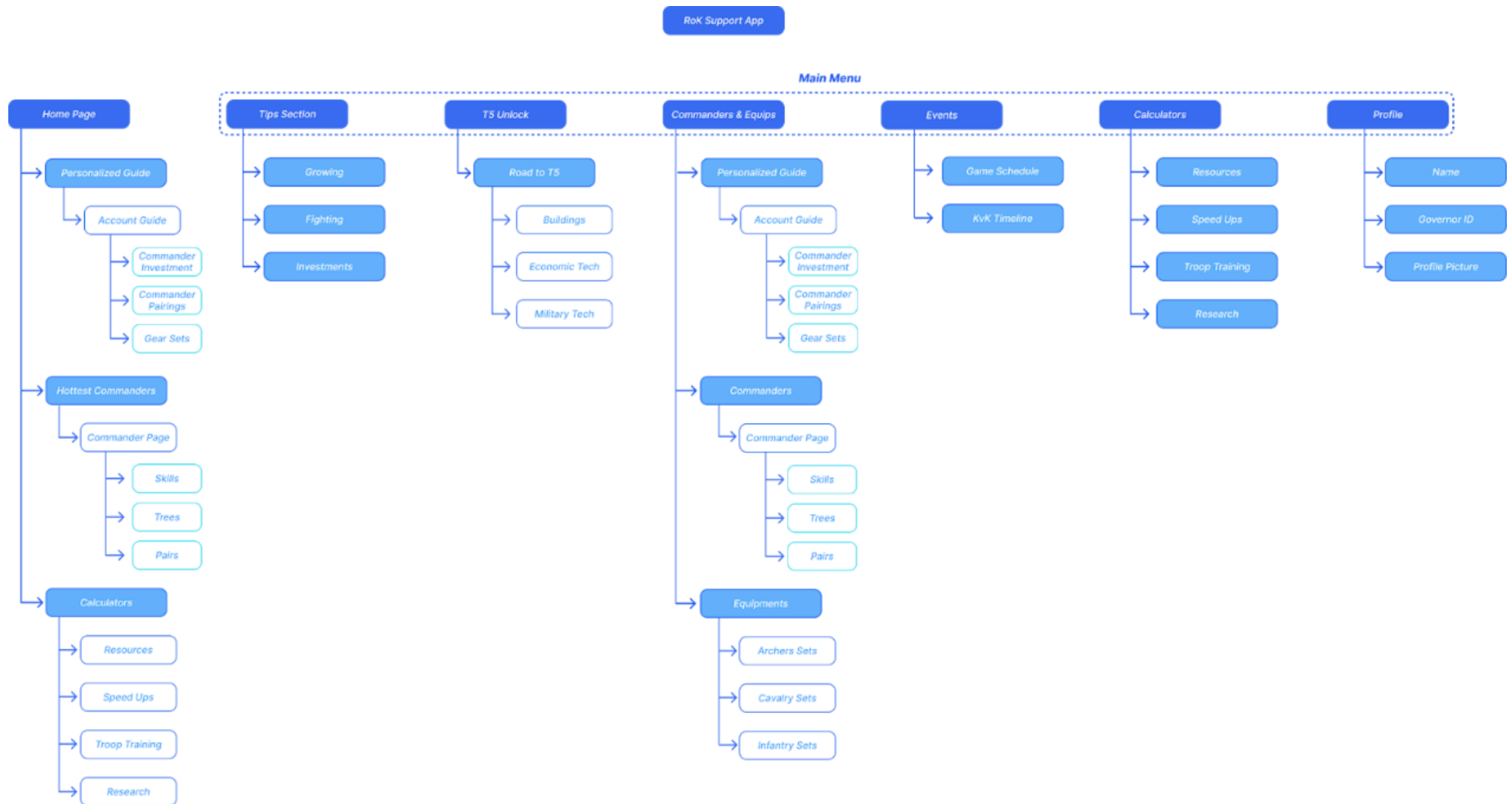


Figure 22-Sitemap V2

The analysis of the second round of testing, which included 24 participants, provides significant insights into the usability and navigational efficiency of the app's revised sitemap. The success rate increased to 68%, indicating an improvement from the initial test. However, the directness rate remained relatively low, suggesting that users still faced challenges in navigating the app efficiently as seen in Figure 23.

Results

Success Rate **68%**

Directness Rate **34%**

Participants **24** 👤

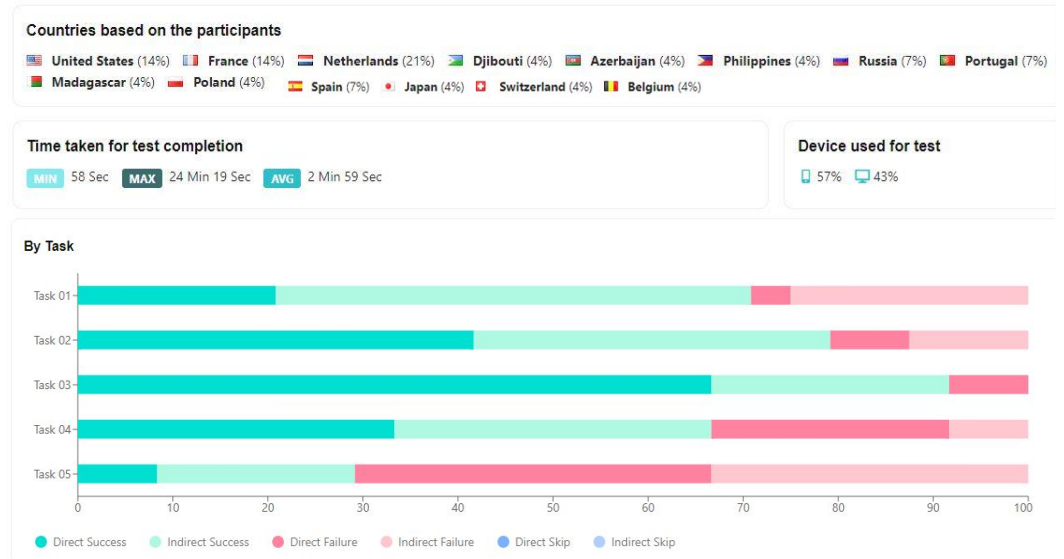


Figure 23-Sitemap V2 Test Result

Task 1 results showed that 17 out of 24 participants initially checked the homepage for the Tips Section, indicating a potential correlation between these elements (Figure 24). This suggests that users might benefit from having the Tips Section more prominently linked to or placed on the homepage. Conversely, when asked about calculating speedups in Task 3 (Figure 25), most participants instinctively navigated to the menu tab. This highlights the intuitive association between the menu tab and specific functionalities, suggesting that interchanging the Tips Section with the Calculator Section might improve usability.

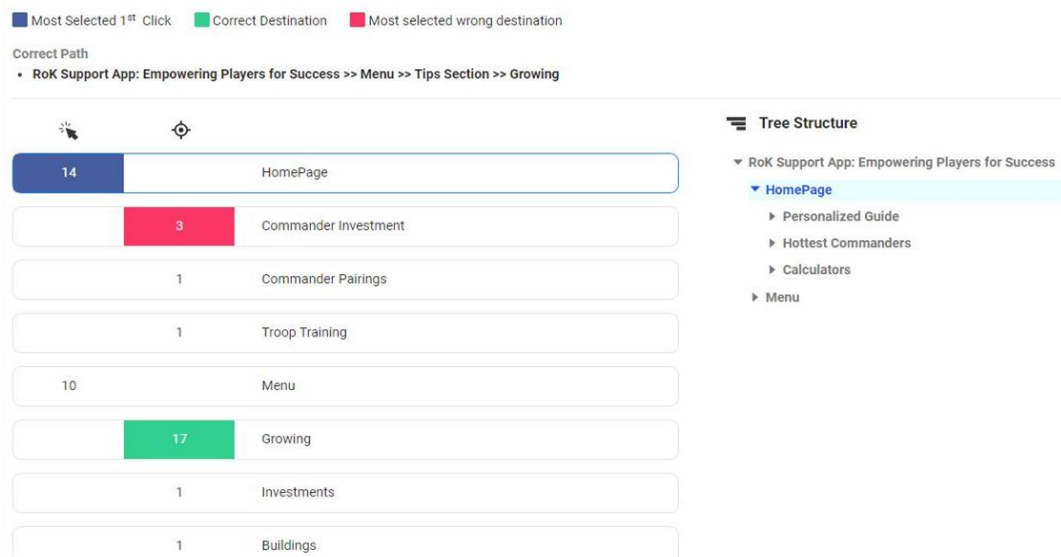


Figure 24-Sitemap V2 Test: Task1

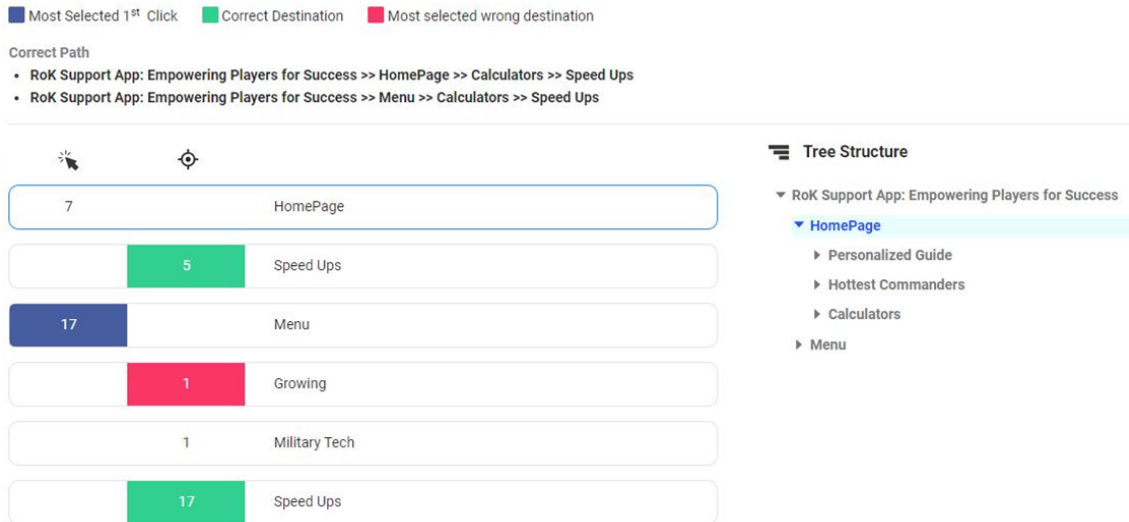


Figure 25-Sitemap V2 Test: Task3

Tasks 2 and 4 demonstrated higher success rates, with participants completing these tasks more accurately from the beginning. Task 4 aimed to assess whether users preferred accessing the personalized guide from the homepage or the menu bar, and the results were evenly split (Figure 26).

Task 5's outcomes mirrored those of Task 4, with an even split between participants choosing the homepage and the menu for finding the best pairings for new commanders. This split suggests a need for clearer guidance on where users can find specific information, as the current setup may be leading to confusion.

Overall, the feedback indicated that while there have been improvements in navigation and task completion, there are still areas that need refinement. Simplifying the navigation structure, re-evaluating the placement of key features, and providing clearer instructions for tasks are essential steps.

Nodes ?

- Went to correct path
- Went to wrong path
- Went backward
- Marked as correct destination
- Skipped task

Lines

- Root node
- Correct path
- Wrong path
- Unvisited path



Figure 26-Sitemap V2 Test: Task5

3.2.2.4 SiteMap Final

The final version of the sitemap for the RoK Support App, as illustrated in Figure 27, showcases a refined organization of features aimed at enhancing user accessibility and engagement. This iteration introduces significant changes from the previous Prototype 2.0, focusing on streamlining the user interface to better serve the needs of "Rise of Kingdoms" players.

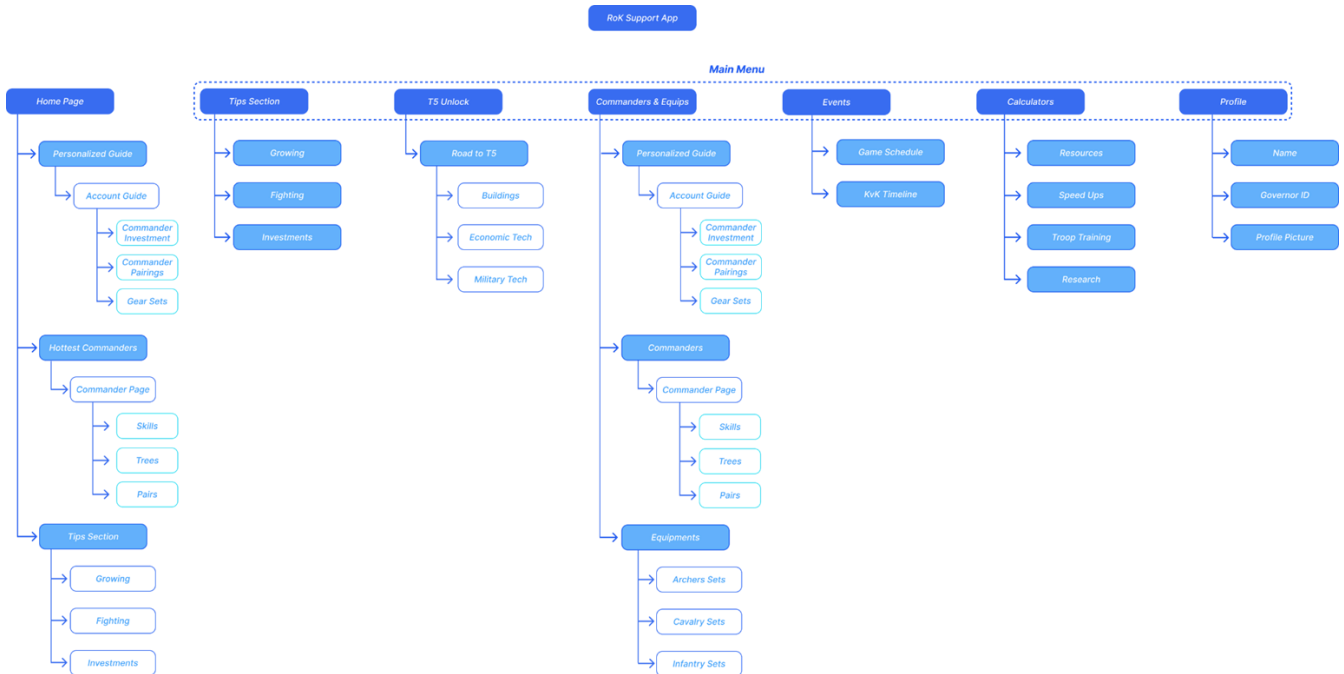


Figure 27- Sitemap Final Version

Key adjustments have been made to the Home Page, which now prominently features sections for the Player Guide, Hottest Commanders, and Tips. This reconfiguration is designed to provide immediate access to crucial gameplay advice and updates directly from the app's main entry point, thus enhancing the user experience right from the start. Notably, the Calculator section, previously located on the Home Page, has been relocated to the Main Menu. This change positions it alongside other critical tools such as Events and Resources, centralizing all major analytical tools in one easily accessible area of the app.

These changes not only refine the app's navigational flow but also underscore the app's commitment to providing a comprehensive support system tailored to the needs of active players. By organizing the sitemap in this manner, the app expects that users can quickly find the most relevant and frequently used features, thereby enhancing their overall experience and interaction with the platform.

3.2.2.5 Breadboarding

In UX design, breadboarding is a technique used to quickly explore ideas and map out key features and components. It provides space to create connections between features by examining an app from new and different angles. Breadboarding differs from a sitemap in that while a sitemap displays each feature of the app, a breadboard focuses on the functions of these features (Kedo, 2020).

The use of breadboarding in this design process is invaluable, particularly for developing a detailed sitemap for an application. Breadboarding allowed for a sketch of each page's layout, focusing on the content without the intricate design details. This approach prioritizes usability and flow, clearly explaining every feature's action and function, as shown in Figure 28.

This iterative sketching and testing process encourages a deeper understanding of user needs and their practical application within the app. It helps designers anticipate and resolve potential issues before advancing to more detailed design stages. Consequently, breadboarding is crucial for creating a comprehensive, intuitive, and effective sitemap, significantly enhancing the app's usability and user satisfaction (Chen, 2021).

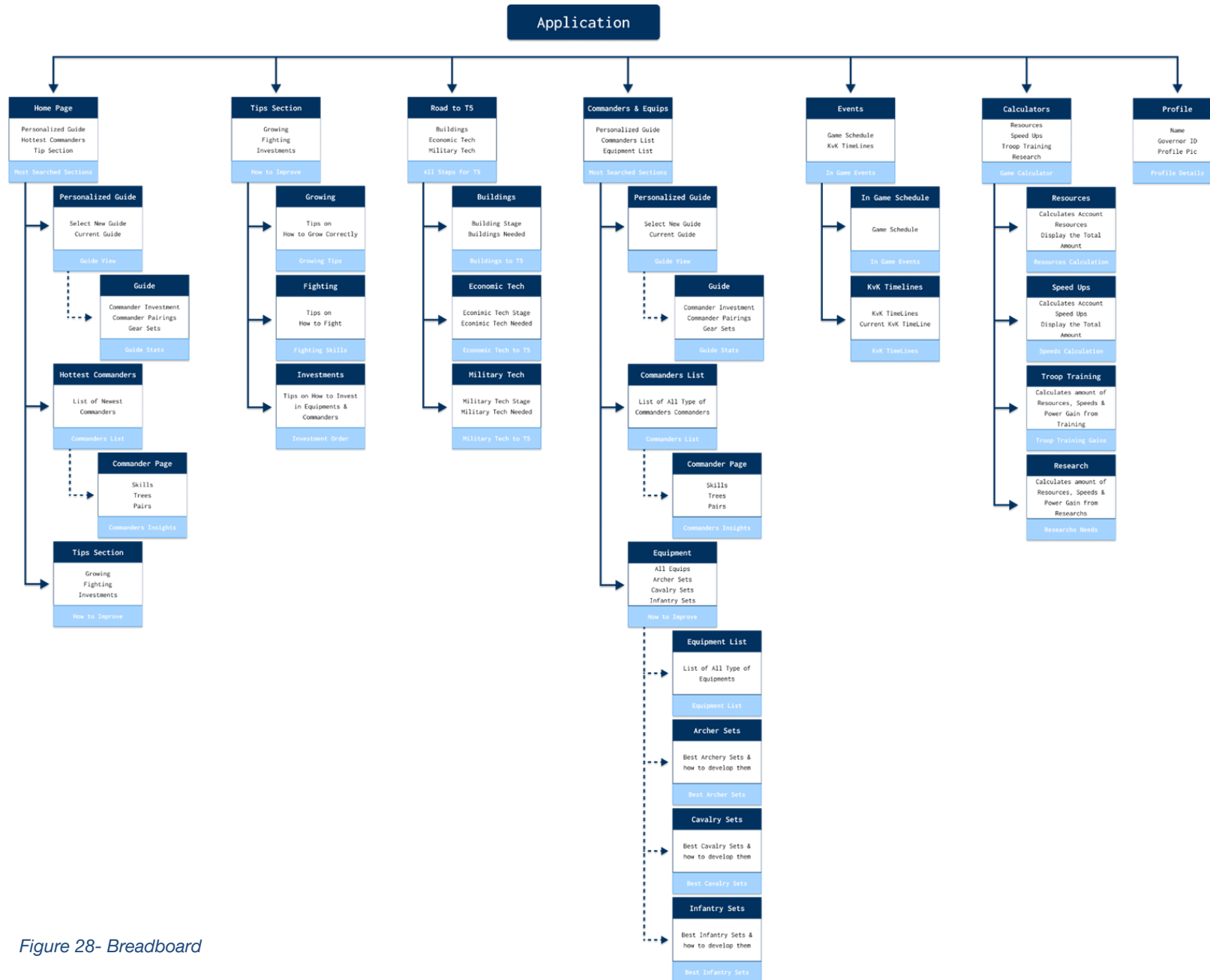


Figure 28- Breadboard

3.3 Wireframes

3.3.1 Low Fidelity

During the development of the low-fidelity wireframes for the app, certain modifications were introduced to enhance its structural clarity, aiming for a more straightforward and fresh user navigation experience. Two different design possibilities were drafted: one featured the menu as a visible sidebar that slides in and out from the main page, and the other integrated the menu as part of the page, providing constant visibility for easy navigation (Figure 30 & Figure 29). The latter design was chosen for its ability to keep users aware of their current location within the app and to facilitate easier transitions between sections. Some sections were adjusted to better fit this layout, such as the tools section, menu, and the T5 unlocking guide.

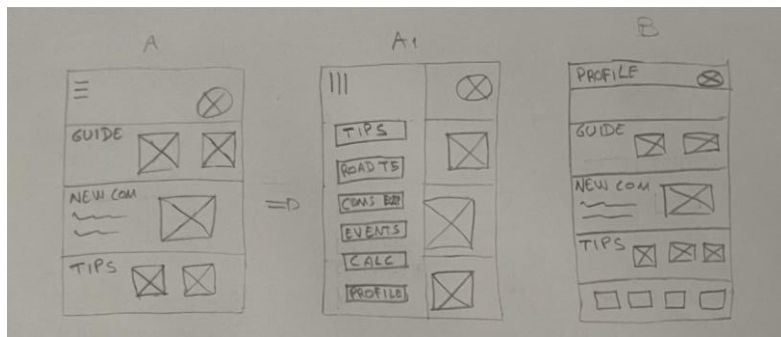


Figure 30-Low Fidelity Wireframe 1



Figure 29-Low Fidelity Wireframe 2

A tools section was created within the menu, providing users with easy access to the calculator feature. The T5 guide, a highly requested feature based on previous investigations, was also added to the home page for easier access. The menu was

designed to function as a four-button interface, consisting of the Home Page, Commanders & Equipment section, Events section, and Tools section. Keeping the menu to four buttons ensures simplicity and efficiency. This menu layout drew inspiration from apps such as "Spotify" and "Rise of Kingdoms Guides & Pro Tools" (Figure 29 & Figure 30).

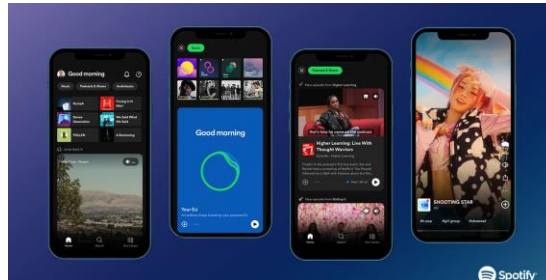


Figure 31-Spotify



Figure 32-Rise Of Kingdoms Guides & Pro Tools

Based on the competitor analysis, we gained valuable insights into how other applications address some of the features we plan to incorporate into our app, particularly the commander section (Figure 33).



Figure 33-Rise of Kingdoms Companion

The website "RoK Calculator" provided inspiration on how to effectively implement a calculator for the game "Rise of Kingdoms" demonstrating the functionality and user interface required for this feature. It highlighted the importance of a user-friendly design that allows players to calculate resources, speedups, and other in-game elements efficiently. Additionally, "RoK Calculator" (Figure 34) offered insights on integrating a T5 guide, showing how to streamline the complex process of unlocking Tier 5 units and making it more accessible to users.

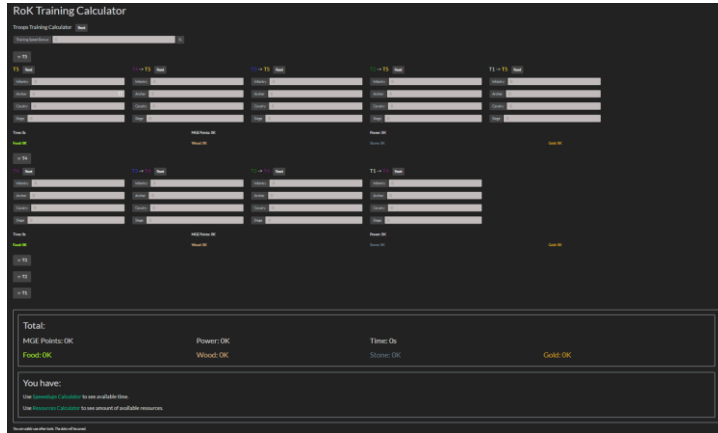


Figure 34-RoK Calculator

Similarly, the app "RoK-Companion" (Figure 35) offered valuable lessons on various aspects of our planned features. This app's approach to commander guides and combinations showcased how to present detailed information on commander skills, talents, and optimal pairings in a clear and concise manner. It underscored the necessity of comprehensive guides that cater to both novice and experienced players, helping them make informed decisions to enhance their gameplay.



Figure 35-RoK-Companion

3.3.2 High Fidelity 1.0 Prototype

The development of Prototype 1 was inspired by a combination of gaming and non-gaming applications, with the goal of creating an intuitive and user-friendly interface. The design drew insights from existing apps within the "Rise of Kingdoms" ecosystem, as detailed in Chapter 3.3.1. These applications provided valuable guidance on design choices and feature placements, which were crucial for structuring our app. Additionally, popular non-gaming apps like Spotify and YouTube, known for their user-centric interfaces, influenced the overall design layout of the app, ensuring that the app is both functional and engaging, making it easy to navigate.

In the development of Prototype 1.0, a strategic approach was employed, which involved the creation of a persona derived from the target audience outlined in Chapter 3.1.2. This persona served as the focal point for the app's development, guiding design decisions and feature prioritization to ensure alignment with user needs and preferences (Figure 36). By crafting a detailed user persona, we managed to understand and anticipate the behaviors, motivations, and challenges of the intended user base, thereby enhancing the app's overall user experience and effectiveness.



Figure 36-Persona (Dizzy)

The app's base coloring was inspired by the most predominant colors in "Rise of Kingdoms," specifically the yellow (RGB 230, 199, 112) and orange (RGB 244, 144, 0) tones that highlight the game's strongest commanders. These vibrant hues were set against a darker background, starting with a gradient with a barely visible brown at 75% in the top left corner over a white (255,255,255) background at 100% transparency which gives the sensation of transitioning quickly from white to the dark brown (RGB 30, 21, 19) closer to the center of the background. This design choice aimed to provide users with a sense of movement and dynamism, rather than a simple static background.



Figure 37-HomePage
Proto 1.0



Figure 38-Comms &
Equips Proto 1.0

In the following figures, the four main sections of the app can be visualized: the Home Page (Figure 37), the Commanders Section (Figure 38), the Events Section (Figure 39), and the Tools Section (Figure 40). This color scheme and design layout were meticulously chosen to enhance the user experience by creating a visually appealing and cohesive interface that reflects the game's aesthetic and atmosphere. For more details, you can view the Prototype 1.0 at <https://rb.gy/mw7bwo>.



Figure 39 -EventsPage
Proto 1.0

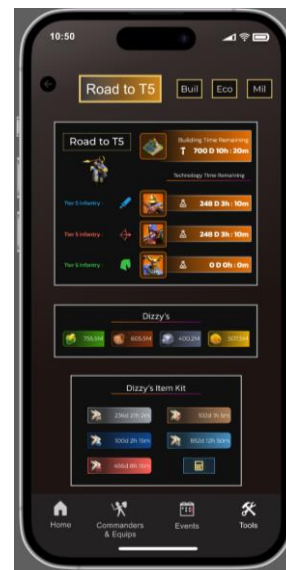


Figure 40- ToolsPage
Proto 1.0

3.3.2.1 High Fidelity 1.0 Usability Tests

User Stories serve as straightforward narratives designed to catalyze user engagement in achieving specific objectives. Their purpose lies in delineating software functionalities, particularly within the scope of the ongoing design of a mobile application (Cohn, 2022). User Stories contribute to a deeper comprehension of distinct features or functionalities and are often presented from the viewpoint of an end user or stakeholder. Each user story encapsulates a particular demand, necessity, or aspiration that the software is tasked with satisfying. These narratives are structured around a "do this so this" construct, offering a clear directive paired with its intended outcome (Cohn, 2022).

The construction of a user flow is crucial in assessing the usability of a mobile app, as it represents the sequence of interactions a user engages in while navigating the app (Kaplan, 2023). User flows help identify whether users can achieve their intended objectives following a predetermined path or encounter issues that disrupt their journey. This process is instrumental in evaluating the app's intuitiveness and navigational clarity, and determining whether the design facilitates a smooth user experience or requires modifications (Kaplan, 2023). User flows are essential for pinpointing the effectiveness of a product through succinct interactions, providing developers with immediate feedback on the app's structure and the challenges users face during interaction. For instance, if users consistently encounter barriers or the navigation proves cumbersome, these flows can highlight areas for improvement, ensuring the app meets its intended user experience goals (Brown, 2024).

For the tests of Prototype 1.0, six user stories were created to ensure a focused and manageable evaluation of the app's core functionalities. This approach allowed for thorough analysis and feedback on key features without overwhelming the testing process or stressing the participants. The following paragraph presents the user stories.

User Story 1: As a player, I want you to check what is the best archer gear for your account so that you can start working on it.

User Story 2: As a player, you must see what will be the next MGE so that you can be ready for it.

User Story 3: As a player, you want to see how many speedups you have so that you can train troops.

User Story 4: As a player, you need to calculate how much power you will gain so that you can achieve a better position on MGE.

User Story 5: As a player, you want to search for a new commander, so you learn about their new abilities

User Story 6: As a player, you want to see what is the best accessory for your marches so that you can craft the right accessory

The user stories and their corresponding user flows, as outlined in Figure 41, are available in Attachment II - User Stories & User Flows Prototype 1.0. This strategy enables us to verify the app's effectiveness and accuracy in the early development stages, ensuring that each user flow aligns with the desired outcomes and enhances overall usability. By concentrating on these user flows, we can ensure that the app meets user expectations and provides a seamless, efficient interface that enhances user satisfaction and engagement. User experience testing is a critical aspect of developing digital products and services, focusing on a thorough evaluation of how users interact with services, whether accessed through websites or mobile apps (Borges, 2021). The primary goal is to identify and address any issues within the current system and gather user feedback. These steps are crucial for gaining a deep understanding of user needs and expectations throughout the development process (Borges, 2021).

User Story 1: As a player, I want you to check what is the best archer gear for your account so that you can start working on it.

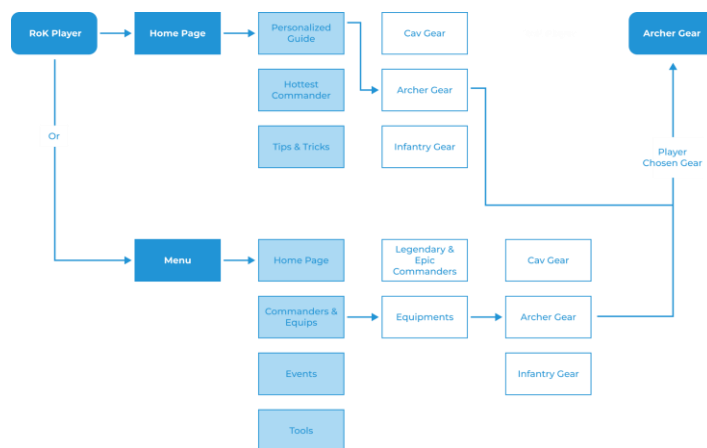


Figure 41-User Flow 1

In these tests, 10 participants were selected, with ages ranging from 17 to 45 years old. Their in-game experience varied widely, from 50 days to 1700 days of playing "Rise of Kingdoms." Participants were from different countries around the globe, which makes the

testing process more comprehensive and reflective of a diverse player base. This diversity helps ensure that the app is user-friendly and effective across various demographics and geographical regions, addressing the needs and preferences of a global audience.

These players were given the User Stories depicted previously and asked to execute the tasks while we gathered their feedback and collected essential insights from a third-party perspective. This method of testing allowed for critical insights and feedback from the participants, enabling us to identify any usability issues, understand user behavior, and refine the app to better meet the needs and expectations of the "Rise of Kingdoms" player base.

During this testing phase, we used a script as outlined in Table 9 – Usability Tests Script. This script allows us to observe player behavior while navigating the app, assess their ability to complete tasks, identify areas of difficulty, and gather demographic data such as their location, age, and account duration. Additionally, it captures their feedback on the app, including any minor observations made during usage. This data is crucial for developing a more user-friendly app by eliminating features that do not align with user preferences. In the next chapter we delve into the more general results of the tests as for the all test they can be consulted in Attachment III - Usability Tests Scripts.

Table 7–Usability Tests Script

| Data | Player | Age | Country | Account Age | Complete the tasks? |
|--------------|--------|-----|---------|-------------|---------------------|
| Player Info | | | | | |
| Observations | | | | | |
| Feedback | | | | | |

3.3.2.2 Results

The user experience (UX) testing of Prototype 1.0, conducted with ten dedicated participants, provided valuable insights into the app's utility and areas needing improvement. This analysis highlighted the app's potential to enhance the 'Rise of Kingdoms' gameplay experience while also revealing specific challenges encountered by users. Key issues identified included navigation difficulties within specific sections, lack of visibility and clarity of buttons, inconsistencies in button design, and misleading task instructions, which prevented users from completing certain tasks.

Participants reported a range of experiences with the app's navigation, from smooth and unencumbered to challenges in accessing specific features. For instance, Players 2, 4, 5, 6, 8, 9, and 10 experienced difficulties locating functionalities, such as the equipment section and the calculator tab. The "Comms & Equips" tab proved elusive for Players 3 and 4, highlighting an area where, with more intuitive design, user experience could significantly improve.

Feedback on specific app features revealed a consensus on the value of the prototype's content, particularly for its comprehensive information on equipment and commanders, as highlighted by Players 6, 8, and 9.

The array of suggestions for app enhancements was extensive. Making the calculator button and equipment section more accessible, aligning buttons, and maintaining consistent font sizes and styles across the app were aspects appointed by the participants that significantly improve its consistency. Additionally, relocating important features to create a clearer and more intuitive path for users enhanced usability. Reviewing the tasks and instructions provided during testing helped avoid ambiguity, ensuring users can complete tasks without confusion.

The presentation of information, such as the clarity of event dates and the layout of the tools page, was critiqued by Players 3, 7, and 10, pointing to a need for clearer and more consistent information display. Design and aesthetics garnered mixed reviews. Some participants, including Player 7, expressed dissatisfaction with specific design choices—namely, background colors and frame designs—and advocated for a more cohesive visual presentation throughout the app. This feedback aligns with broader calls for enhanced functionality, including more explicit explanations of game mechanics like talent trees (Player 6) and more accessible feature navigation, particularly for the calculator function as noted by several participants.

The need for a consistent and intuitive layout was a recurring theme, with Player 7 specifically noting inconsistencies in font and button sizes, and others calling for improved accessibility and visibility of critical features such as event schedules and equipment details.

Despite these issues, the overall impression of the app was positive, with participants acknowledging its potential to provide valuable game-related insights without necessitating direct game access. The constructive feedback centered on navigational improvements, the enhancement of key features, and aesthetic refinements, all aimed at optimizing the app for a diverse user base.

In conclusion, UX testing for Prototype 1.0 has laid a solid foundation, revealing significant potential to enhance the RoKManager experience. By addressing the identified challenges—ranging from navigational enhancements to the enrichment of the app's content and visual appeal—the prototype is poised to become an invaluable resource for both newcomers and seasoned players.

3.3.3 High Fidelity Prototype 2.0

Based on the feedback from the usability testing of Prototype 1.0, significant enhancements have been implemented in Prototype 2.0 of the RoK Manager app. These changes included adjustments to the home page design, the removal and replacement of some overused features, and improvements to the display of each section (Figure 40). The commanders page now includes a search bar and redesigned menu buttons (Figure 41). In the tools section, features have been restructured and buttons reshaped for better usability (Figure 42). The players guide section has been resized and redesigned to enhance navigation and efficiency, as shown in Figure 43 for the new changes and Figure 44 for the Prototype 1.0 version.

Additionally, this second version of the prototype was created without persona-specific details to make the app more accommodating to all players and to avoid issues with wording and inconsistency. The changes made were designed to address the issues encountered in the initial testing of Prototype 1.0, aiming to create a more intuitive and user-friendly application.

Based on the feedback from the usability testing of Prototype 1.0, significant enhancements have been implemented in Prototype 2.0 of the RoK Manager app. These changes are designed to address challenges identified during initial testing, aiming to enhance user experience and functionality, and to ensure a more intuitive and user-friendly application. The improvements made to the app consist of:

Homepage Enhancements: (Figure 42)

Feedback indicated from Prototype 1 that the original login design and the layout of the "new player guide" were not intuitive, complicating access to essential features. In response, the login interface was streamlined, and the "new player guide" tab was redesigned for clearer navigation. Additionally, a gear visualizer was incorporated on the homepage within the "new player guide" tab, allowing players to easily track and manage their gear sets. This feature has been particularly appreciated by new players for its direct impact on gameplay efficiency.

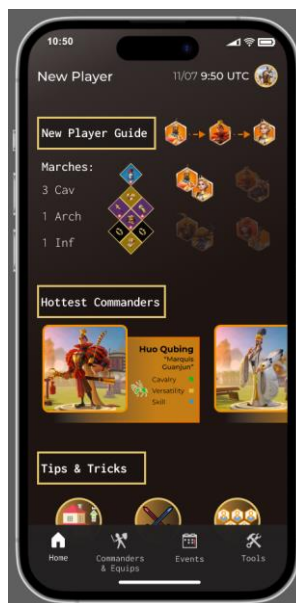


Figure 42-HomePage Proto 2.0

Commanders & Equipment Page Improvements: (Figure 43)

Participants experienced difficulties navigating the "Comms & Equip" tab, particularly noted by Players 3 and 4 who found it challenging to locate specific functionalities. To improve this, the icons for commanders and equipment were revised to enhance visibility and intuitiveness. A search bar was also added to the commanders' tab to facilitate faster access to specific commanders, addressing feedback from players who desired quicker access to game features.



Figure 43-Comms & Equips Proto 2.0

Tools Page Redesign: (Figure 44)

The tools page was restructured to highlight the Calculator feature, recognized as one of the key functionalities of the app. This redesign responds to feedback about the difficulty in locating the calculator function, which is crucial for effective planning and resource management within the game.



Figure 44-ToolsPage Proto 2.0

Player Guide Updates:

Adjustments were made to the player guide interface, including resizing buttons and fonts to improve readability and user interaction. The reorganization of content, especially regarding commander gear upgrades, was implemented to facilitate smoother transitions between different levels of equipment. These changes align with player feedback advocating for a more streamlined and accessible layout to enhance the user experience.



Figure 46-Player Guide Proto 2.0

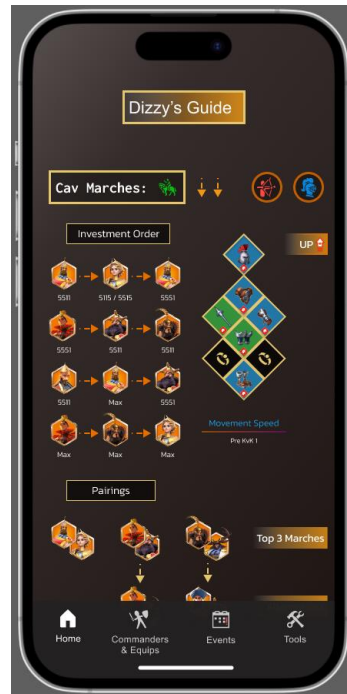


Figure 45-Player Guide Proto 1.0

Justification for Changes:

These targeted enhancements were informed by a comprehensive competitor analysis and the specific feedback received during the initial prototype testing. Our analysis of the competitors highlighted several areas where the Rok Manager app could innovate and better meet user expectations, particularly in terms of navigational ease and the accessibility of key features. By refining the app's design to align it closely with user preferences and behaviors—especially those emphasizing the need for intuitive navigation and easy access to essential functionalities—Prototype 2.0 is specifically tailored to improve user satisfaction and engagement, effectively outperforming existing solutions in the market. The link to the Prototype 2.0 can be accessed here <https://rb.gy/ww6sjf>.

3.3.3.1 High Fidelity 2.0 Usability Tests

During the evaluation process of the second prototype, several adjustments were made based on insights from the previous testing phase. These changes included reducing the number of user stories from six to four to keep participants more engaged and less likely to become confused. An example of a user story and its corresponding user flow can be seen in Figure 45, while all other user stories and their corresponding user flows can be found in Attachment IV - User Stories & User Flows Prototype 2.0. After completing the four tasks, participants were given a few minutes to explore the app freely, allowing them to identify any issues and suggest additional features. These tests were crucial for assessing the intuitiveness of user interactions with the new design interface, which aimed to address the issues discovered during the testing of Prototype 1.0. The next paragraphs delve into the user stories.

User Story1: You are an infantry player, I want you to open the application and search for the best gear for your Infantry combo.

User Story2: I want you to create a personalized guide for your Account.

User Story3: As a player, you want to test the damage output of one march.

User Story4: Calculate the how many speed ups you have in your account.

User Story 1:

You are an infantry player, I want you to open the application and search for the best gear for your Infantry combo

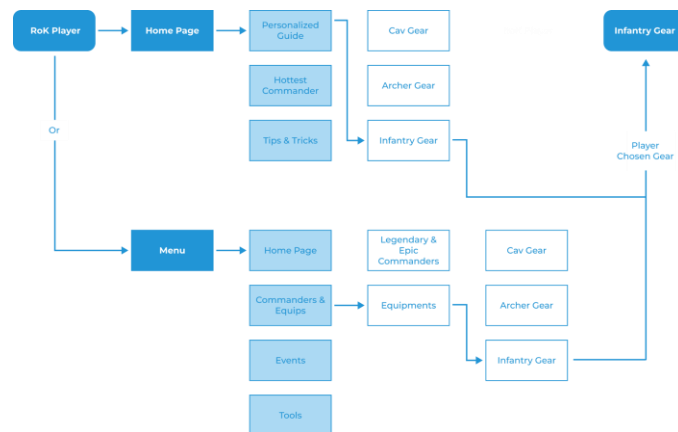


Figure 47-User Flow1 Test Proto 2.0

Eight players were selected to participate in these tests, with ages ranging from 18 to 40 years old and hailing from different countries around the globe. These participants were unfamiliar with previous iterations of the app, allowing them to provide unbiased opinions regarding the issues identified in earlier versions. An updated grid was created to collect data related to these tests, including user feedback and third-party observations, similar to the previous iteration of the grid.

Additionally, demographic data about the participants were included to distinguish them, along with a section recording the time taken by each player to complete all four tasks and a completion section to track whether they finished all tasks or missed any. The time spent exploring the app varied from player to player, as it wasn't fixed, allowing participants to navigate the app freely. Using this grid that can be seen in table 10 ensured that all collected information could be easily accessed and analyzed, significantly enhancing the quality of feedback and providing critical insights into user experience improvements. All results of the tests can be found in Attachment V - Usability Tests Scripts 2.0.

Table 8-Usability Tests Script 2.0

| Data | Player | Age | Country | Account Age | Complete the tasks? | Time to complete | Time to explore |
|--------------|--------|-----|---------|-------------|---------------------|------------------|-----------------|
| Player Info | | | | | | | |
| Observations | | | | | | | |
| Feedback | | | | | | | |

3.3.3.2 Results

The tests conducted on Prototype 2.0 provided valuable insights from participants regarding the RoK Manager's utility and areas needing refinement. These tests revealed several challenges encountered by users, including difficulties in navigating the app and locating certain sections, such as the "Equipments" section. Additionally, some menus were confusing and too small like in the events section, leading to a lack of clarity over the app's features and content. Critical information was also missing in some features, further impacting the user experience. The results of this data can be found in Attachment V - Usability Tests Scripts 2.0.

Several players experienced difficulties with the navigation of the app, particularly in locating specific sections. Player 1 found the wording of "Equips/Equipments" unintuitive and suggested ordering the commanders section to improve accessibility. Similarly, Player 2 struggled to find the equipment button but noted that the navigation became easier once they did. Player 3 also had trouble seeing the equips menu and suggested adding material costs to the gears craft part, along with improving the icons for the tools and crafting sections.

Other participants highlighted the need for clearer and more consistent interface design. Player 4 considered the equipment and commanders menu not visible enough. Player 5 suggested that while the app design is good, some parts, like the event page menu, were difficult to find. Player 6 mentioned difficulty in seeing the calculator menu in the tools section.

Feedback also pointed to the need for better task clarity and feature placement. Player 7 recommended highlighting the new player guide better and adding a back button on the new account login page. They also suggested the inclusion of an "about me" page to show developer information and app version and adding an event tracker in the event page menu. Player 8 echoed the need for clearer separation between the commander and equipment sections and suggested ordering the commanders for better usability.

Participants also provided constructive feedback on the app's overall design and functionality. Player 1 proposed adding a section where players can save their march gear sets for easier tracking of their stats. Player 2 and Player 5 emphasized the app's potential to save new players time by providing comprehensive in-game information.

In response to the feedback gathered from the usability tests of Prototype 2.0, several critical adjustments were implemented to construct the final version of the RoK Manager app. These changes were aimed at enhancing navigation, improving feature visibility, and refining the overall user experience, ensuring the app meets the needs of "Rise of Kingdoms" players more effectively.

For the final version, we focused on addressing key aspects to enhance the player experience and improve navigation, making it clearer and more intuitive. We refined several design elements, including making the "Commanders & Equips" menu more visible to ensure easy access and management of equipment. Commanders on the Commanders Page were organized more logically, improving ease of selection and use.

The calculator icon in the tools section was switched to a different design with the intend of enhancing its visibility and accessibility. We added pertinent information to the equipment section, updating the feature to align with player preferences. The Events Page menu was adjusted for better visibility, simplifying navigation through upcoming events. Additionally, a new feature was incorporated, allowing experienced players to track their stats, providing more reasons for them to use the app daily.

These adjustments were crucial in refining the app to ensure it delivers a seamless and enjoyable user experience, effectively meeting the diverse needs of "Rise of Kingdoms" players.

Chapter 4 Final Product:

4.1 Design Proposal "RoK Manager App"

The "RoK Manager App" interface was developed using Figma, a software tool that facilitates the design and development of web and mobile applications while optimizing the user experience. This platform offers the advantage of allowing developers to share prototype views of the app with others, simplifying the testing process and supporting further development. As detailed in Chapter 3, the prototypes were also created using Figma.

The core concept behind the design and development of the app is to provide a centralized and intuitive platform that helps "Rise of Kingdoms" players optimize their gaming experience. By integrating essential tools and features, such as equipment management, resource calculators, commander upgrade guides, and event information, the app aims to meet the needs of players by offering easy and efficient navigation. The development of the app was guided by a user-centered approach, based on competitor analysis and player feedback, ensuring that each feature is relevant and easily accessible, thus promoting a more engaging and satisfying gaming experience.

The entire project can be accessed at <https://rb.gy/9cbpay>, and all app screens are available in Attachment VI - Final Product. This final version comprises an app with 124 screens, incorporating the feedback received during the testing of Prototype 2.0, as discussed in the previous chapter. The modifications made were essential for enhancing the app's fluidity and integrating new features into this final version.

Interface Design:

In designing this interface, the primary background color features a dark shade, specifically a slight gradient of dark brown. This gradient starts with a barely visible brown at 75% opacity in the top left corner over a white (255,255,255) background at 100% transparency, creating a transition effect from white to dark brown (RGB 30, 21, 19) towards the center of the background. This color choice provides effective contrast with the vibrant orange (RGB 244, 144, 0) and golden (RGB 230, 199, 112) hues used to highlight critical buttons throughout the app. These colors were selected to reflect the visual style of a fully upgraded commander in the game, as illustrated in Figure 48.



Figure 48-Commander Upgraded

Within the app, the background transitions from a subtle gradient on the login pages (Figure 49) to a broader diagonal gradient that introduces a lighter tone at the top left corner, while maintaining the subdued brown hue (Figure 50). This approach fosters a dynamic and visually engaging backdrop that does not overpower the user's visual experience (Sandesara et al., 2022).

The type font chosen for this project is "Montserrat," known for its readability and contribution to a clean, modern aesthetic. In an app rich with information, it is crucial to facilitate quick and effortless reading for the user. By adopting a minimalist and modern design approach, the app aims to streamline user interaction, making it intuitive and efficient without overwhelming cognitive load, as further discussed in the subsequent figures.

Login Page:

Upon launching the app, users are presented with the login page where they have the option to either create a new account or log in with an existing one, as shown in Figure 47. Existing users can enter their username or email and password (Figure 48). For those who do not have an account, they can create one by entering their username, password, and in-game ID. The in-game ID allows the app to determine the player's experience level, distinguishing between newer and more experienced players. Additionally, users have the option to select a profile picture for their avatar, choosing from various in-game commanders and assets (Figure 49). There is also an option to navigate back if the user inadvertently selects the existing account button.

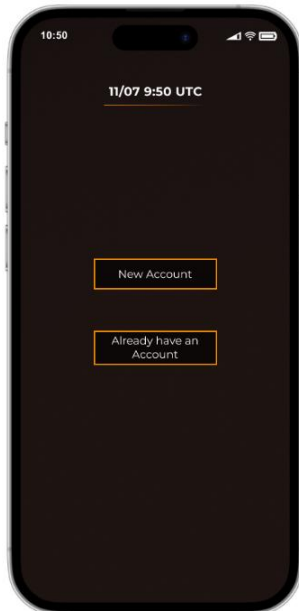


Figure 50-Login Page 1

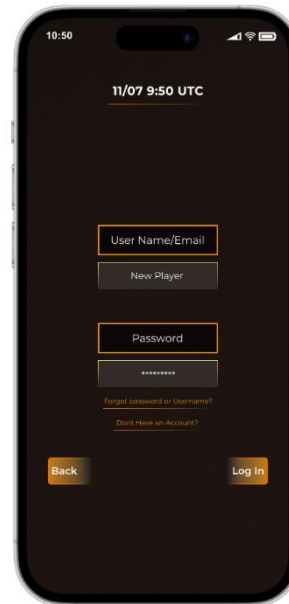


Figure 49-Login Page 2

The subsequent "Back" and "Login" buttons are designed to be eye-catching, featuring a vibrant orange color for the button background fill and a bold font style to draw user attention and encourage interaction (Figures 49 & 50). Unlike typical buttons that often have rounded corners to stand out from text fields, these buttons uniquely feature one rounded side with the other side fading out. Specifically, the "LogIn" button has rounded corners on the right and a faded effect on the left, creating a dynamic illusion of movement towards the right, that according to Simic (2022) symbolizes forward progress.

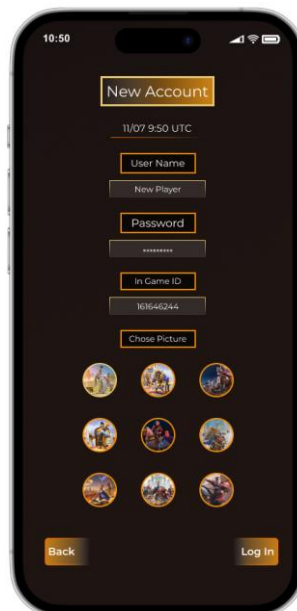


Figure 51-Login Page 3

Home Page:

While on the Home page (Figure 53), users can access the "Player Guide," "My Marches," "Hottest Commanders," and the "Tips and Tricks" features. At the top of the page, two primary features are available: the "Player Guide" and the "My Marches" features. Both provide insights on building and crafting commanders. The "Player Guide" offers a comprehensive overview of strategies for all troop types, tailored to the number of marches the user plans to develop as can be seen on Figure 52).



Figure 53-HomePage

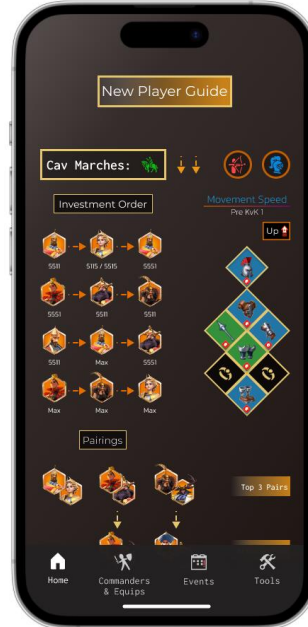


Figure 52-PlayerGuide

The "My Marches" functionality allows users to upload their current marches into the app, making them visible on the Home page. This feature adjusts to their current gear stage, helping players keep track of their game state without logging into the game (Figure 54). The "Hottest Commanders" feature on the Home page displays a carousel of the most popular or newly released commanders, enabling users to quickly scroll through options, thereby optimizing layout space and providing updates on new commanders in the game.



Figure 54-My Marches

The Home page also grants access to the "Tips and Tricks" section, refined through earlier prototypes to include the most useful content: growth strategies, a fighting simulator, and a community tips section.

Growth Strategies: (Figure 55 & 56)

The Growth Strategies section offers players detailed advice on how to develop their kingdoms efficiently. This includes resource management, optimal building sequences, and strategic planning for troop training and upgrades. The content is handpicked to help both new and experienced players maximize their progression.

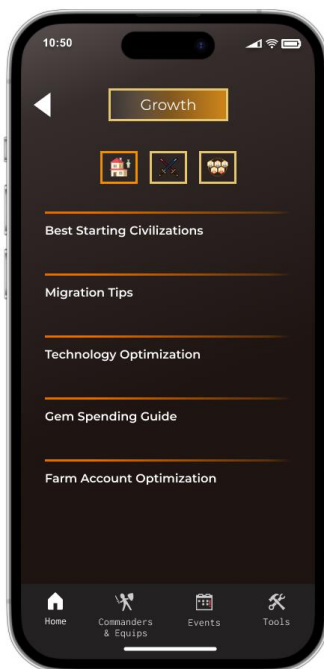


Figure 55-Grow1

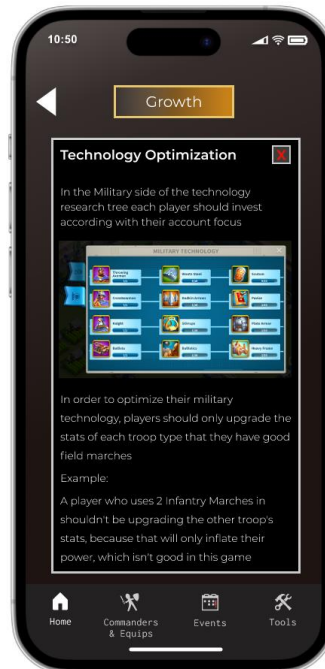


Figure 56-Grow2

Fighting Simulator: (Figure 57)

The Fighting Simulator is an interactive tool that allows players to simulate battles and test various troop formations and commander pairings. This feature helps players understand the mechanics of combat, enabling them to experiment with different strategies without risking actual in-game resources.



Figure 57-Fight1

Community Tips: (Figure 58)

The Community Tips section aggregates valuable insights and advice from the broader "Rise of Kingdoms" player community. This includes tips shared by top players, strategic insights, and practical advice for various aspects of the game such as guides on how to invest in every troop type. The section is continually updated with new content, ensuring that players have access to the latest strategies and community-driven knowledge. This feature fosters a sense of community and collaboration, allowing players to benefit from the experience of their peers.

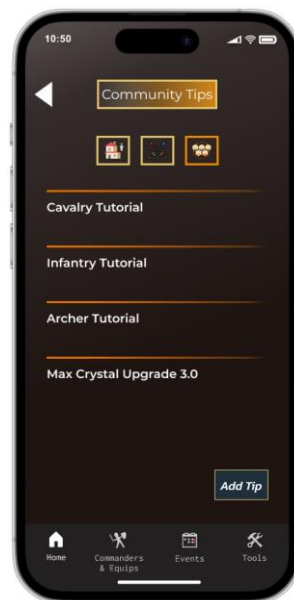


Figure 58-Community1

Commanders & Equipment Page:

Throughout previous iterations of the app, a recurring issue was identified on the “Commanders & Equipments” page. Players frequently struggled with the menu button, finding it unclear and difficult to distinguish between the Commanders and Equipments sections. To address this issue, the final version introduces an intermediary page that automatically loads upon entering this section of the app. This page prompts players to choose between “Commanders” or “Equipments,” thereby clarifying the navigation process. This adjustment directly responds to user feedback from earlier versions, which indicated significant navigation challenges. Once a selection is made, the chosen option is highlighted for better visibility, as illustrated in Figure 59.



Figure 59-Comms&Equips

In the Commanders section, users can browse through all commanders available in the game, categorized into tiers: Legendary, which corresponds to the strongest commanders, and Epic, the second tier of powerful commanders. Legendary commanders are depicted with an orange and golden aura, while Epic commanders are characterized by a purple color as can be seen in Figure 60. Users can access an extended page of the chosen commander tier, which offers advanced search options to sort commanders by troop type or release date, enhancing the specificity of their searches. By selecting a commander, users are taken to a detailed page that provides comprehensive information about the commander's abilities, pairings, and the best in-game trees for each commander see Figure 61.



Figure 60-Comms1



Figure 61-Comms2

In the Equipment section, players can explore the most optimized gear for each troop type, including iconic upgrades. This feature provides a detailed overview of equipment to enhance troop performance, aiding strategic advantage in the game. Users can also create and customize their own equipment setups, allowing for a personalized gameplay experience. This customization lets players experiment with different combinations and save their setups for quick access. Detailed information on each piece of equipment helps players make informed decisions, enhancing both short-term strategy and long-term planning (Figure 62).



Figure 62-Equips

Events Page:

Similar to the Commanders & Equipment page, the Events page was noted for having a menu display issue. During the two rounds of testing, participants frequently missed the "KvK Timeline" feature due to the menu's lack of visibility, this feature allows players to keep track of their seasonal battles and events, which change each season depending on the different modes chosen by their kingdom. To address this, the final version introduces a redesigned layout to enhance menu visibility and provide a clear navigation path. This new layout, inspired by the Mercedes Class A vehicle interface see Figure 63, offers a simple yet effective way for users to navigate through features, ensuring an intuitive and user-friendly experience.



Figure 63-Mercedes Digital Music Interface

The Events page allows players to access the in-game calendar and view their Kingdom vs. Kingdom (KvK) battle seasons directly from the app, eliminating the need to log into the game. This functionality provides players with a timeline of upcoming battles, enabling advanced planning and the option to receive mobile notifications as reminders for upcoming events. Figure 64 shows the old version of the page, which featured a drop-down menu that started closed and required users to open it to access features. In contrast, Figure 65 illustrates the new version with an upgraded menu that is already visible and open to the user, allowing for immediate selection without the need to open a closed window. This change intended to significantly improve the overall utilization of the secondary feature.



Figure 64-EventsOldVersion



Figure 65-EventsNewVersion

Tools Page:

Lastly, the Tools page presents users with key features identified in the investigative analysis conducted in Chapter 2. Players have access to the T5 Unlocking Guide, the calculator, and the resource management inventory. Initially, the calculator icon was small and not prominently featured, leading to its underuse during the testing of Prototype 1.0 (Figure 68). To address this issue, Prototype 2.0 implemented a redesign of the page layout, prominently placing the calculator feature at the center of the page to enhance its visibility and accessibility. This layout has been retained in the final version of RoK Manager to ensure a more intuitive user experience as illustrated in Figure 67.



Figure 66-Tools Old



Figure 67-Tools New

T5 Unlocking Guide: (Figure 68)

The T5 Unlocking Guide is an invaluable resource for players aiming to reach the highest tier of units in "Rise of Kingdoms." This section provides a step-by-step guide on efficiently progressing towards unlocking Tier 5 units, which are the strongest units in the game. It outlines the necessary requirements and resource management techniques for the unlocking process.



Figure 68-T5 Guide

Calculator: (Figure 69)

The Calculator is a central feature on the Tools page, prominently placed to ensure easy access and usability. This tool allows players to calculate various in-game metrics, such as speedup times, resource needs, and troop training requirements. The importance of the Calculator lies in its ability to provide precise calculations that help players plan their actions more effectively.



Figure 69-
CalculatorTroopTraining

Resource Management:

Resource Management helps players keep track of their in-game resources, including food, wood, stone, and gold from the inventory bag, which are not directly calculated in the game. This section allows players to log in and monitor their resources, providing a clear overview of their inventory. Effective resource management is crucial in "Rise of Kingdoms," as it directly impacts a player's ability to build, upgrade, and sustain their armies. This feature of the app evolved with each version. In the initial versions, players had to manually input their data, while the final version allows tracking through game screenshots. Each resource type is associated with a color that matches the predominant hue in their respective icons, as illustrated in Figure 70.

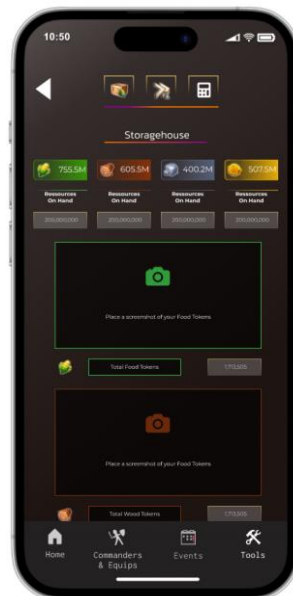


Figure 70-ResourceManager

4.2 Project Contributions

The “RoK Manager” project is designed to meet the needs of both new and experienced players by offering a platform that consolidates all critical game information in a simple and intuitive manner. This allows players to develop their in-game knowledge and skills effectively. By addressing the specific needs and desires of the "Rise of Kingdoms" community, the app enhances the overall gaming experience, making complex information accessible and easy to understand.

Additionally, the project serves as a valuable resource for fellow UI/UX designers interested in developing similar projects. It showcases the importance of user feedback and insights in building and refining applications, demonstrating how continuous improvement based on user experience can lead to successful outcomes. Through its thoughtful design and comprehensive features, “RoK Manager” not only benefits the gaming community but also contributes to the broader field of UI/UX design.

4.3 Project Limitations

This project encountered several challenges, particularly during the interview and testing phases. While an online survey may seem appealing to video game users for its convenience and lack of commitment, obtaining complete responses proved time-consuming. Similarly, conducting usability tests online presented difficulties, particularly when participants accessed the survey on mobile devices from various global locations. These challenges were partially mitigated by adapting our approach, such as recommending participants switch from mobile to desktop browsers to avoid device memory limitations.

4.4 Future Prospects

This app requires significant time and advanced programming skills. A dedicated team will be essential to manage ongoing server updates and game changes, such as the introduction of new commanders, pairings, and equipment. However, these challenges are achievable with strategic planning and resource allocation, ensuring the project's long-term success.

Originally designed for mobile devices, "Rise of Kingdoms" has expanded to include an official PC version, which has gradually shifted the game's primary platform. This

transition underscores the importance of a responsible design for the "RokManager" app to be accessible on both PC and mobile devices, ensuring players can easily access game-related information without spending excessive time in-game.

The architecture of this app is structured to ensure it can be fully developed, programmed, and operational in the future, thereby assisting players worldwide. The goal of utilizing this application is that new and older players can save significant time, accessing essential game information swiftly and effortlessly.

Final Thoughts

In today's digital age, mobile apps and information are plentiful, even within niche categories like video games. This abundance presents both challenges and opportunities for app designers, who must continuously innovate to stand out in a crowded market. The "RokManager" project emerged from the idea of creating an app that consolidates useful information and tools to support the "Rise of Kingdoms" gaming community. Despite being a niche, this market generates significant revenue, with earnings exceeding 20 million euros per month (Knezovic, 2023).

Throughout this project, the development team prioritized user feedback at every stage. Players tested the app, provided feedback, and contributed to its continuous improvement, enhancing its value and relevance. The objective was to create a design that is both simple and effective, and we believe this goal has been successfully achieved. Feedback from usability tests suggests that "RokManager" distinguishes itself from competitors through its comprehensive features and user-centered design. As a result, the app not only meets its initial goals but also positions itself as a strong new contender in the market.

In conclusion, the "RokManager" app effectively meets its design objectives, offering a streamlined and user-friendly interface that enhances the gaming experience for both new and seasoned players. This project lays a solid foundation for establishing a competitive presence in the app market.

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Attachments

Attachment I - Quantitative study, Rise of Kingdoms Support Survey

➤ **Players Data Section:**

- 1- Age
 - Demographic question: range of < 21 ; 21-30 ; 30-40 ; 40+
- 2- Gender
 - Demographic questions: Male ; Female ; Other
- 3- Where are you from?
 - Open-ended question
- 4- Do you play Rise of Kingdoms?
 - Closed-ended question: Yes ; No

➤ **RoK Players Data:**

- 5- How much time do you usually spend on the game during the day?
 - Demographic question: < 1 hour ; 1-3 hours ; 3+ hours
- 6- How long have you been playing RoK?
 - Demographic question: < 3 months ; 3 months - 1 Year ; 1-2 Years ; 2-3 Years ; 3+ Years
- 7- What is your account focus?
 - Closed-ended question: Infantry ; Cavalry ; Archers ; Siege
- 8- What is your spending level in the game?
 - Closed-ended question: F2P ; Low Spender ; Mid Spender ; Whale ; Extra Whale ; Prefer not to say
- 9- Did you ever search for RoK support content?
 - Closed-ended question: Yes ; No

➤ **RoK Players that searched for RoK Content:**

- 10- With which frequency do you search for content?
 - Ranking question: From “One Time” to “Always when I need” ; 1 to 5
- 11- What type of content have you searched?
 - Closed-ended question: New & upcoming events ; Tips on how to optimize your account ; News about other KvK's ; Others
- 12- Where did you search?
 - Closed-ended question: Search Engines ; Youtube ; Mobile Support App's ; Social Networking Sites ; Others
- 13- Have you ever used one of the following Apps?
 - Closed-ended question: Rok - The Companion ; ROKHelper ; RokCompanion (ROKC) ; None - I never used any RoK App ; Others
- 14- Which frequency do you use this RoK Support App's?
 - Ranking question: From “Never” to “All the time” ; 1 to 5
- 15- What were the best aspects about the usage of this app?
 - Open-ended question
- 16- How much did the utilization of this type of support app help your RoK experience?
 - Ranking question: From “No - it didn't Helped” to “Yes - Helped a lot” ; 1 to 5

➤ **Game Enjoyment:**

- 17- What do you like in RoK?
 - Closed-ended question: Fighting Mechanics ; The Community ; Historic Aspect ; Others
- 18- What are your main problems while playing the game?
 - Open-ended question
- 19- In your opinion, what aspects can improve your game enjoyment?
 - Open-ended question

➤ **Support App:**

- 19- Which of the following services would you like to see in a support app about Rise of Kingdoms?
 - Closed-ended question:
 - Tips on how to avoid common mistakes ;
 - T5 Unlocking Guide ;
 - Setup Marches Guide ;
 - Gear Optimization Guide ;
 - Commanders Guide ;
 - SpeedUps Calculator ;
 - Resources Calculator ;
 - Event Schedule ;
 - How to play Events Guide ;
 - Ark of Osiris Strategies (Competitive RoK) ;
 - Updated Game News ;
 - Others
- 20- In your opinion, is there any service that has not been mentioned above that you consider essential in a RoK Support App? If so, please indicate which service.
 - Open-ended question
- 21- RoK is a game you would recommend to your friends?
 - Closed-ended question: Yes ; No

Table 10- Gender of the Participants

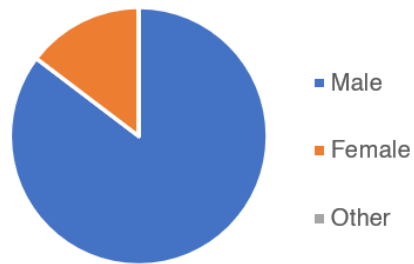


Table 11- Troop Type

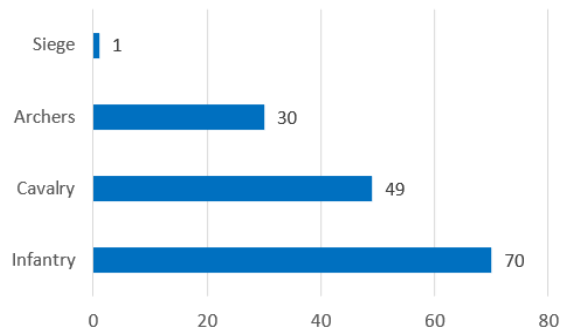
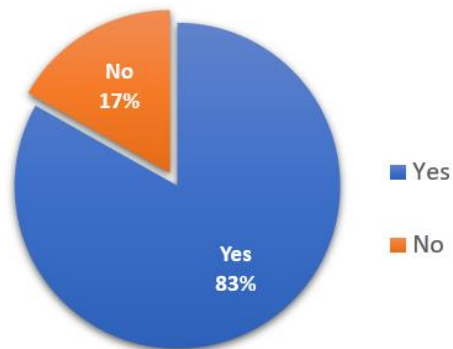


Table 9-Did you ever search for RoK support content?



Attachment II - User Stories & User Flows Prototype 1.0

User Story 2: As a player, you must see what will be the next MGE so that you can be ready for it

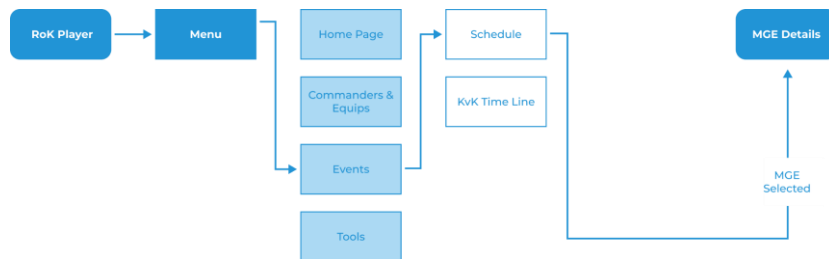


Figure 71- User Flow 2 Prototype 1.0

User Story 3: As a player, you need to calculate how much power you will gain so that you can achieve a better position on MGE

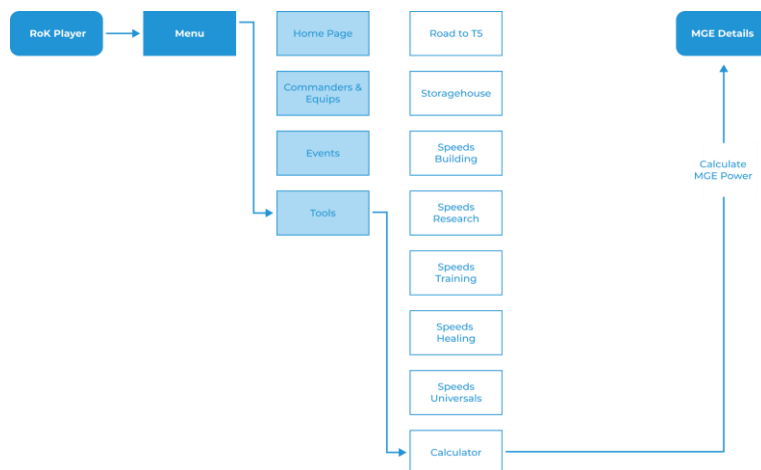


Figure 72- User Flow 3 Prototype 1.0

User Story 4: As a player, you want to see how many speedups you have so that you can train troops

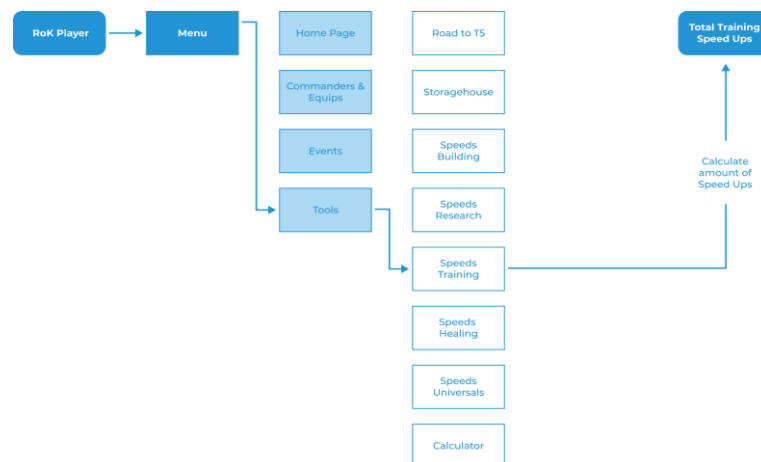


Figure 73- User Flow 4 Prototype 1.0

User Story 5: As a player, you want to search for a new commander, so you learn about their new abilities

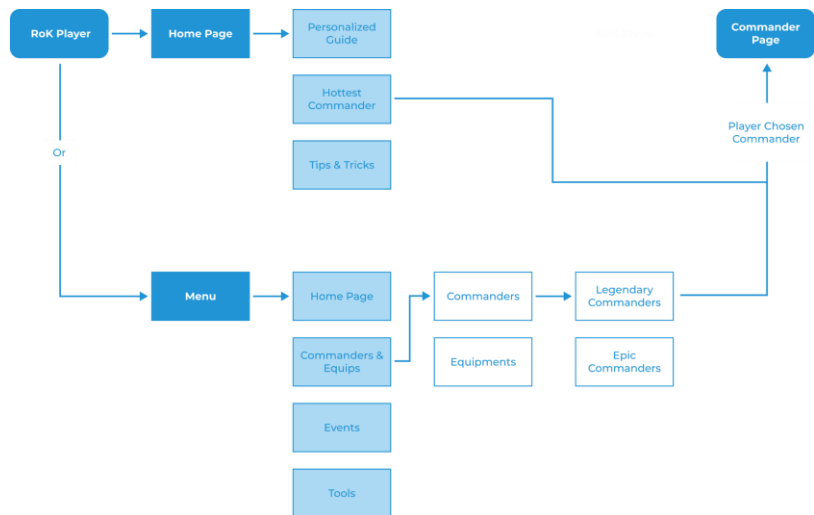


Figure 74- User Flow 5 Prototype 1.0

User Story 6: As a player, you want to see what is the best accessory for your marches so that you can craft the right accessory

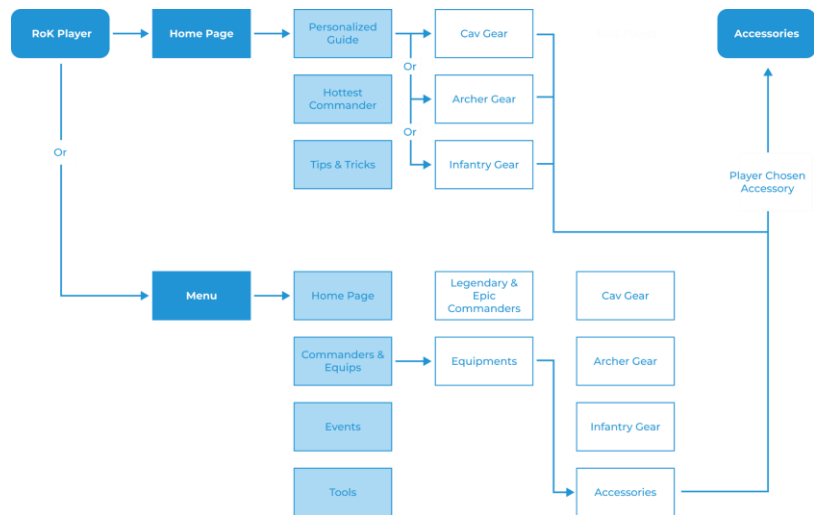


Figure 75- User Flow 6 Prototype 1.0

Attachment III - Usability Tests Scripts

Table 12-Usability Tests Script

| Data | Player | Age | Country | Account Age | Complete the tasks? |
|--------------|--|----------|-------------|-------------|---------------------|
| Player Info | Player 1 | 17 years | Netherlands | 52 Days | Yes |
| Observations | No difficulties while navigating in the app Did the tasks smoothly | | | | |
| Feedback | The journey as simple, very achievable it showed me many things i didn't know about the game i will definitely use it to improve my time in game | | | | |

Table 13-Usability Tests Script

| Data | Player | Age | Country | Account Age | Complete the tasks? |
|--------------|--|----------|-----------|-------------|---------------------|
| Player Info | Player 2 | 22 years | Indonesia | 837 Days | With Difficulty |
| Observations | Difficulties opening the prototype via mobile, slow response while opening pages helped creating frustration on the user | | | | |
| Feedback | The prototype was confused very slow hard to open tabs or get a grasp where to go and what to do | | | | |

Table 14-Usability Tests Script

| Data | Player | Age | Country | Account Age | Complete the tasks? |
|--------------|---|----------|---------|-------------|---------------------|
| Player Info | Player 3 | 25 years | Italy | 1132 Days | Yes |
| Observations | <p>Searched for the archer gear inside a archer commander and couldn't find</p> <p>Showing “day 1 day 2” instead of “aug1st” it confounded him</p> <p>Didn't understood the commander button and the equipment button in the Comm & Equips Tab</p> <p>Couldn't find the calculate button took a while for it</p> | | | | |
| Feedback | <p>It's a very complete app that gives a lot of information without the need of logging in to the game to check it. Personally I use RiseOfKingdoms Companion to calculate speed ups and training but here it's better, it could have a picture bot instead of having to manually place the number of speeds and resources. Would be interesting the addition of a News Section which keeps the player up to date with the in game updates & new features it provides, in general is a 8 out of 10 i would definitely use often. Some small issues like the addition of a commander search button in the comms & equips in order to track a commander faster I couldn't find the equips button it was confusing a redesign would make it better. The personalized guide could show an info button that explains the why and when we should invest and in the commanders and gears the upgrade equipment button doesnt look much clickable. The KvK TimeLine feature is very very good the app is very complete so it takes a few minutes to assimilate all information but it has a easy path way</p> | | | | |

Table 15-Usability Tests Script

| Data | Player | Age | Country | Account Age | Complete the tasks? |
|--------------|--|----------|----------|-------------|---------------------|
| Player Info | Player 4 | 27 years | Portugal | 1607 Days | Yes |
| Observations | Took a long time to find the equipment section Couldn't find the comms & equip buttons with ease The calculator button was hard to find | | | | |
| Feedback | Doesn't make sense having the road to t5 button in the homepage makes it redundant by the tools button that is better. Players could be able to see in the homepage the best gears for each marches of their personal guide. Turn the fighting tips section into a battle report maker | | | | |

Table 16-Usability Tests Script

| Data | Player | Age | Country | Account Age | Complete the tasks? |
|--------------|---|----------|-------------|-------------|---------------------|
| Player Info | Player 5 | 16 years | Netherlands | 53 Days | Yes |
| Observations | <p>While searching for the best archer gear, the player went straight to commanders and archer commanders</p> <p>The hottest commander section was confused for the player, this made him frustrated and the inability of not being able to find the accessories page</p> | | | | |
| Feedback | <p>I got very frustrated things were not as explicit and clear I couldn't finish the tasks</p> | | | | |

Table 17-Usability Tests Script

| Data | Player | Age | Country | Account Age | Complete the tasks? |
|--------------|--|----------|---------|-------------|---------------------|
| Player Info | Player 6 | 31 years | USA | 424 Days | Yes |
| Observations | The navigation and exploring of the app went smoothly, while doing the tasks of the user experiences had some difficulties finding the calculator tab | | | | |
| Feedback | <p>The app could show why we pick a talent tree instead of other and their specific goals, we could see the equipment via commanders would be cool</p> <p>The KvK Timeline and schedule sections are amazing, it will help me so much. It's so much easier to have it on the phone rather than in some spreadsheet. The overall app is going to help a lot of people from new to older players</p> | | | | |

Table 18-Usability Tests Script

| Data | Player | Age | Country | Account Age | Complete the tasks? |
|--------------|---|----------|-------------|-------------|---------------------|
| Player Info | Player 7 | 45 years | Switzerland | 1006 Days | Yes |
| Observations | Finish all tasks smoothly | | | | |
| Feedback | <p>Login Page: should keep the same font and size along the buttons</p> <p>Guide Page: I personally don't like the orange background with the yellow frame, it doesn't look as smooth. The buttons should be all aligned and the font must be consistent and the same for the titles. About the upgrade and downgrade buttons it is hard to find them, would be good to have a subtitle or a change in their positions maybe alongside the equips descriptions that should be bigger also.</p> <p>Tools Page: the titles are confusing by having the “eco, buil, mil” the way they are make it harder to understand the page itself</p> <p>Commander Page: Should have some information about each talent tree why which one is the certain one to pick, the top 3 marches are different and look out of place in a sense</p> | | | | |

Table 19-Usability Tests Script

| Data | Player | Age | Country | Account Age | Complete the tasks? |
|--------------|--|----------|---------|-------------|---------------------|
| Player Info | Player 8 | 16 years | Brasil | 406 Days | Yes |
| Observations | <p>The player was able to navigate quickly even though it showed some difficulties while on the events page couldn't track the months display easier</p> <p>While on the tools page, he couldn't find the calculator button clearly when inside, it was apparent that the speed's menu was too small and hard to read.</p> | | | | |
| Feedback | <p>The app helps a lot with the equips for the younger players and older players that are not as inside the meta gears, I can search the new commanders without logging in game which is awesome, the events tab is a great idea as for the calculation of the speeds</p> | | | | |

Table 20-Usability Tests Script

| Data | Player | Age | Country | Account Age | Complete the tasks? |
|--------------|--|----------|----------|-------------|---------------------|
| Player Info | Player 9 | 27 years | Portugal | 1700 Days | Yes |
| Observations | Had a good experience while navigating inside the app, experienced difficulties finding the calculate button and mistaken the “Road to T5” with the calculator section | | | | |
| Feedback | I’m a mobile phone player rather than a pc player, so having an app on my phone that provides so much useful information in the palm of my hand is awesome, it will help a lot of young and new players. I would love to see a guide on how to create a farm account and an option to select notifications on the events | | | | |

Table 21-Usability Tests Script

| Data | Player | Age | Country | Account Age | Complete the tasks? |
|--------------|---|----------|---------|-------------|---------------------|
| Player Info | Player 10 | 27 years | Spain | 850 Days | Yes |
| Observations | This player experienced problems finding the equipment section, while in the events' category couldn't see them properly, the display wasn't much friendlier to him. Already frustrated, couldn't find the calculator button that was too far down | | | | |
| Feedback | There is too much information on the tools page which confused me and made me lose focus on the important things. The rest of the app looks more clean and well better organized, which allowed me to find things easier once I got the hang of things. Without logging in game I can find so much information which is perfect | | | | |

Attachment IV- User Stories & User Flows Prototype 2.0

User Story 2:

I want you to create a personalized guide for your Account

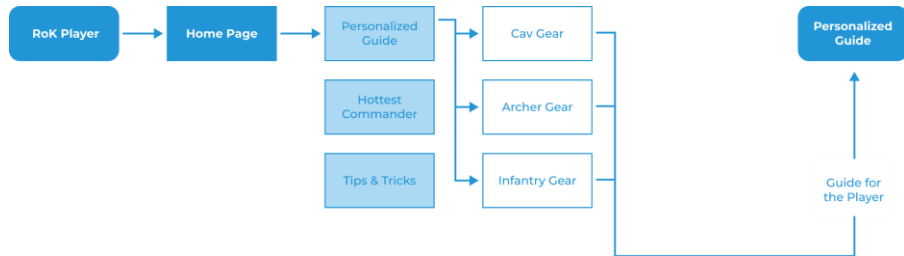


Figure 76- User Flow 2 Prototype 2.0

User Story 3:

As a player, you want to test the damage output of one march

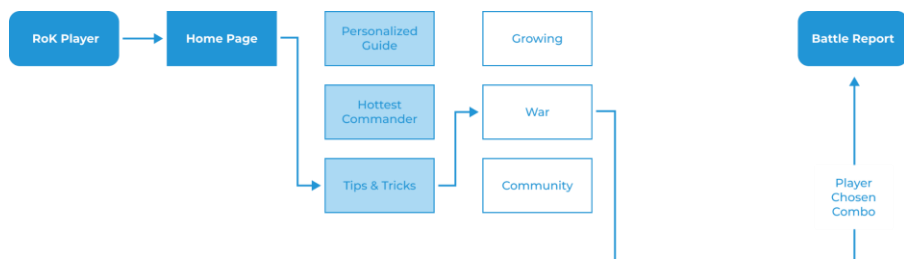


Figure 77- User Flow 3 Prototype 2.0

User Story 4:

Calculate the how many speed ups you have in your account

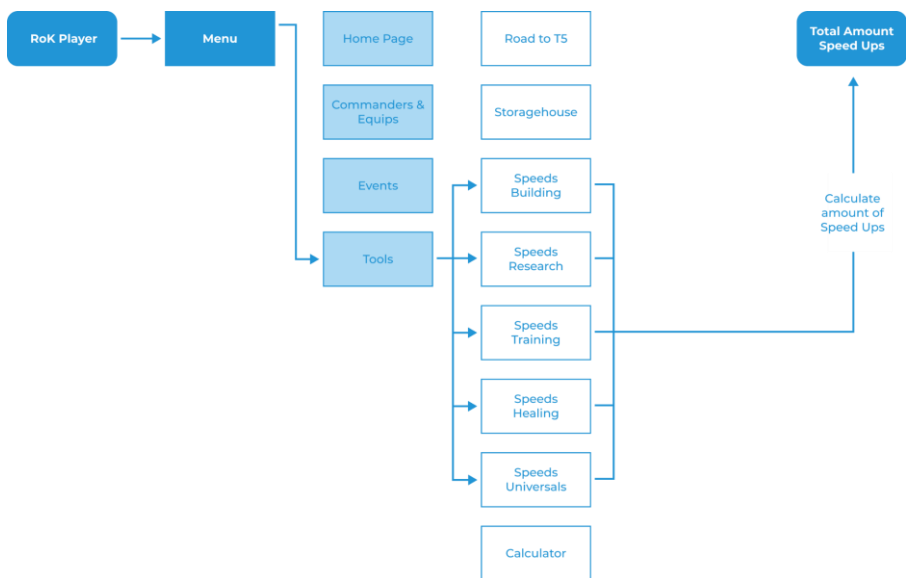


Figure 78- User Flow 4 Prototype 2.0

Attachment V- Usability Tests Scripts 2.0

Table 22-Usability Tests Script 2.0

| Data | Player | Age | Country | Account Age | Complete the tasks? | Time to complete | Time to explore |
|--------------|---|----------|---------|-------------|---------------------|------------------|-----------------|
| Player Info | Player 1 | 18 years | Germany | 980 Days | Yes | 5min | 4min |
| Observations | The participant noted that the terminology used for "Equips/Equipments" was not immediately clear or intuitive. They completed all designated tasks within 5 minutes and utilized an additional 4 minutes to freely explore the app's features. | | | | | | |
| Feedback | The app was lauded for its accessibility and comprehensive provision of information, particularly beneficial for newcomers, surpassing the utility of the previously utilized "RoK companion" app. However, the participant recommended enhancements for experienced players, suggesting the incorporation of a feature to save and manage gear sets for marches. This addition would simplify the monitoring of statistics and streamline the organization of commander sections. Furthermore, the ease of viewing inventory within the game bag was positively highlighted, indicating an effective simplification of user interface that significantly aids gameplay navigation. | | | | | | |

Table 23-Usability Tests Script 2.0

| Data | Player | Age | Country | Account Age | Complete the tasks? | Time to complete | Time to explore |
|--------------|--|----------|---------|-------------|---------------------|------------------|-----------------|
| Player Info | Player 2 | 23 years | Tunisia | 872 Days | Yes | 3min | 4min |
| Observations | <p>The user reported a smooth overall experience navigating through the app's journey, albeit with initial difficulties in locating the equipment button. This issue, once resolved, did not impede further navigation. A notable difficulty was the visibility of the speeds menu, which the user found too small to interact with comfortably. The tasks were completed in 3 minutes, followed by an additional 4 minutes spent exploring the app's various features.</p> | | | | | | |
| Feedback | <p>The participant expressed high satisfaction with the content and navigational simplicity of the app, emphasizing its potential to significantly aid new players. The quality and accessibility of the information provided were seen as particularly beneficial, potentially saving newcomers considerable time in learning and optimizing gameplay. The participant reflected on their own experience, noting that access to such a resource in their initial year of playing "Rise of Kingdoms" could have greatly expedited their learning curve and gameplay optimization, as opposed to relying solely on video tutorials for growth strategies.</p> | | | | | | |

Table 24-Usability Tests Script 2.0

| Data | Player | Age | Country | Account Age | Complete the tasks? | Time to complete | Time to explore |
|--------------|--|----------|------------|-------------|---------------------|------------------|-----------------|
| Player Info | Player 3 | 22 years | Azerbaijan | 800 Days | Yes | 6min | 3min |
| Observations | The participant identified a visibility issue with the equipment menu, despite noting the app's overall quick navigation capabilities. The completion of all designated tasks was achieved within 3 minutes, followed by an extensive 6-minute exploration period within the app. | | | | | | |
| Feedback | The user expressed difficulty in clearly viewing the commander and equipment menu, suggesting the implementation of an intermediary page to precede the display of commanders for enhanced clarity. Additionally, the participant recommended the inclusion of material costs in the gear crafting section to aid users in resource management. A further point of feedback was the tools page icon and the crafting icon, which the user found challenging to interpret. The suggestion here implies a need for more intuitive iconography to improve user understanding and interaction with these app features. | | | | | | |

Table 25-Usability Tests Script 2.0

| Data | Player | Age | Country | Account Age | Complete the tasks? | Time to complete | Time to explore |
|--------------|--|----------|---------|-------------|---------------------|------------------|-----------------|
| Player Info | Player 4 | 40 years | Croatia | 1400 Days | Yes | 4min | 4min |
| Observations | <p>Player 4 encountered functional difficulties when attempting to access the app's menu over mobile internet, with certain buttons being unresponsive. This issue necessitated the installation of the Figma app on their mobile device for adequate app functionality. The completion of all designated tasks was achieved in 4 minutes, followed by an additional 4 minutes allocated for app exploration. Furthermore, the participant noted challenges in locating the Equipments tab, attributing this to its insufficient visibility within the app's interface, particularly in relation to the commanders menu.</p> | | | | | | |
| Feedback | <p>The participant praised the app for its potential utility to newcomers in "Rise of Kingdoms," especially those experiencing the Season of Conquest (SoC) for the first time, emphasizing its comprehensive guidance on optimization strategies. They expressed a commitment to recommending the app to new players upon its official release. Additionally, the design of the app was commended for its aesthetic appeal, particularly the harmonious integration of images with textual content, which was described as enhancing the user experience.</p> | | | | | | |

Table 26-Usability Tests Script 2.0

| Data | Player | Age | Country | Account Age | Complete the tasks? | Time to complete | Time to explore |
|--------------|--|----------|-------------|-------------|---------------------|------------------|-----------------|
| Player Info | Player 5 | 21 years | Netherlands | 300 Days | Yes | 4min | 3min |
| Observations | <p>Player 5 experienced a notably swift interaction with the app, completing all assigned tasks within 4 minutes and dedicating an additional 3 minutes to further exploration. They highlighted the streamlined and straightforward nature of the app's walkthrough process, though they encountered minor challenges in locating the event page menu, indicating a possible area for navigational improvement.</p> | | | | | | |
| Feedback | <p>The participant expressed appreciation for the app's concept, particularly valuing its ability to integrate directly with the user's account. This feature was seen as a significant advantage, potentially making the tools provided by the app highly sought after by users. They noted a superior ability to oversee and plan in-app activities compared to the in-game interface and the existing RoK companion tools. The overall design of the app was praised for its effectiveness, despite some critiques of the mobile version's initial clunkiness when accessed through Figma. The participant believes that once these minor issues are resolved, the app will be highly beneficial.</p> | | | | | | |

Table 27-Usability Tests Script 2.0

| Data | Player | Age | Country | Account Age | Complete the tasks? | Time to complete | Time to explore |
|--------------|--|----------|---------|-------------|---------------------|------------------|-----------------|
| Player Info | Player 6 | 31 years | Russia | 1500 Days | Yes | 4min | 3min |
| Observations | Player 6 reported an issue with the visibility of the menu within the tools section, specifically the calculator menu, which was not clearly visible. Despite this, they completed all designated tasks in 4 minutes and spent an additional 3 minutes exploring the app's features. | | | | | | |
| Feedback | The participant disclosed a general reluctance to use in-game apps and a preference for not engaging with game-related videos or external resources. However, they acknowledged the potential utility and appeal of the app for the broader player base, commending its design and functionalities. A minor critique was offered regarding the app's name, which the player found somewhat challenging to remember or identify, suggesting a need for a more memorable or distinctive title. | | | | | | |

Table 28-Usability Tests Script 2.0

| Data | Player | Age | Country | Account Age | Complete the tasks? | Time to complete | Time to explore |
|--------------|---|----------|---------|-------------|---------------------|------------------|-----------------|
| Player Info | Player 7 | 33 years | India | 1006 Days | Yes | 3min | 10min |
| Observations | <p>Player 7 efficiently completed the assigned tasks within 3 minutes, subsequently dedicating 10 minutes to a more thorough exploration of the app. During this exploration, they noted the new player guide was not as prominently displayed as it could be, suggesting an improvement in its visibility could enhance user orientation. Additionally, the participant found the event page menu difficult to locate, indicating a potential area for interface optimization.</p> | | | | | | |
| Feedback | <p>The participant raised a query regarding the absence of a back button on the new account login page, highlighting a navigational concern that could affect user experience. They also commented on the app's name for a more intuitive or relevant title that better reflects the app's purpose. Difficulty in accessing the events page menu was reiterated, emphasizing the need for a more user-friendly navigational structure. The feedback included a recommendation for the inclusion of an "About Me" page, which would provide users with information about the app's developers, version, and update schedule, contributing to transparency and user engagement. Lastly, the addition of an event tracker on the event page was suggested to aid users in monitoring and participating in app events more efficiently.</p> | | | | | | |

Table 29-Usability Tests Script 2.0

| Data | Player | Age | Country | Account Age | Complete the tasks? | Time to complete | Time to explore |
|--------------|---|----------|---------|-------------|---------------------|------------------|-----------------|
| Player Info | Player 8 | 21 years | Spain | 600 Days | Yes | 3min | 9min |
| Observations | <p>Player 8 completed the designated tasks within 3 minutes and allocated an additional 9 minutes for an in-depth exploration of the app. They encountered difficulties navigating the menus for commanders and equipment, noting these sections were challenging to track due to layout or organization issues. Moreover, the participant did not engage with the Kingdom vs Kingdom (KvK) timelines within the events section, although the reason for this omission was not specified.</p> | | | | | | |
| Feedback | <p>The participant recommended enhancing the visibility and accessibility of the commanders and equipment sections by segregating them for clearer distinction. Additionally, they suggested implementing a more systematic ordering of the commanders to streamline user interaction. The app was commended for its utility, deemed highly beneficial for new players in acquainting themselves with the game, while also being considered valuable for experienced players. The feedback underscores the app's overall helpfulness across different player experiences, with specific emphasis on improving navigation and organization within the app to bolster user engagement and satisfaction.</p> | | | | | | |

Attachment VI- Final Product

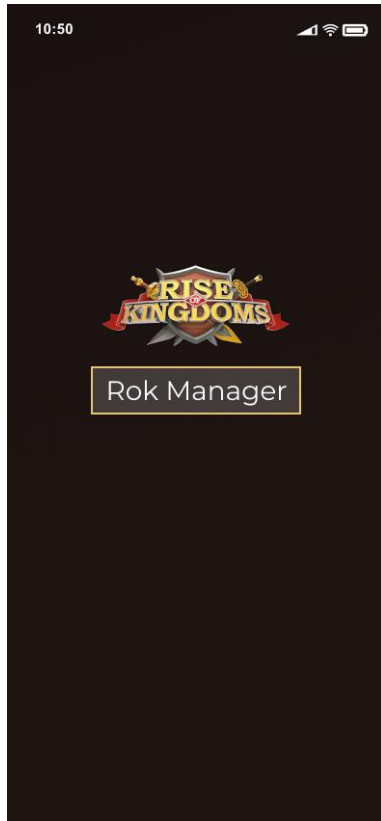


Figure 82-Intro Page

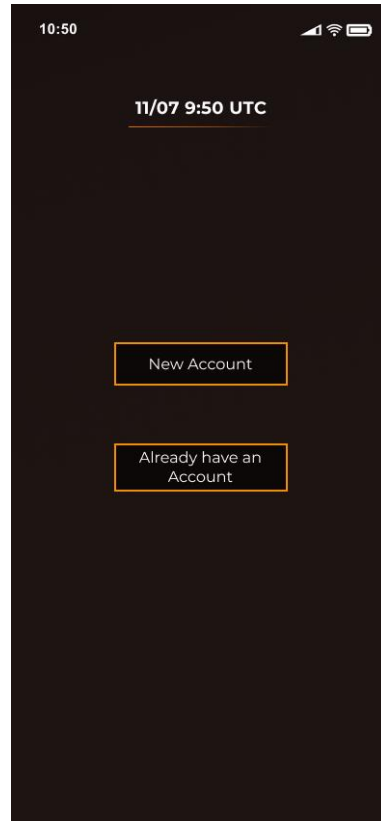


Figure 81-Login Page

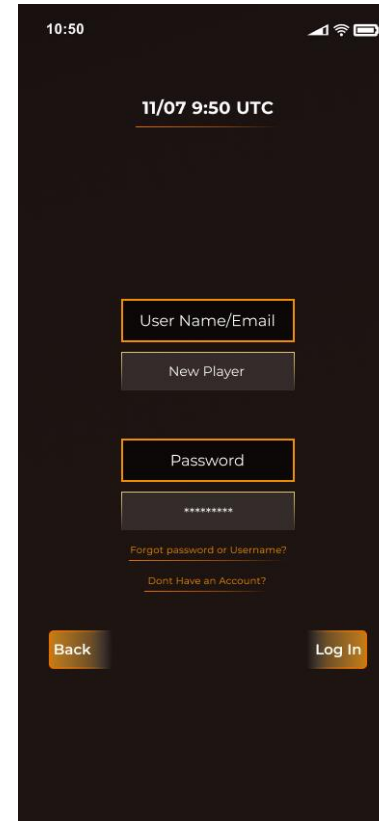


Figure 80-Already have an account Login Page

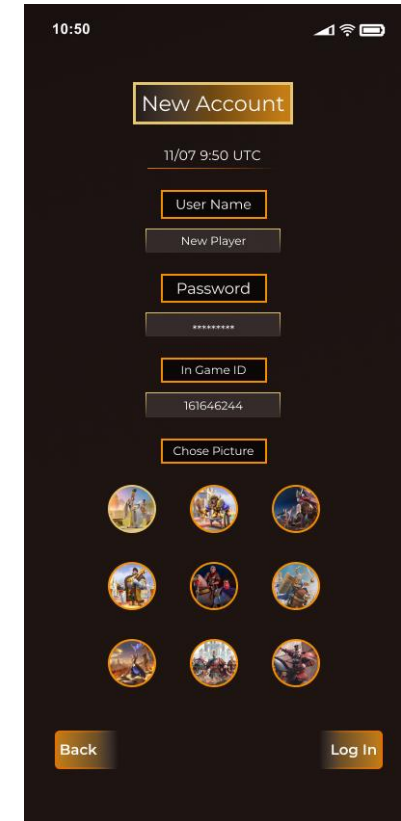


Figure 79-New Account Login Page 1

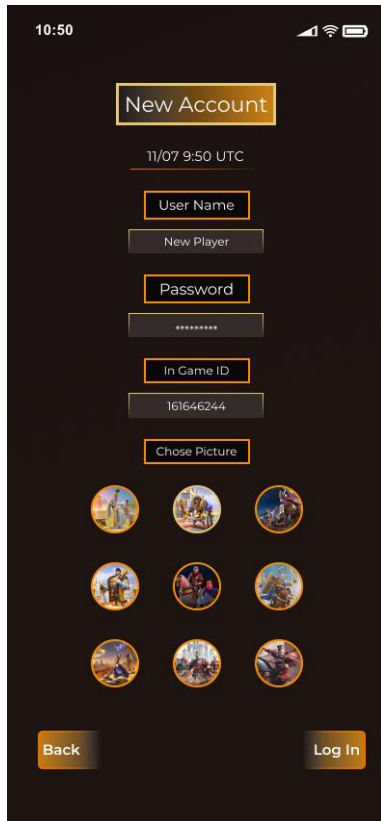


Figure 86-New Account Login
Page 2

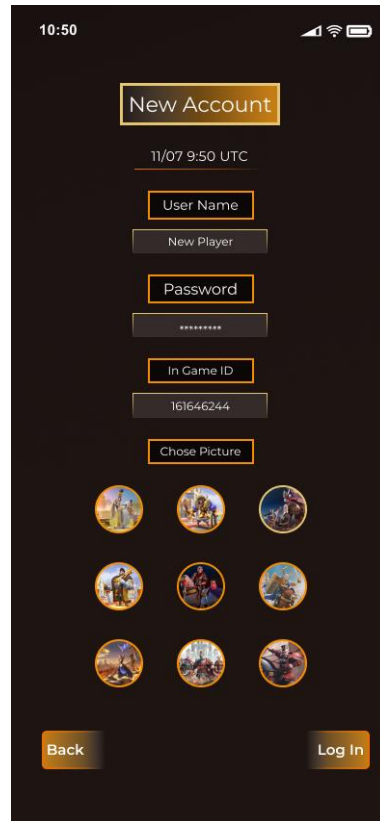


Figure 83-New Account Login
Page 3

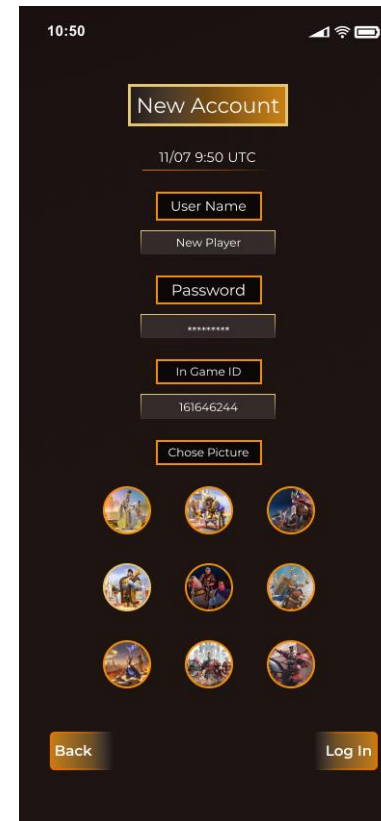


Figure 85-New Account Login
Page 4

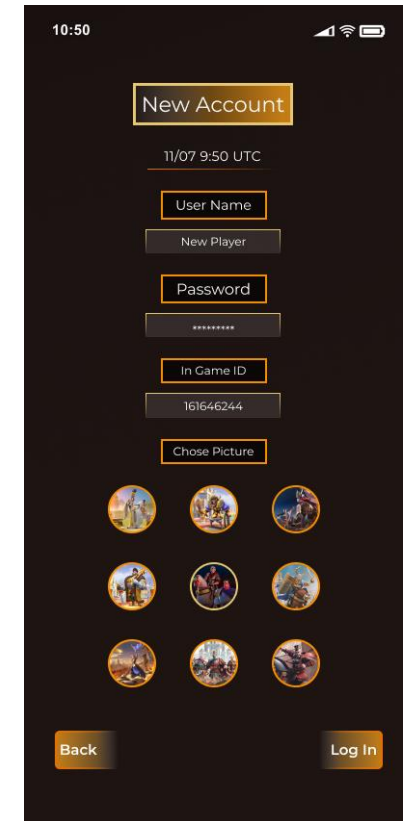


Figure 84-New Account Login
Page 5

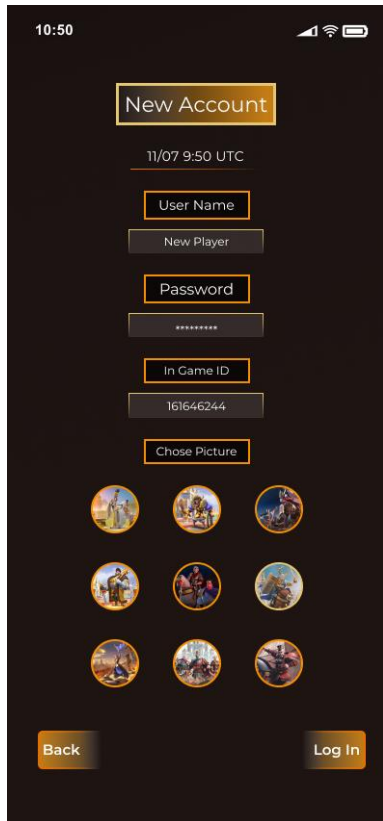


Figure 90-New Account Login
Page 6

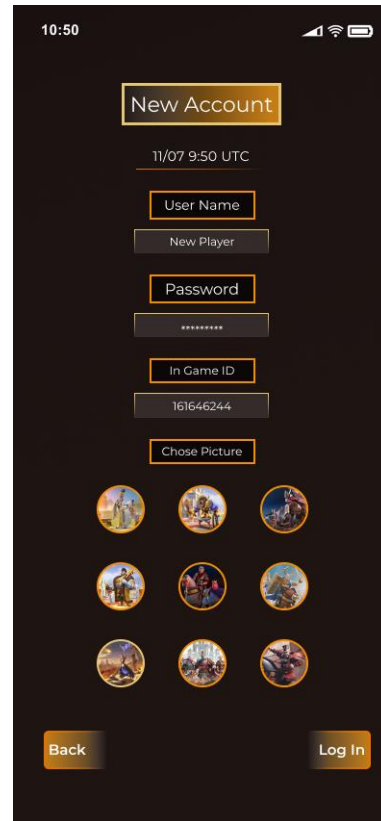


Figure 87-New Account Login
Page 7

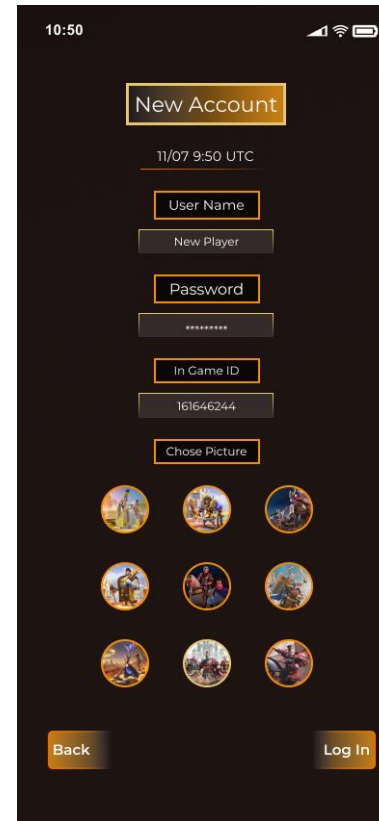


Figure 88-New Account Login
Page 8

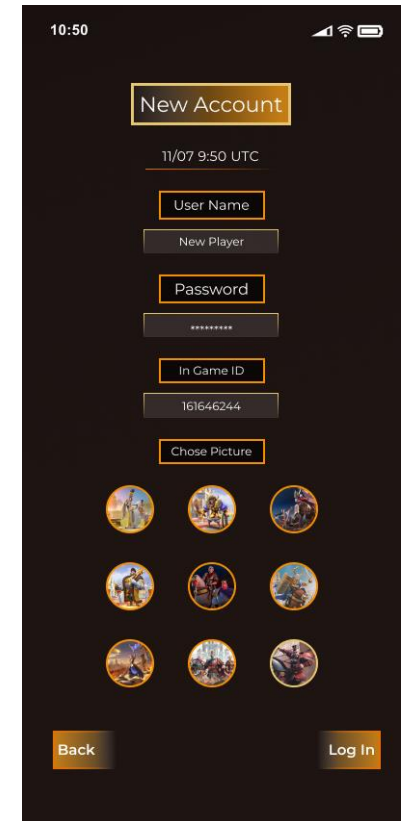


Figure 89-New Account Login
Page 9

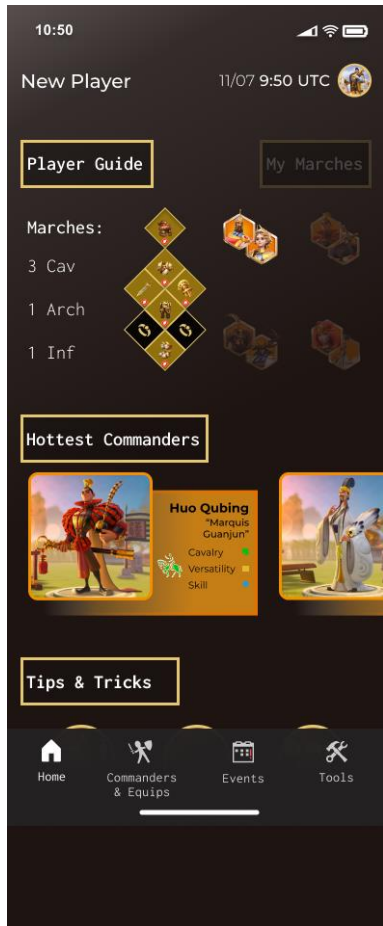


Figure 94-Homepage Showcase March 1

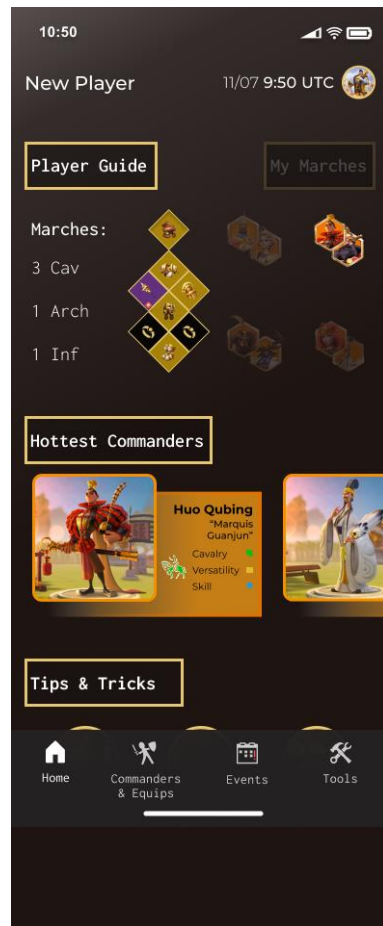


Figure 93-Homepage Showcase March 2

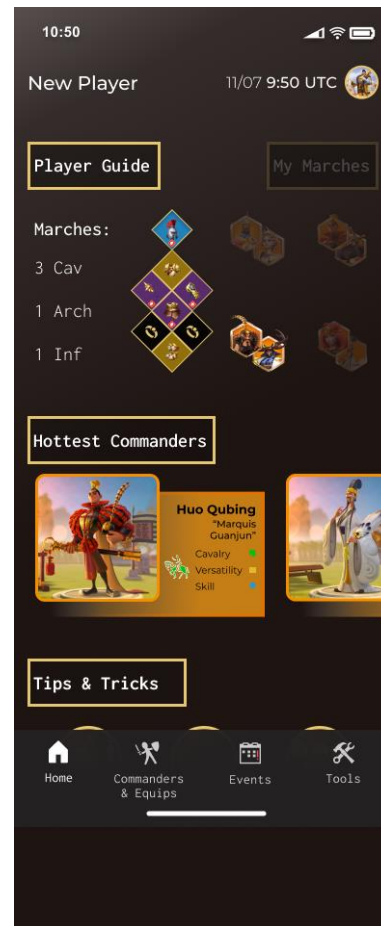


Figure 91-Homepage Showcase March 3

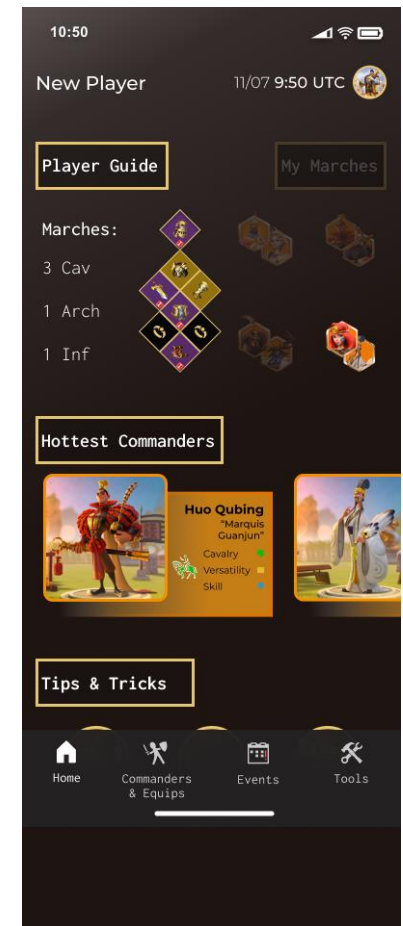


Figure 92-Homepage Showcase March 4

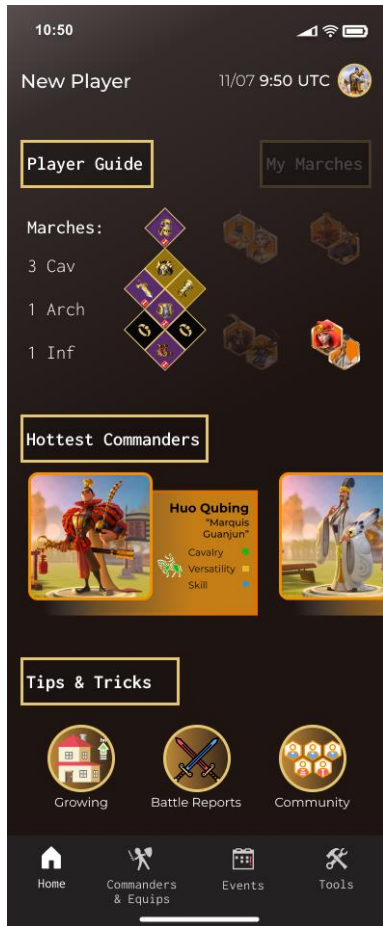


Figure 98-Homepage Showcase Tips & Tricks

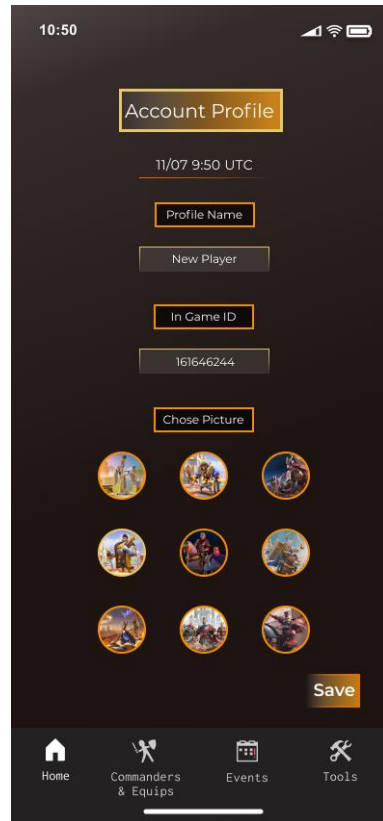


Figure 97-Profile Page

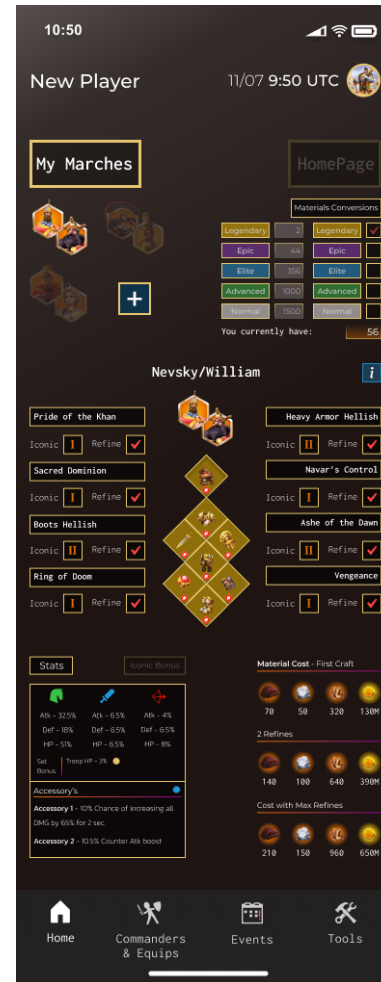


Figure 95-My Marches Feature - March 1 Stats



Figure 96-My Marches Feature - March 1 Iconic



Figure 102-My Marches Feature - March 2 Stats

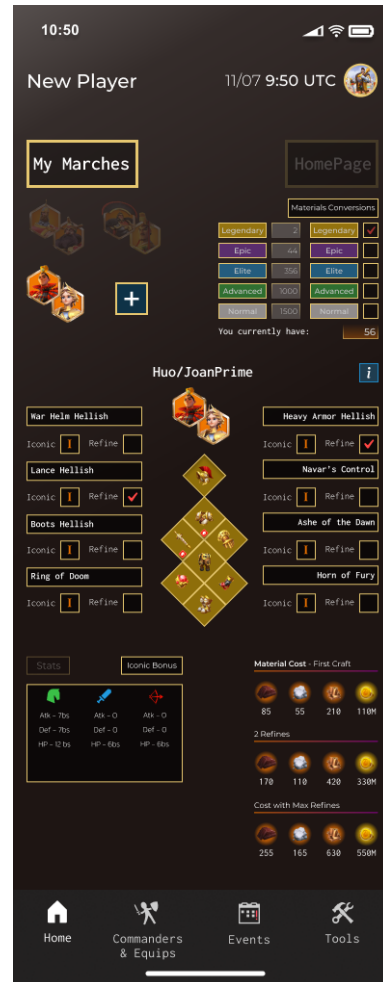


Figure 100-My Marches Feature - March 2 Iconic

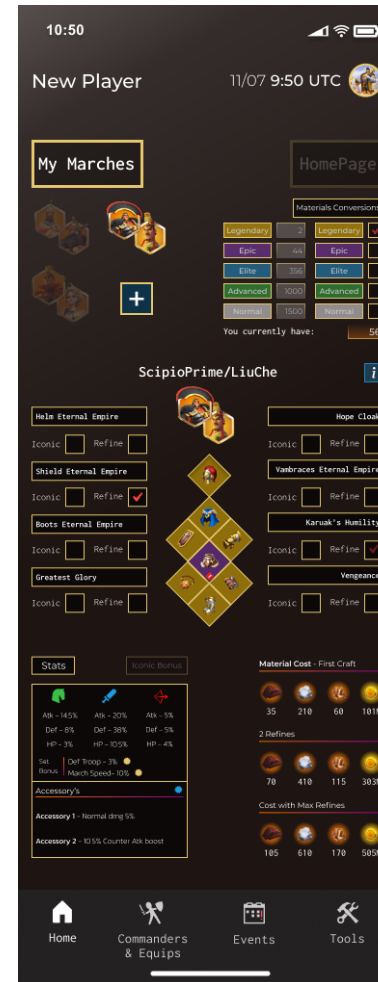


Figure 99-My Marches Feature - March 3 Stats



Figure 101-My Marches Feature - March 3 Iconic



Figure 106-My Marches Feature - Info

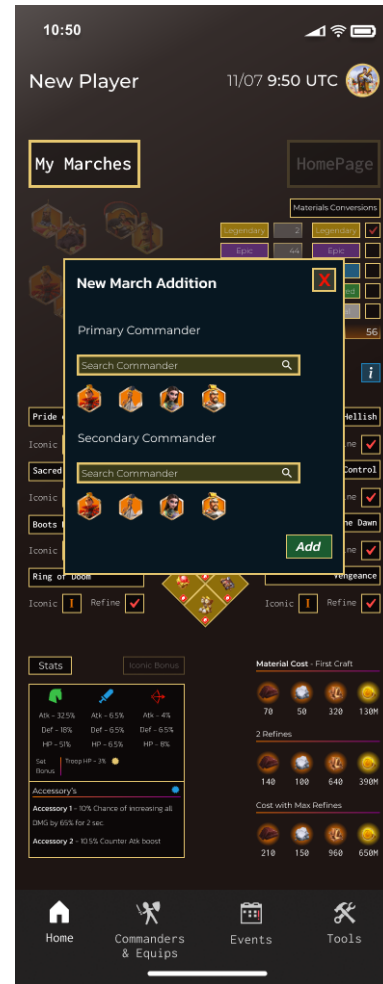


Figure 105-My Marches Feature - Add New March

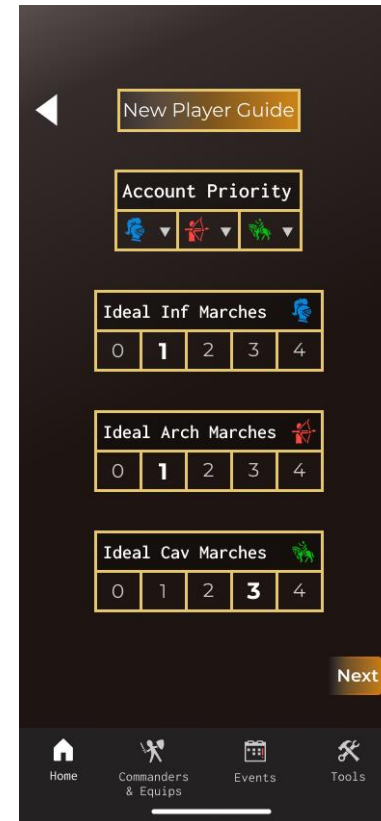


Figure 103-Player Guide - Selection Phase

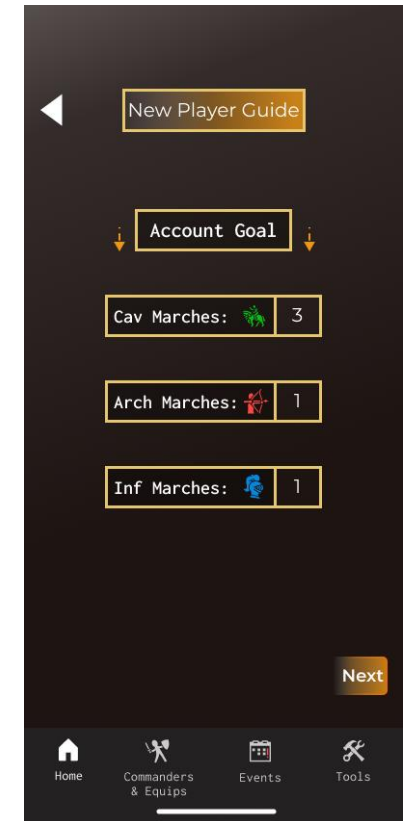


Figure 104-Player Guide - Selected Marches



Figure 109-Player Guide



Figure 107-Player Guide - Cav Upgrade 1



Figure 108-Player Guide - Cav Upgrade 2



Figure 112-Player Guide - Cav Upgrade 3



Figure 111-Player Guide - Cav Upgrade 4



Figure 110-Player Guide - Inf Upgrade 1



Figure 114-Player Guide - Inf Upgrade 2



Figure 113-Player Guide - Inf Upgrade 3



Figure 115-Player Guide - Inf Upgrade 4



Figure 118-Player Guide - Archer Upgrade 1



Figure 116-Player Guide - Archer Upgrade 2



Figure 117-Player Guide - Archer Upgrade 3



Figure 121-Player Guide - Archer Upgrade 4

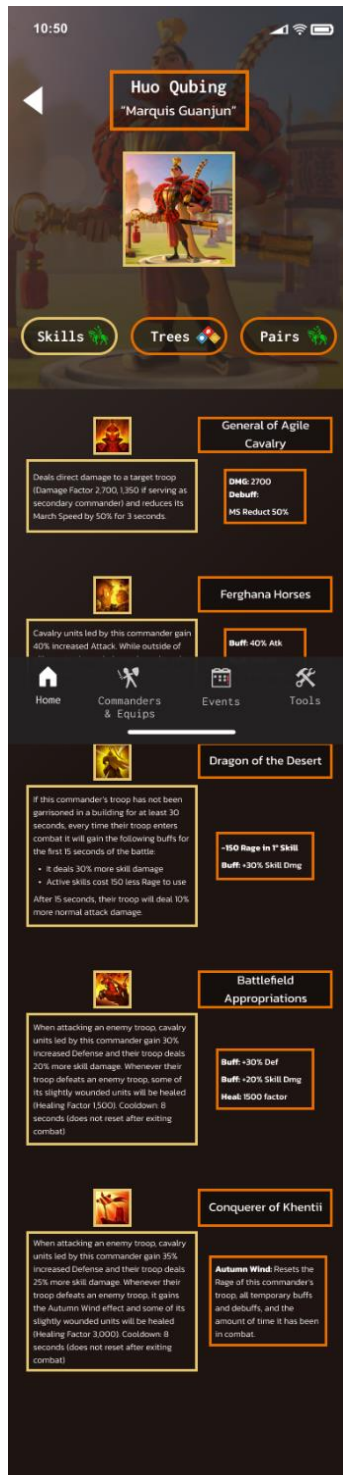


Figure 119-Commander Page - HQ Skills

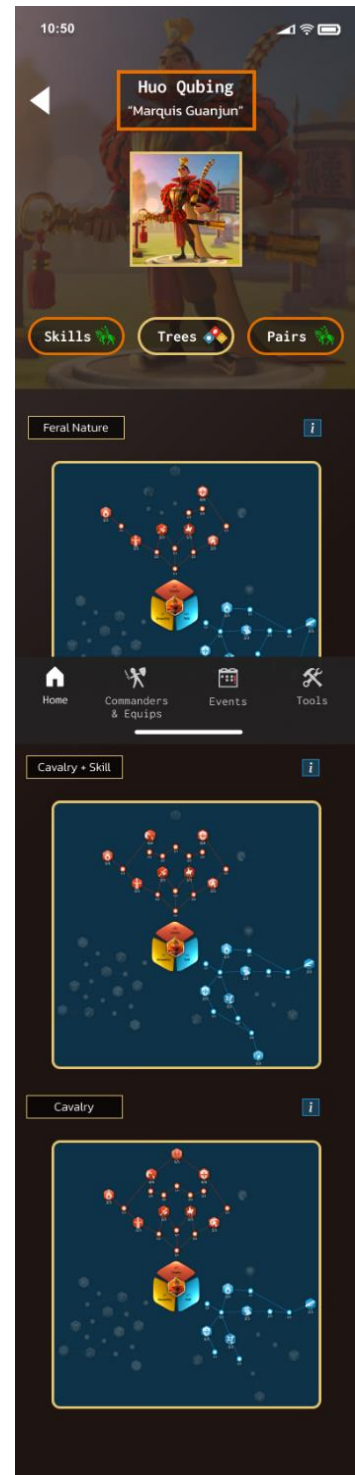


Figure 120-Commander Page - HQ Trees

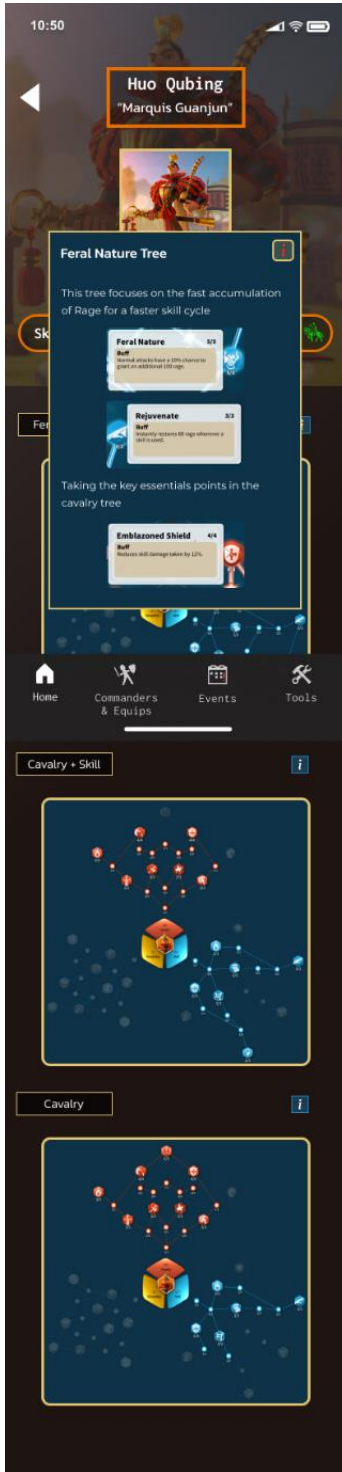


Figure 124-Commander Page - HQ Trees Info

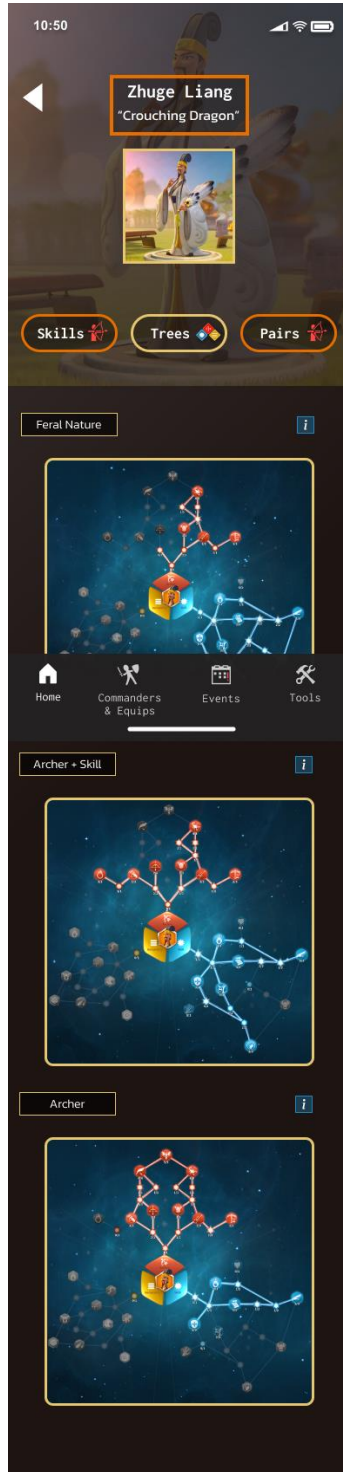


Figure 122-Commander Page - ZL Trees

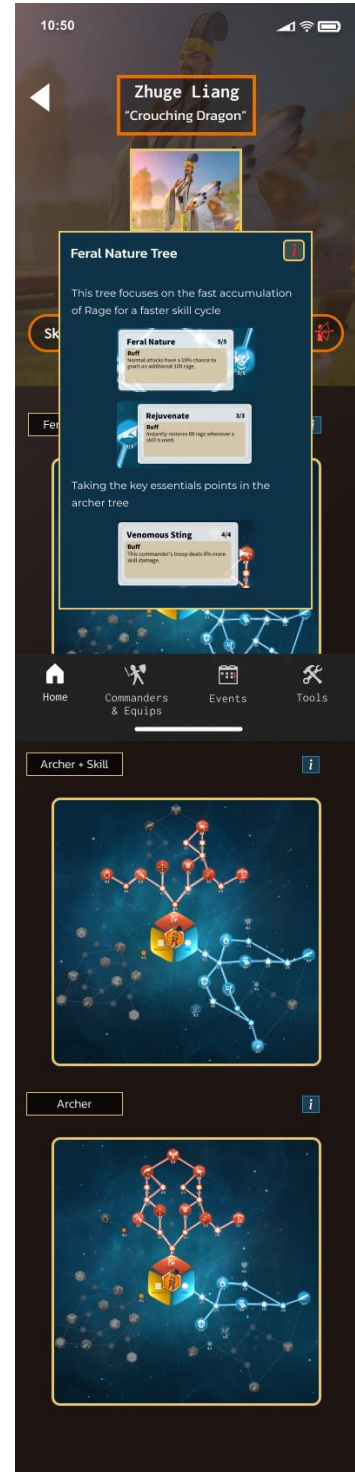


Figure 123-Commander Page - ZL Trees Info

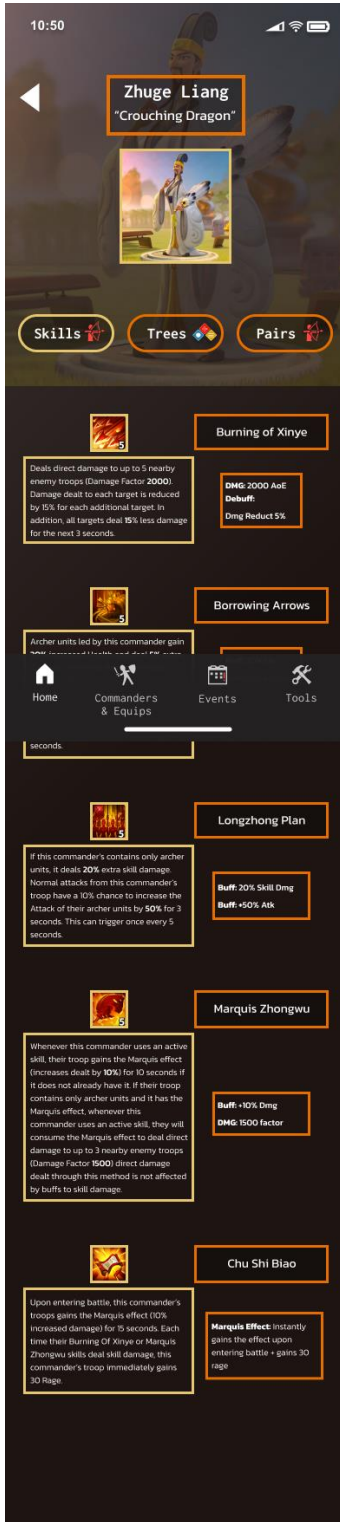


Figure 127-Commander Page - ZL Skills

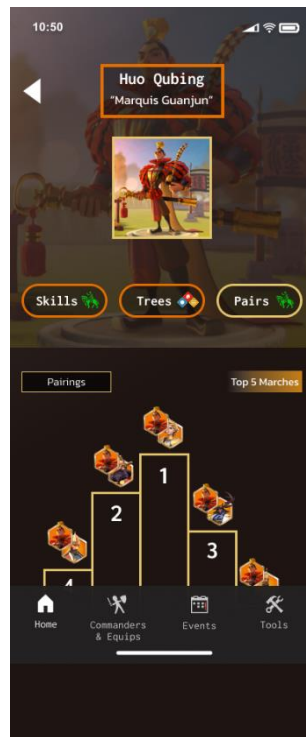


Figure 126-Commander Page - ZL Skills

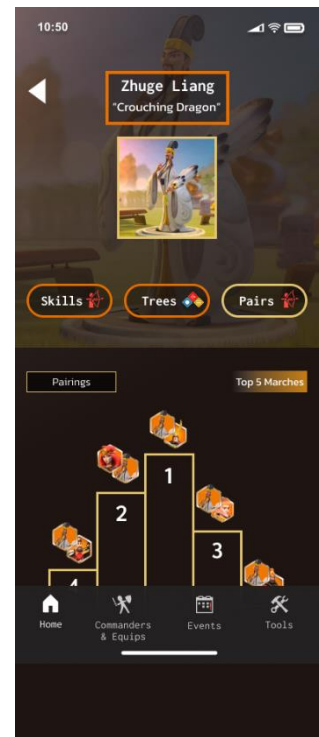


Figure 125-Commander Page - ZL Pairs



Figure 129-Tips & Tricks - How to Grow

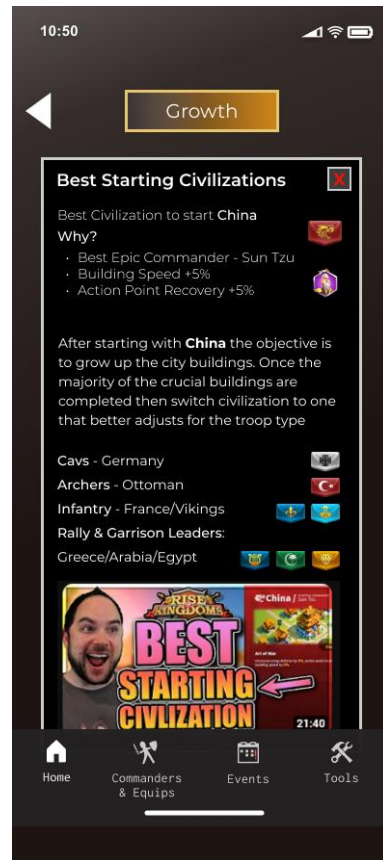


Figure 131-Tips & Tricks - How to Grow - Best Civ

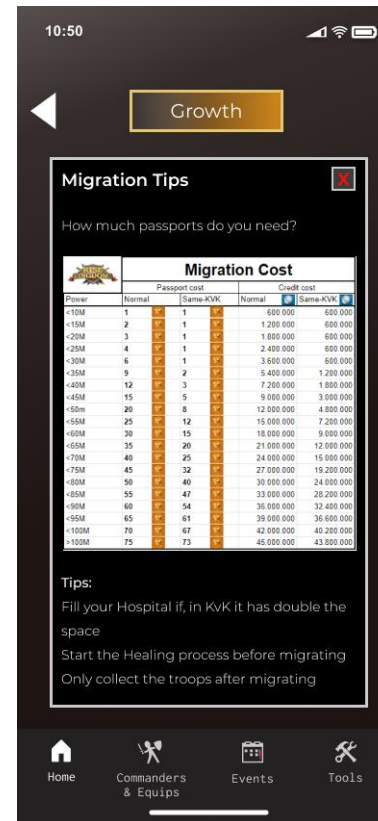


Figure 130-Tips & Tricks - How to Grow - Migration Tips

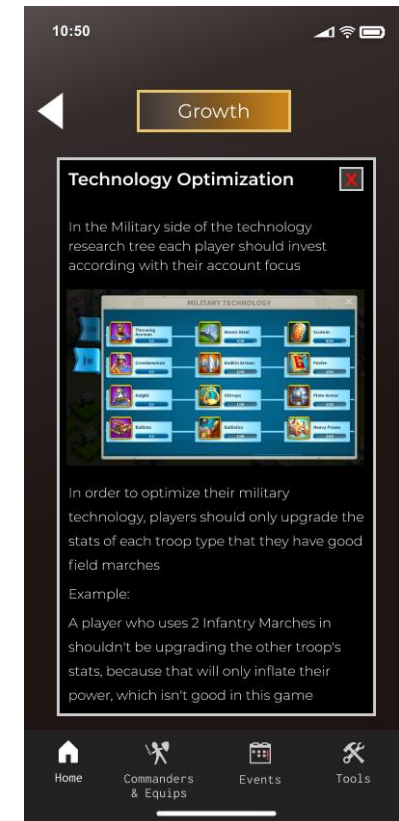


Figure 128-Tips & Tricks - How to Grow - Technology Tricks

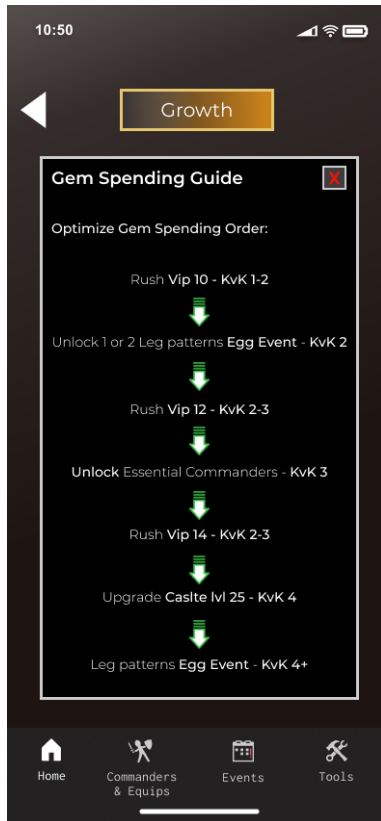


Figure 135-Tips & Tricks - How to Grow - Gem Guide

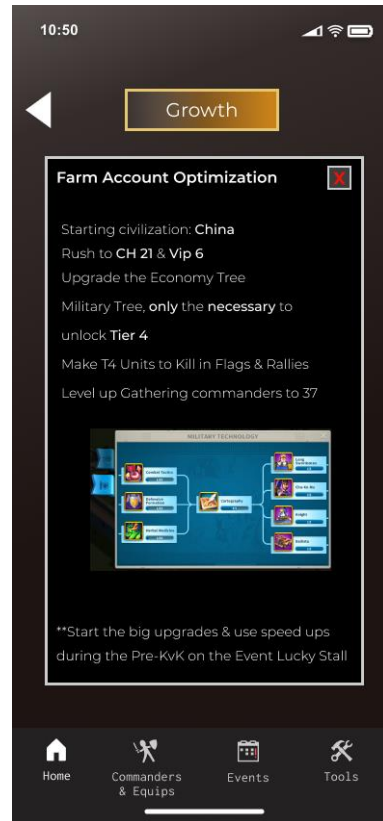


Figure 134-Tips & Tricks - How to Grow - Farm Account Guide

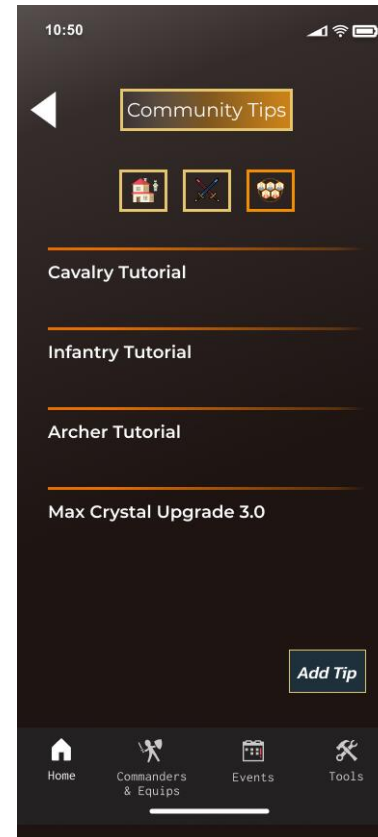


Figure 132-Tips & Tricks - Community Tips



Figure 133-Tips & Tricks - Community Tips - Cav Tutorial



Figure 139-Tips & Tricks - Community Tips - Inf Tutorial



Figure 138-Tips & Tricks - Community Tips - Arch Tutorial



Figure 136-Tips & Tricks - Community Tips - Crystal Tech



Figure 137-Tips & Tricks - Community Tips - Add New Tip 1

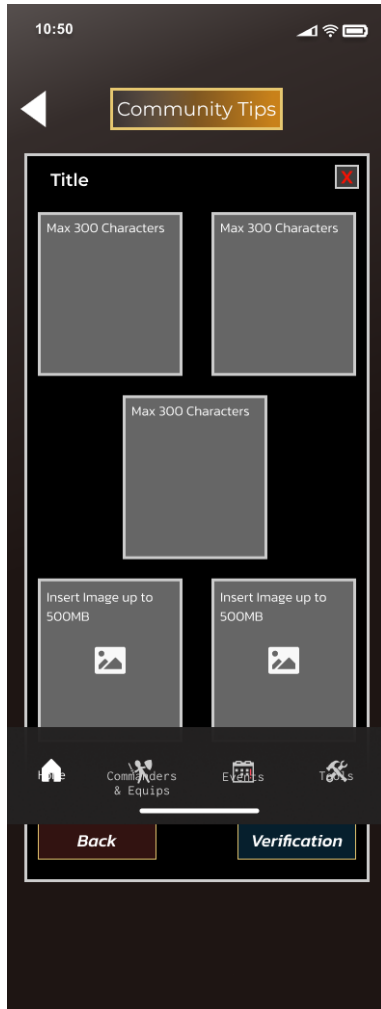


Figure 143-Tips & Tricks - Community Tips - Add New Tip 2

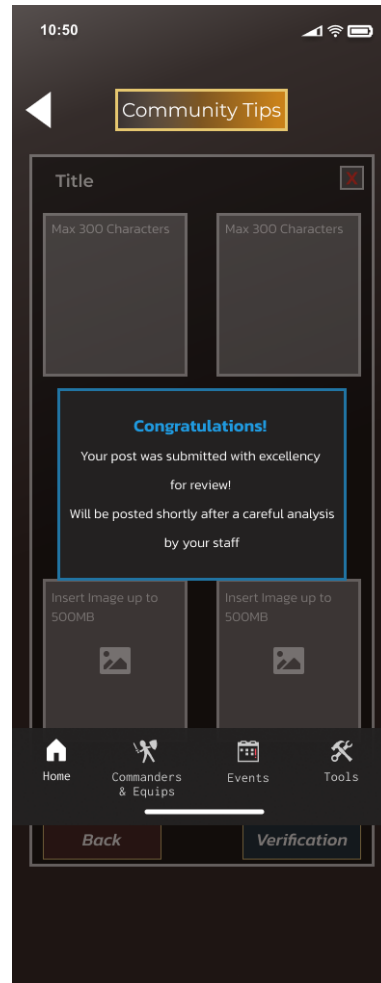


Figure 141-Tips & Tricks - Community Tips - Add New Tip 3

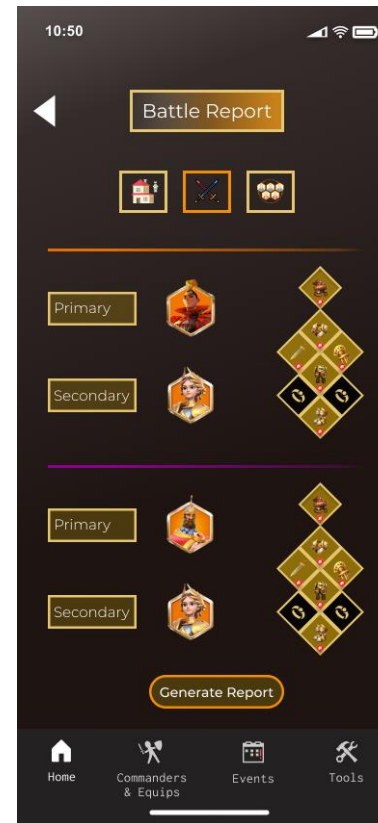


Figure 140-Tips & Tricks - Battle Report



Figure 142-Tips & Tricks - Battle Report - Commander Switch

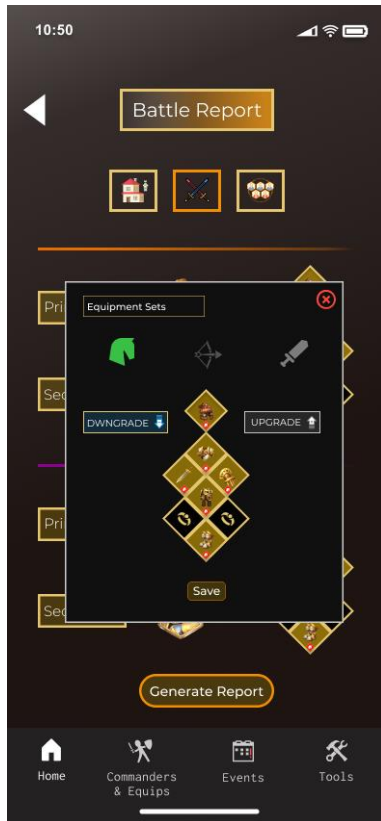


Figure 147-Tips & Tricks - Battle Report - Gear Switch

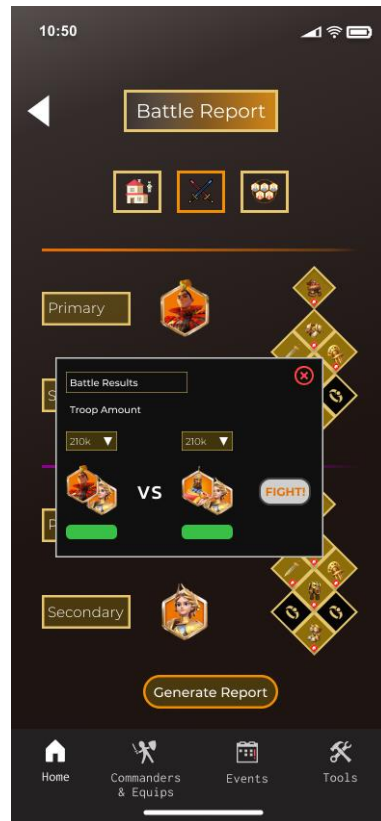


Figure 145-Tips & Tricks - Battle Report - Battle Menu

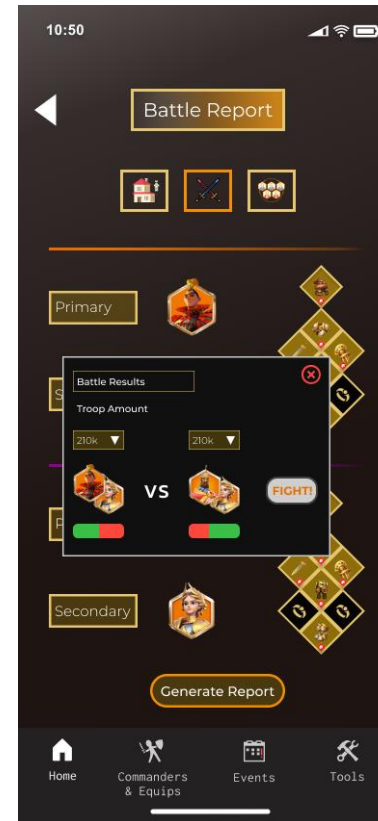


Figure 144-Tips & Tricks - Battle Report - Mid Battle

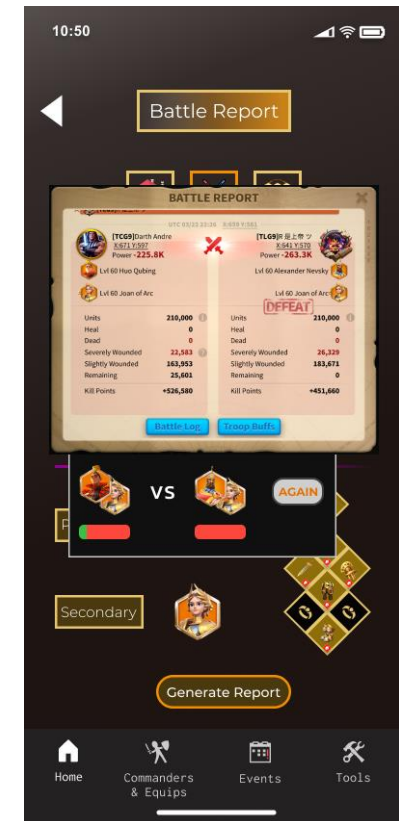


Figure 146-Tips & Tricks - Battle Report - Battle Finish

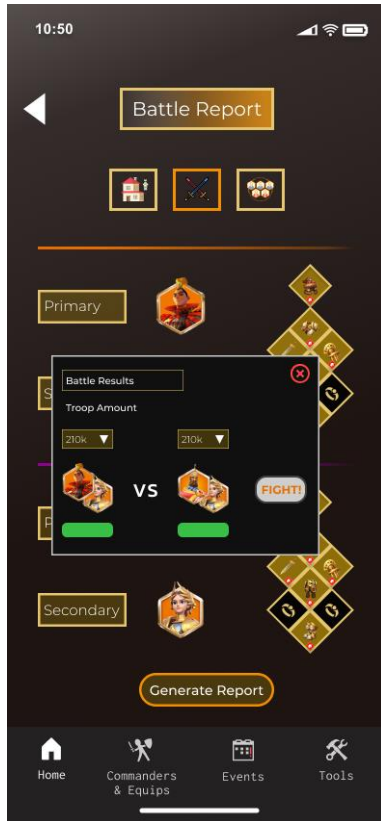


Figure 151-Tips & Tricks - Battle Report - Battle Menu 2

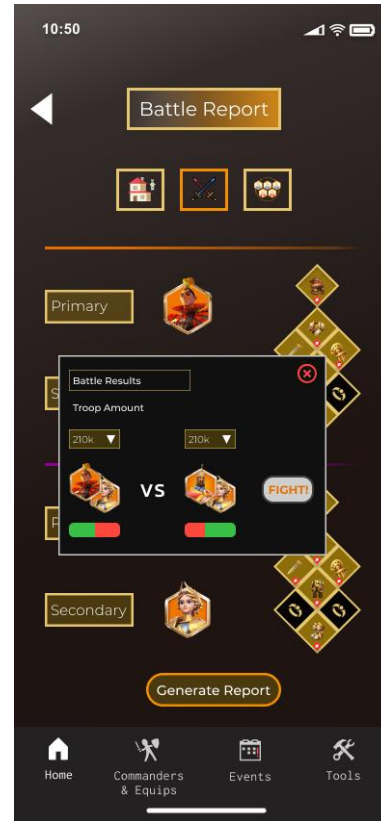


Figure 149-Tips & Tricks - Battle Report - Mid Battle 2

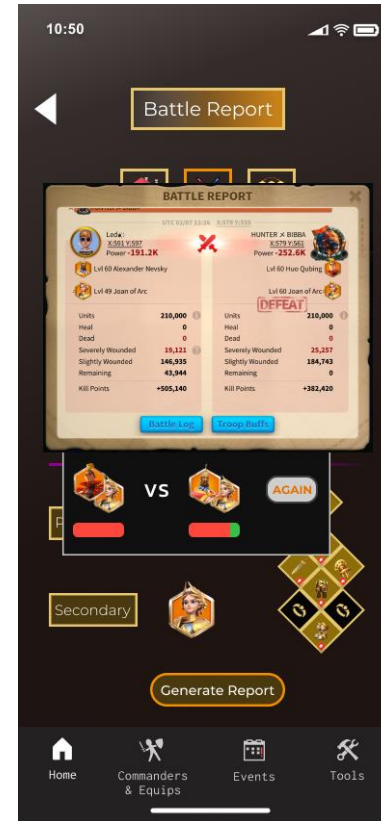


Figure 150-Tips & Tricks - Battle Report - Battle Finish 2

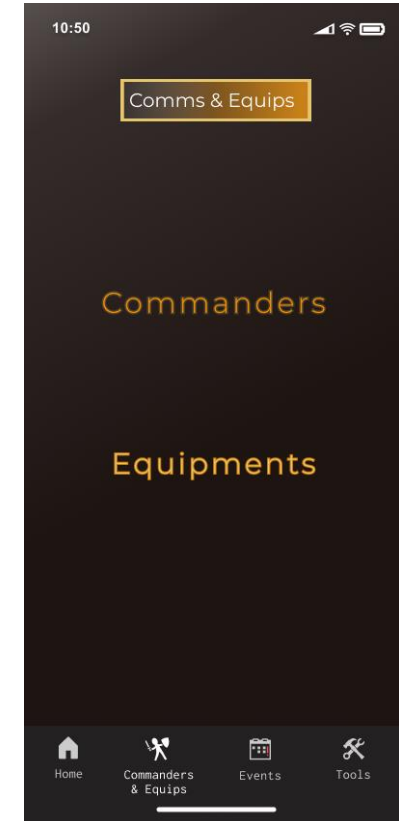


Figure 148-Comms & Equipments Page

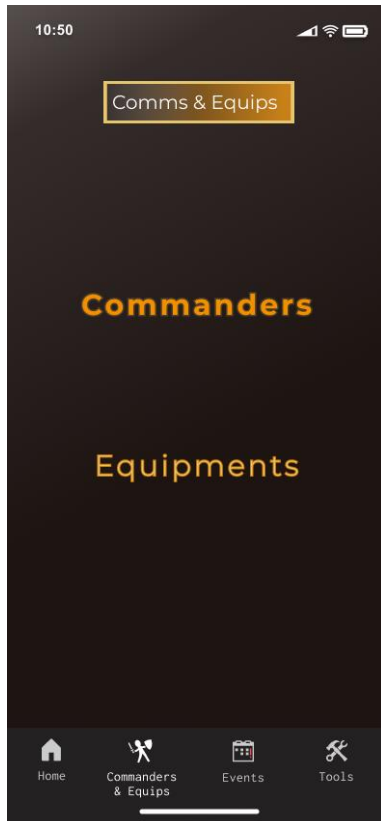


Figure 154-Comms & Equips Page - Hovering Commanders Button

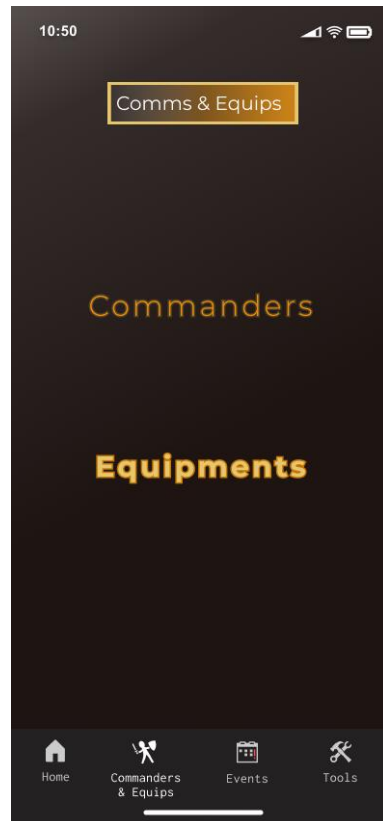


Figure 152-Comms & Equips Page - Hovering Equipment Button

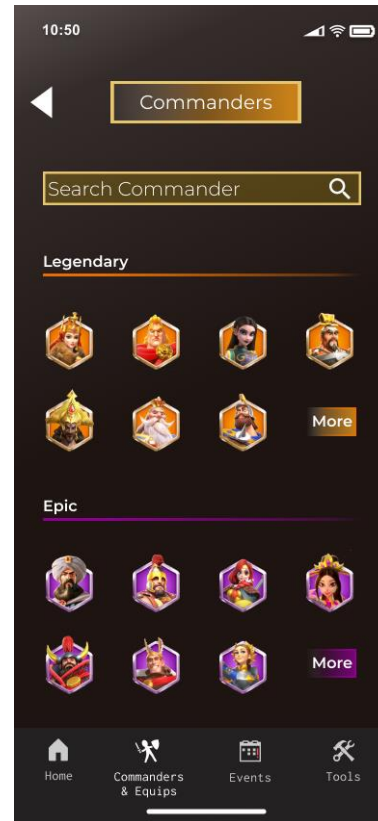


Figure 153-Comms & Equips Page - Commanders Page

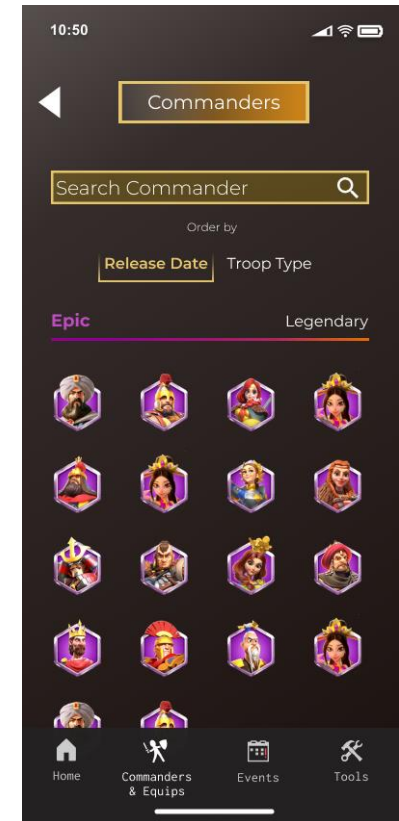


Figure 155-Comms & Equips Page - Epic Commanders Page

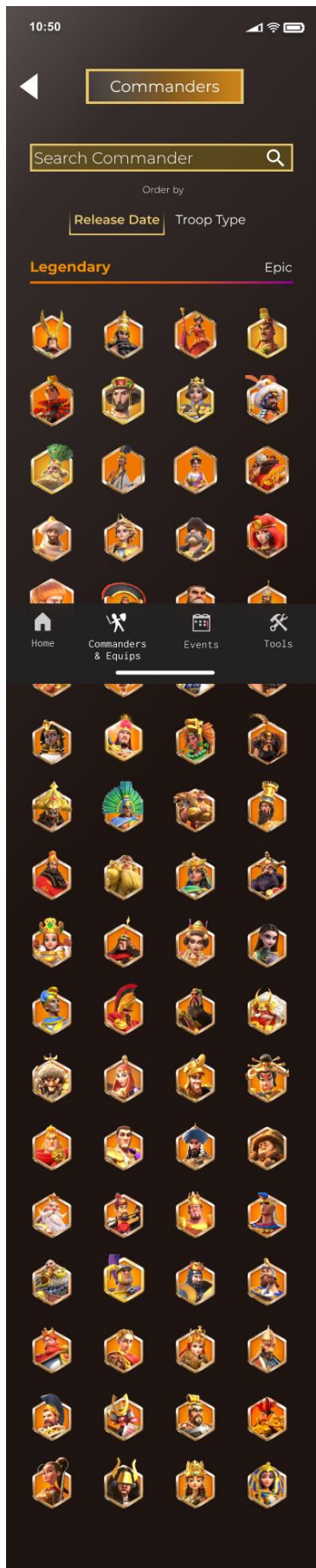


Figure 157-Comms & Equips Page - Legendary Commanders Page Release Date Order

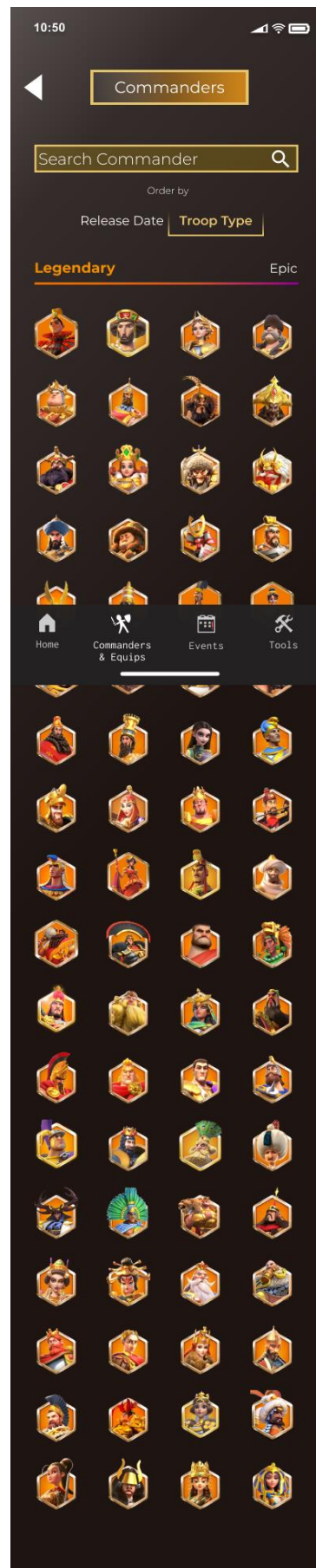


Figure 156-Comms & Equips Page - Legendary Commanders Page Troop Type Order

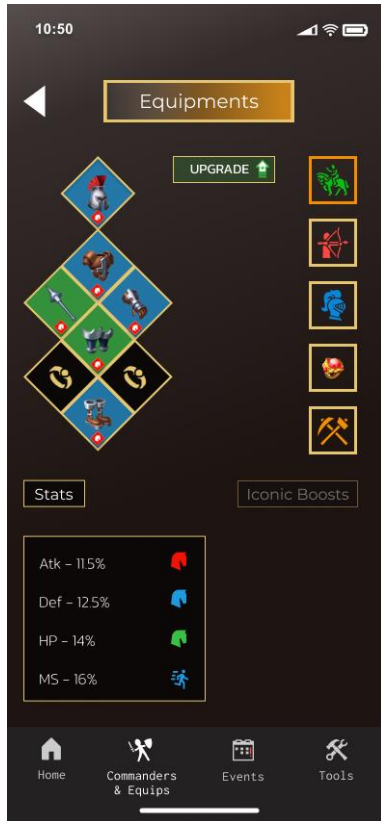


Figure 160-Comms & Equips Page - Equip Page Cav 1

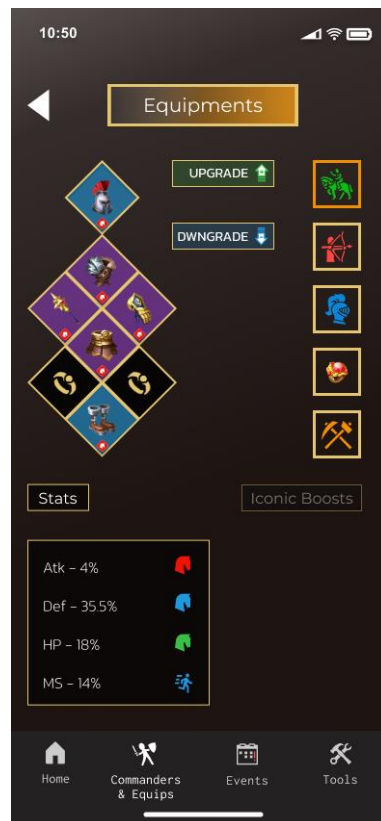


Figure 159-Comms & Equips Page - Equip Page Cav 2

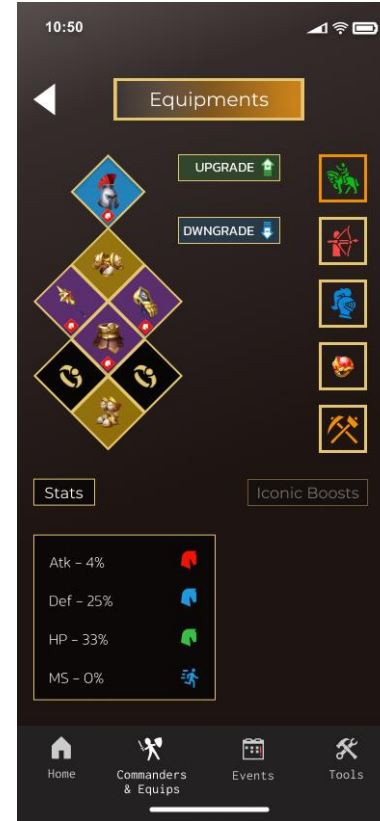


Figure 158-Comms & Equips Page - Equip Page Cav 3

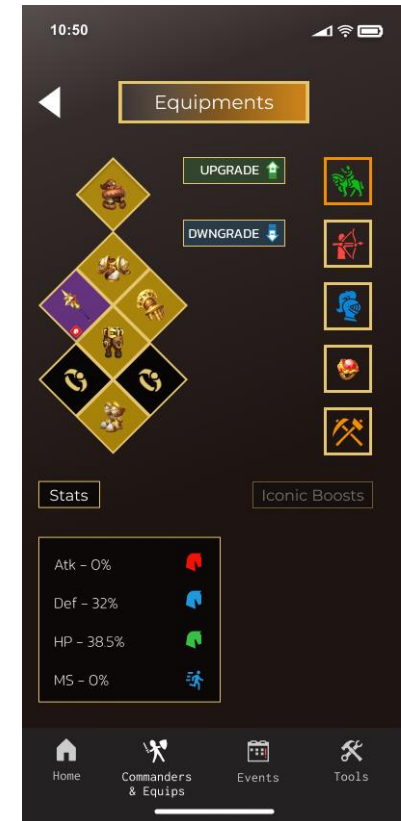


Figure 161-Comms & Equips Page - Equip Page Cav 4

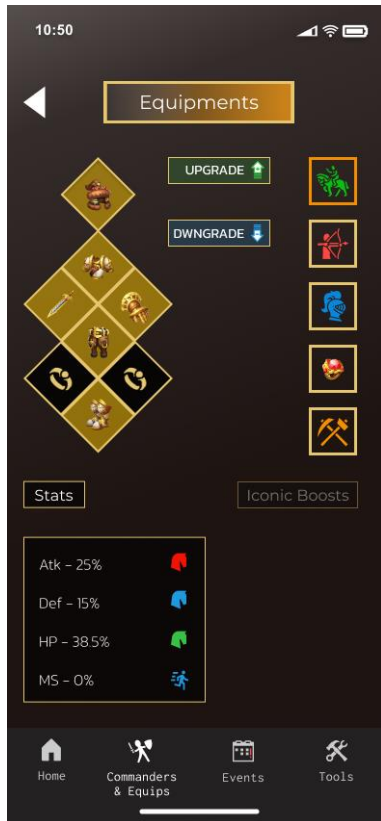


Figure 163-Comms & Equips Page - Equipments Page Cav 5

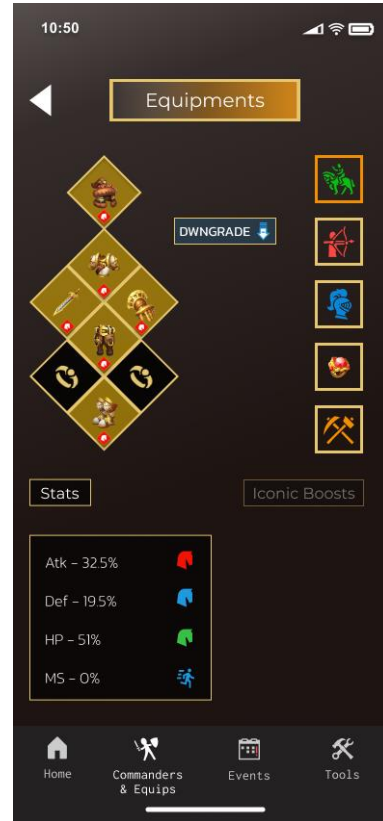


Figure 164-Comms & Equips Page - Equipments Page Cav 6

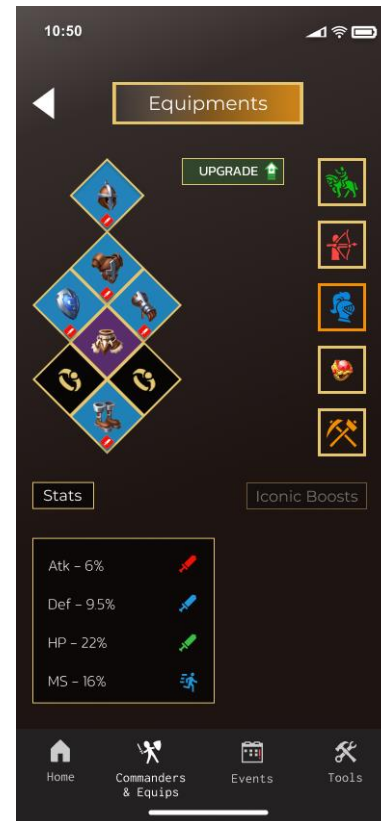


Figure 162-Comms & Equips Page - Equipments Page Inf 1



Figure 165-Comms & Equips Page - Equipments Page Inf 2

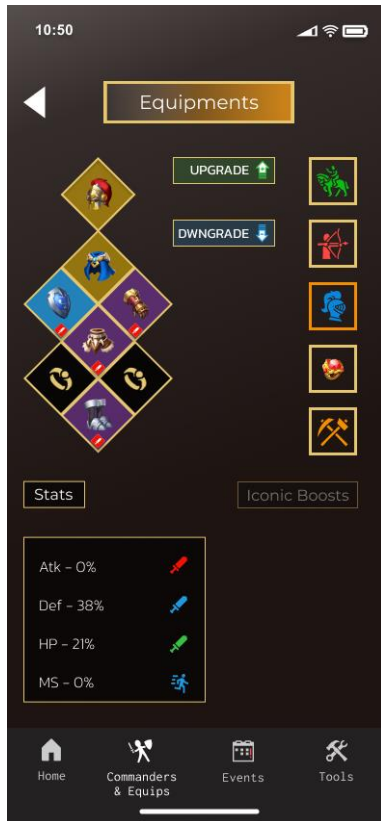


Figure 169-Comms & Equips Page - Equip Page Inf 3

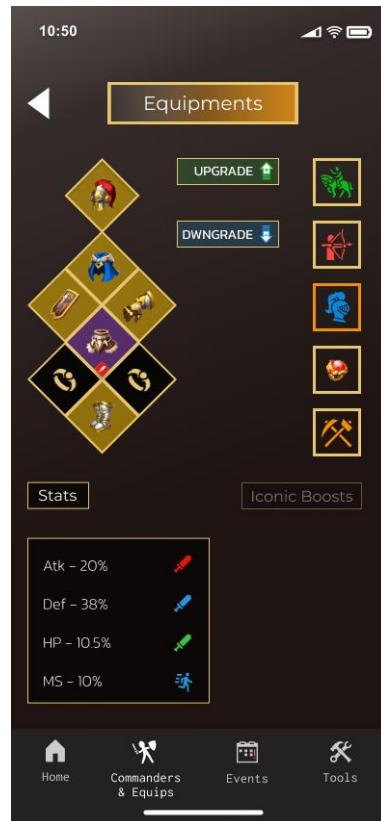


Figure 167-Comms & Equips Page - Equip Page Inf 4



Figure 166-Comms & Equips Page - Equip Page Inf 5

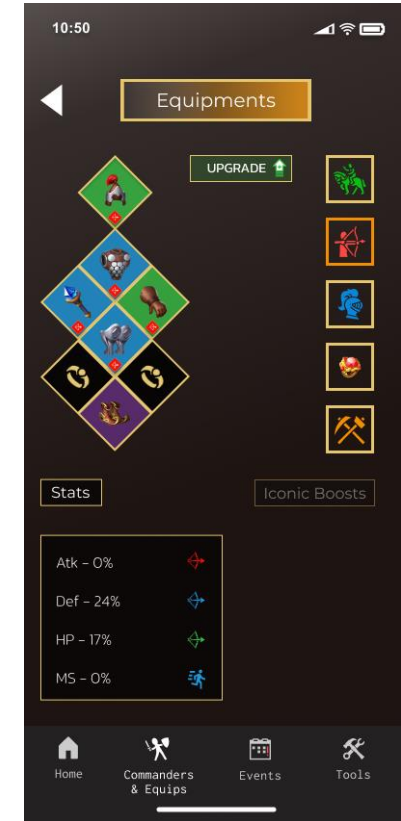


Figure 168-Comms & Equips Page - Equip Page Arch 1

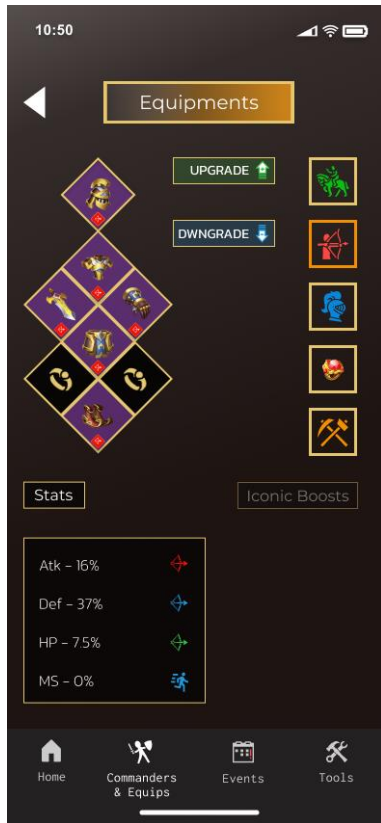


Figure 170-Comms & Equipments Page - Equipments Page Arch 2

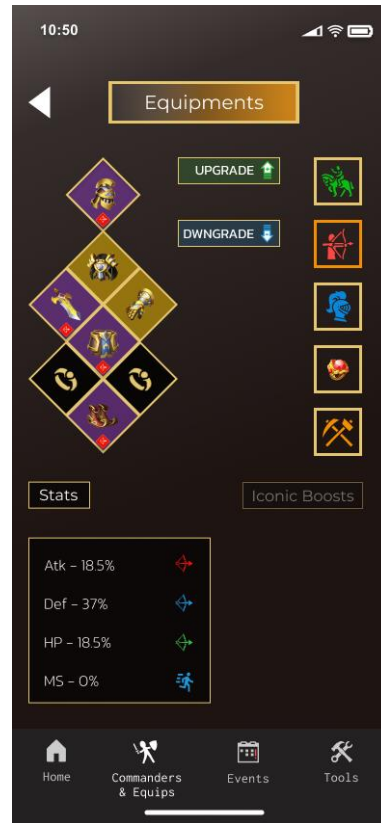


Figure 171-Comms & Equipments Page - Equipments Page Arch 3

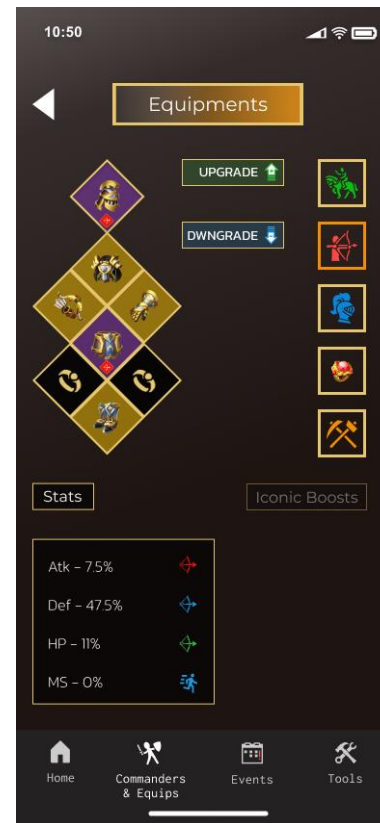


Figure 172-Comms & Equipments Page - Equipments Page Arch 4



Figure 173-Comms & Equipments Page - Equipments Page Arch 5

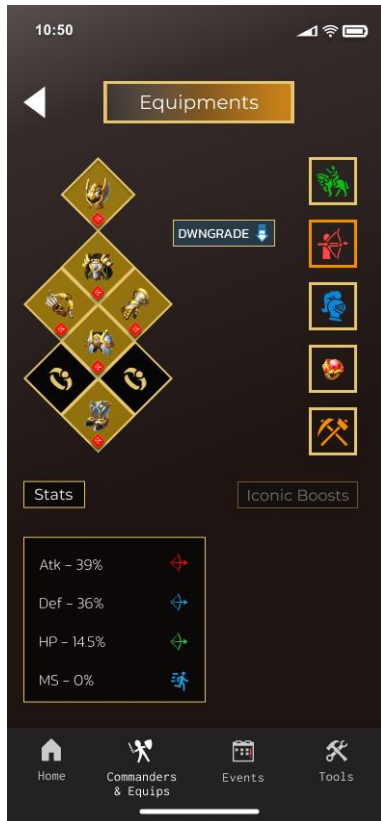


Figure 174-Comms & Equips Page - Equipments Page Arch 6

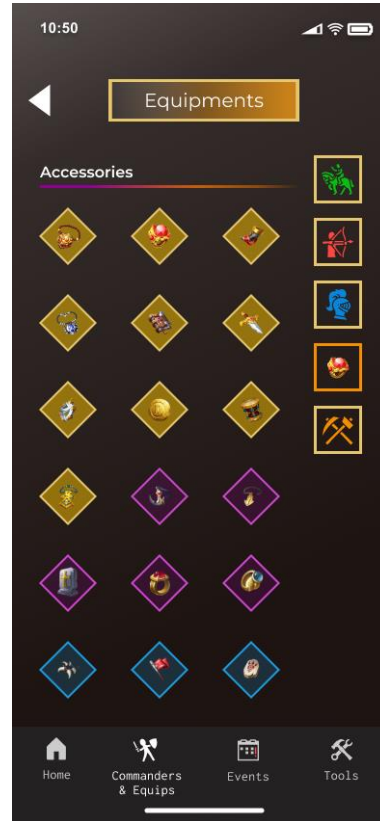


Figure 175-Comms & Equips Page - Equipments Page Acc 1

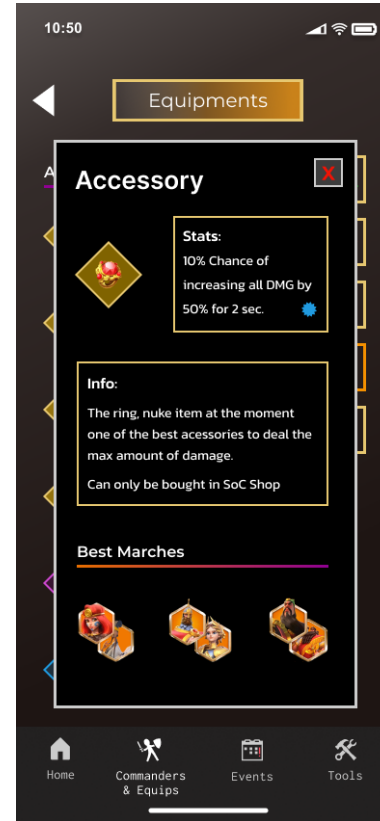


Figure 176-Comms & Equips Page - Equipments Page Acc 2



Figure 177-Comms & Equips Page - Equipments Page Player Craft 5

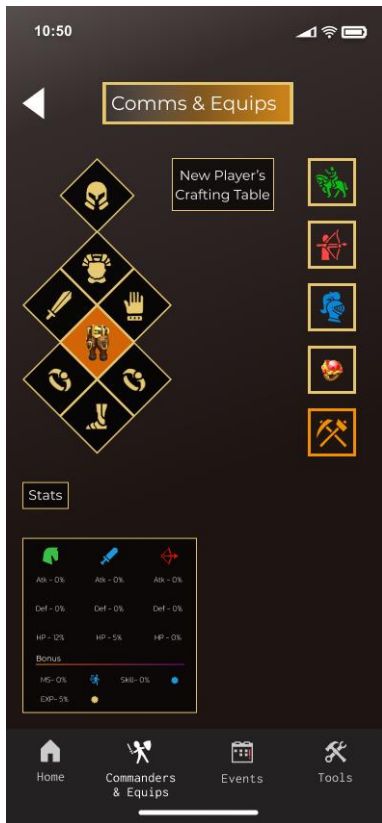


Figure 179-Comms & Equips Page - Equips Page Player Craft 2

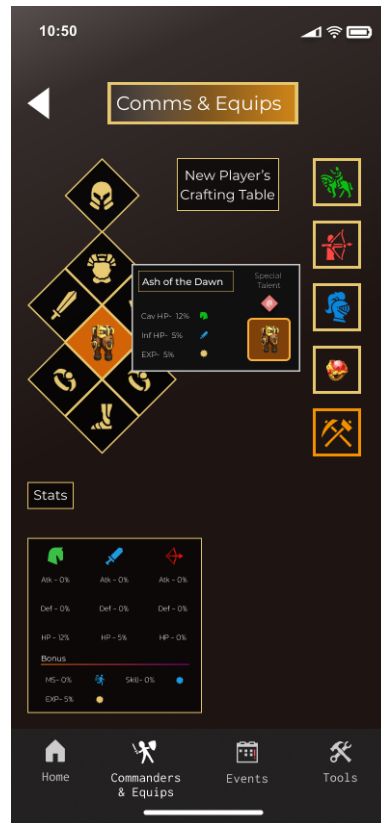


Figure 178-Comms & Equips Page - Equips Page Player Craft 3

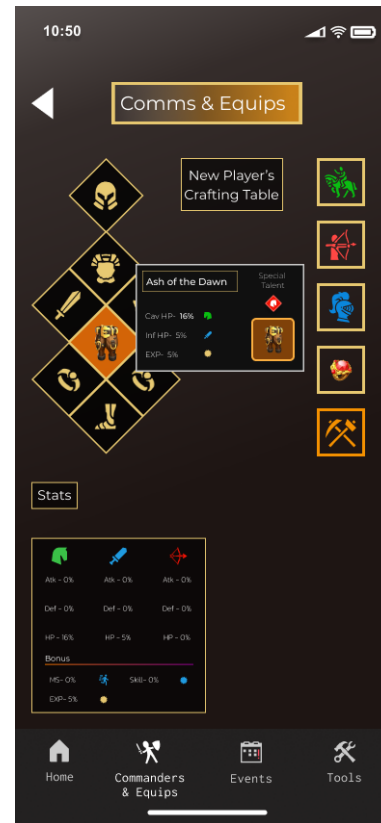


Figure 180-Comms & Equips Page - Equips Page Player Craft 4.

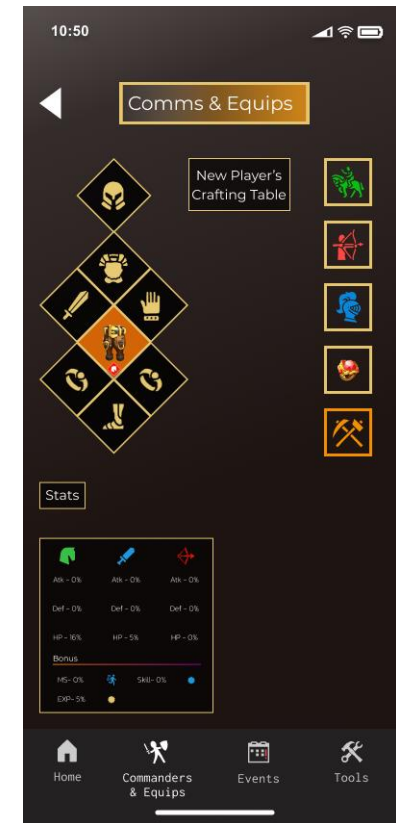


Figure 181-Comms & Equips Page - Equips Page Player Craft 5

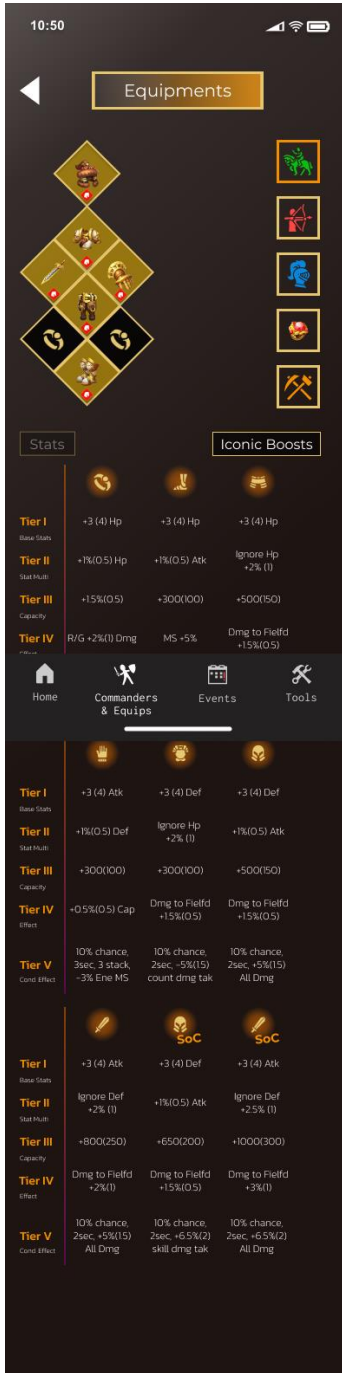


Figure 182-Comms & Equipments Page - Equipments Page Cav Iconics

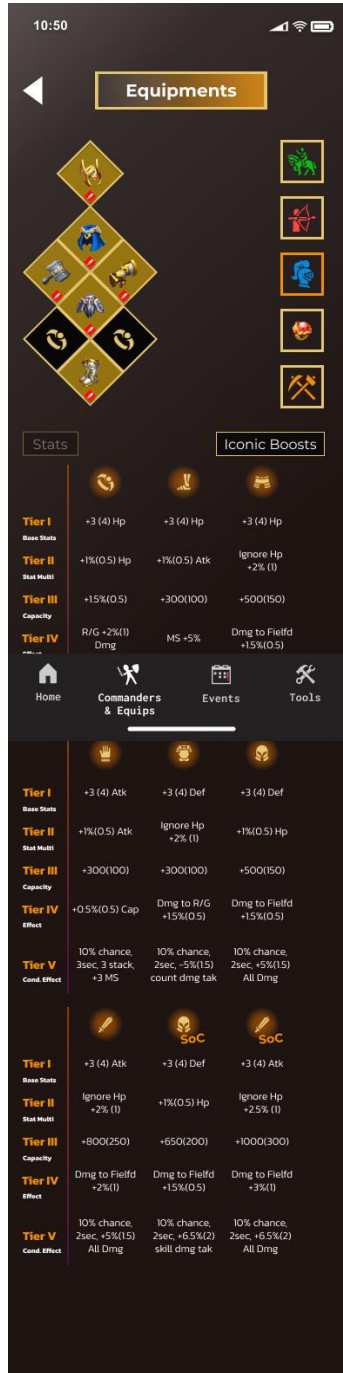


Figure 184-Comms & Equipments Page - Equipments Page Inf Iconics

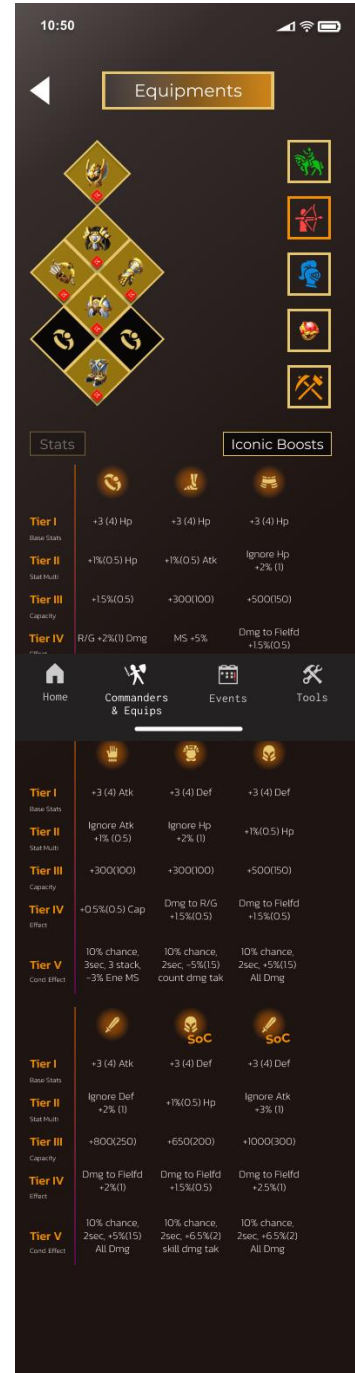


Figure 183-Comms & Equipments Page - Equipments Page Arch Iconics



Figure 185-Events Page Game Schedule

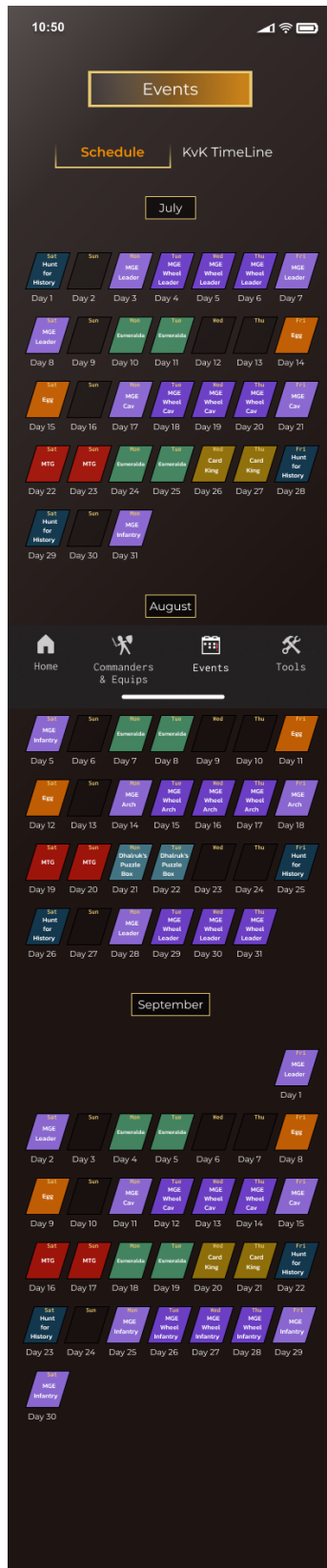


Figure 186-Events Page Game Schedule Plus

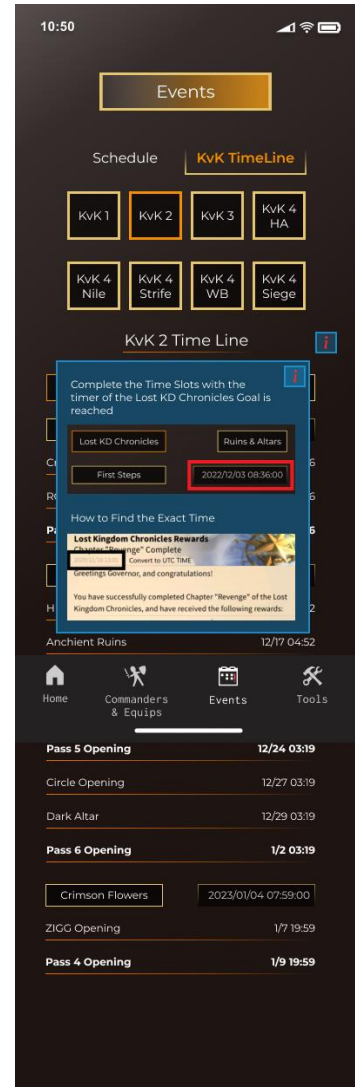


Figure 187-Events Page KvK Timeline - KvK 2 Info

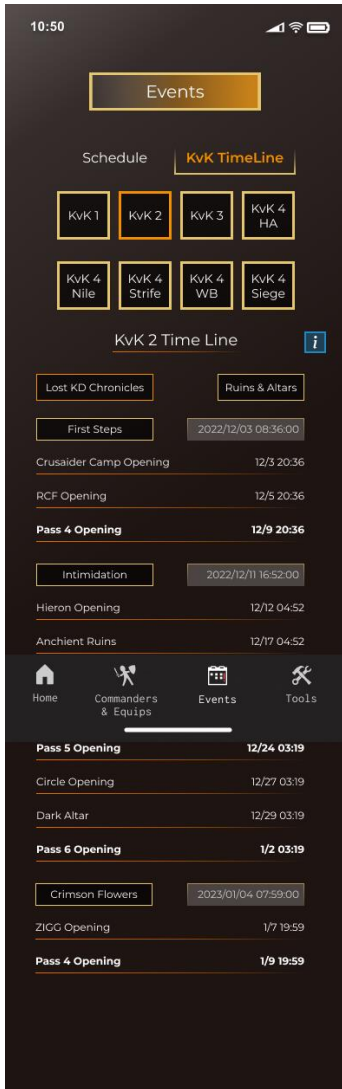


Figure 189-Events Page Kvk Timeline - Kvk 2

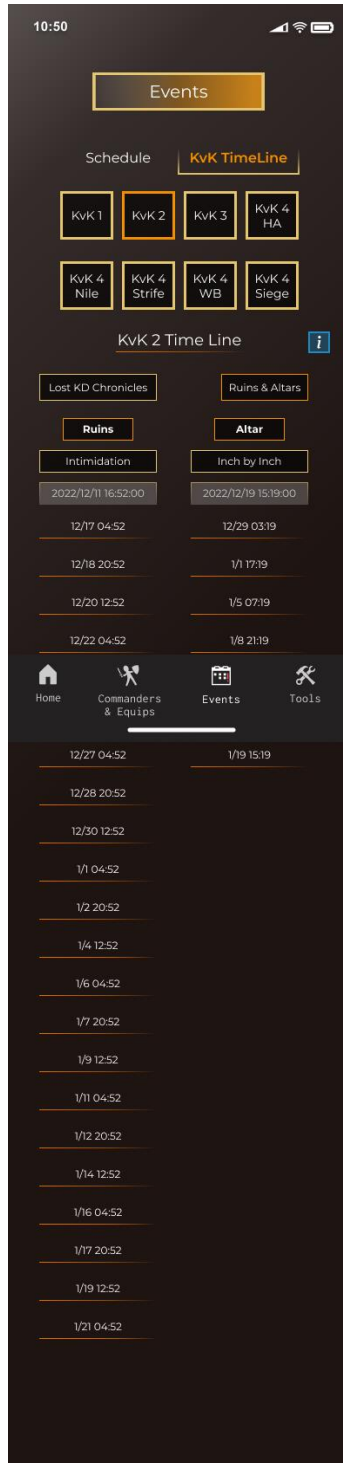


Figure 188-Events Page Kvk Timeline - Kvk 2

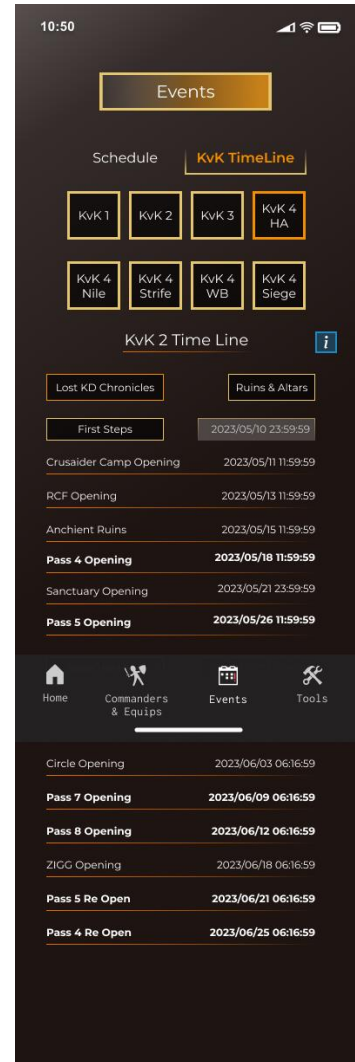


Figure 190-Events Page Kvk Timeline - Kvk 4 Heroic Anthem

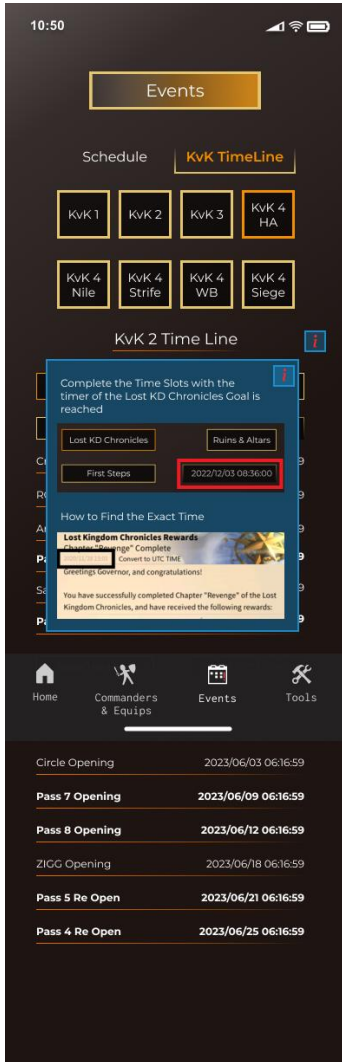


Figure 191-Events Page KvK Timeline - KvK 4 Heroic Anthem Info

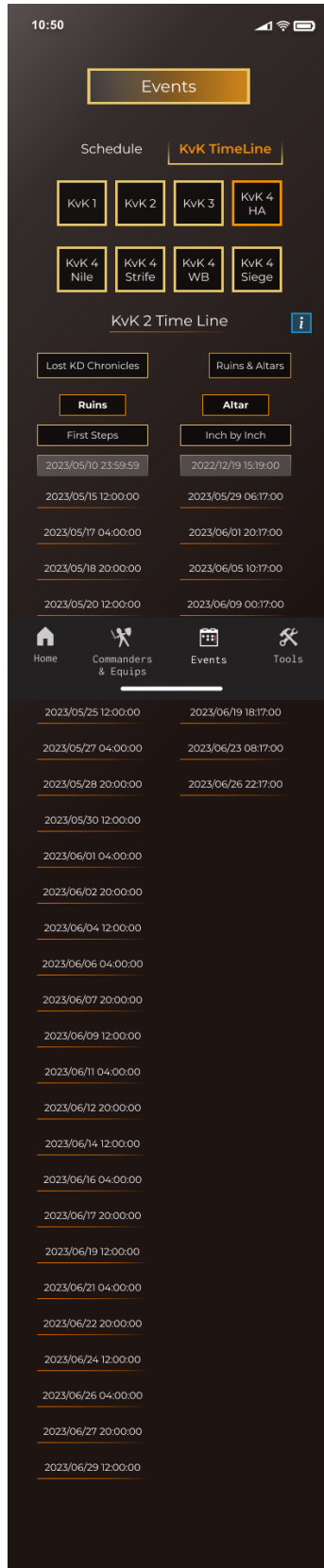


Figure 193-Events Page KvK Timeline - KvK 4 Heroic Anthem Ruins & Altars

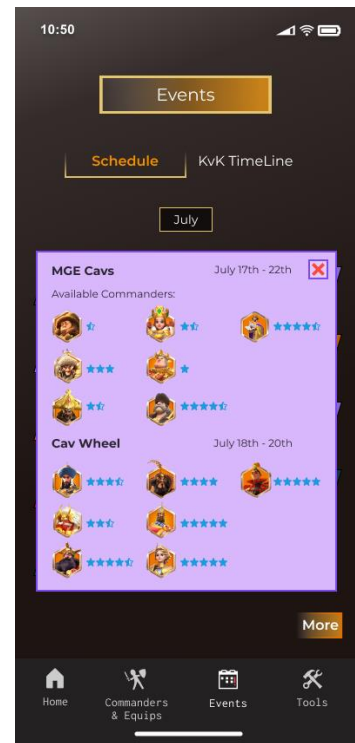


Figure 192-Events Page Game Schedule - Event Details

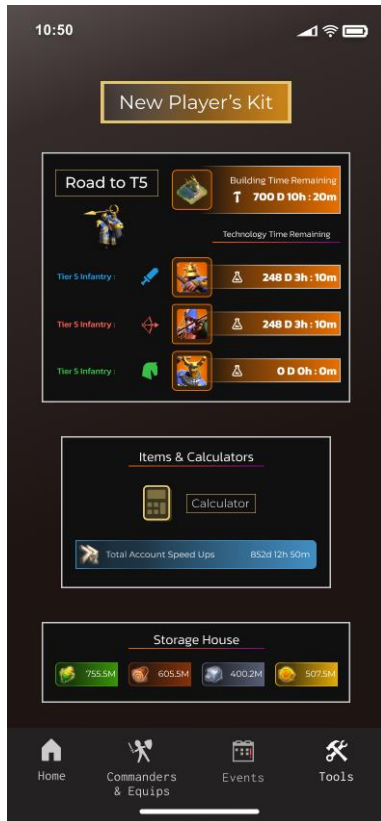


Figure 197-Events Page Game Schedule - Event Details

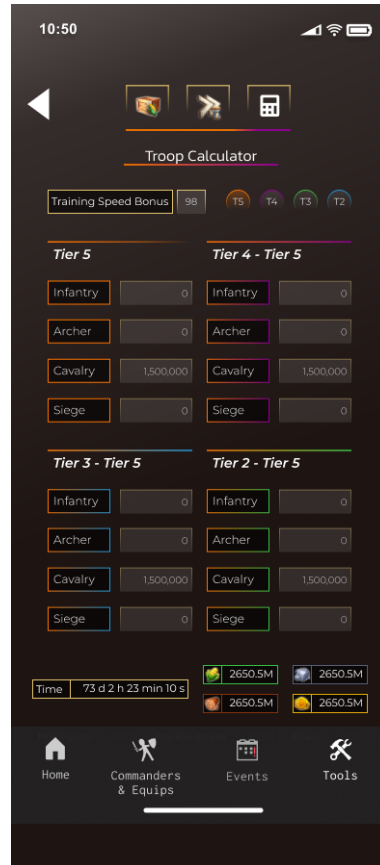


Figure 194-Tools Page - Troop Train Calculator T5

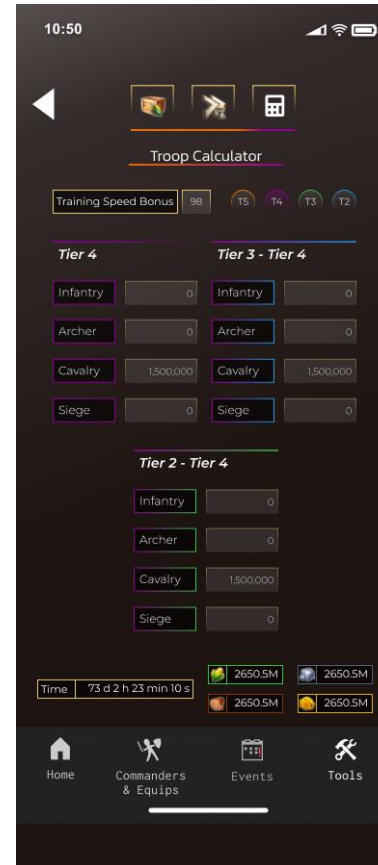


Figure 195-Tools Page - Troop Train Calculator T4



Figure 196-Tools Page - Troop Train Calculator T3 & T2

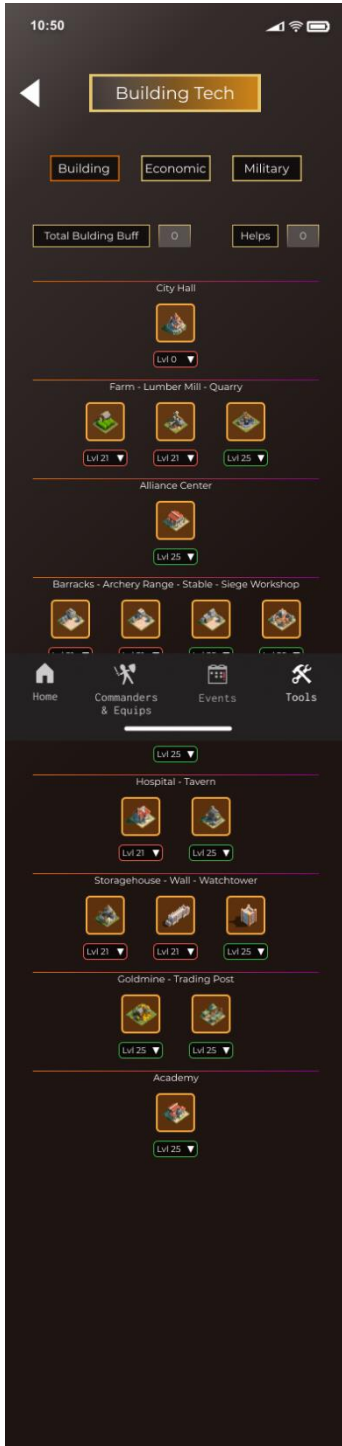


Figure 200-Tools Page - Road to T5 Building Stage

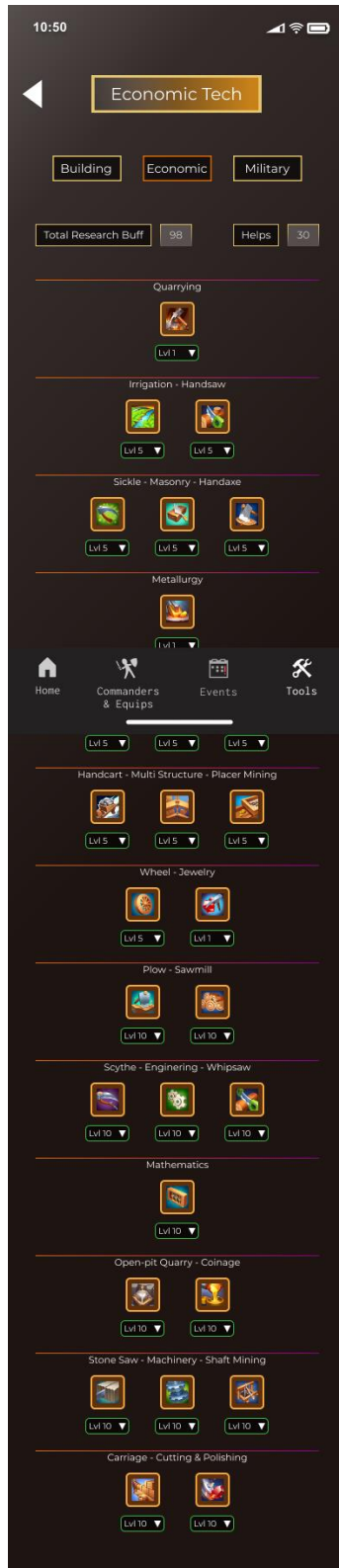


Figure 199-Tools Page - Road to T5 Economic Stage

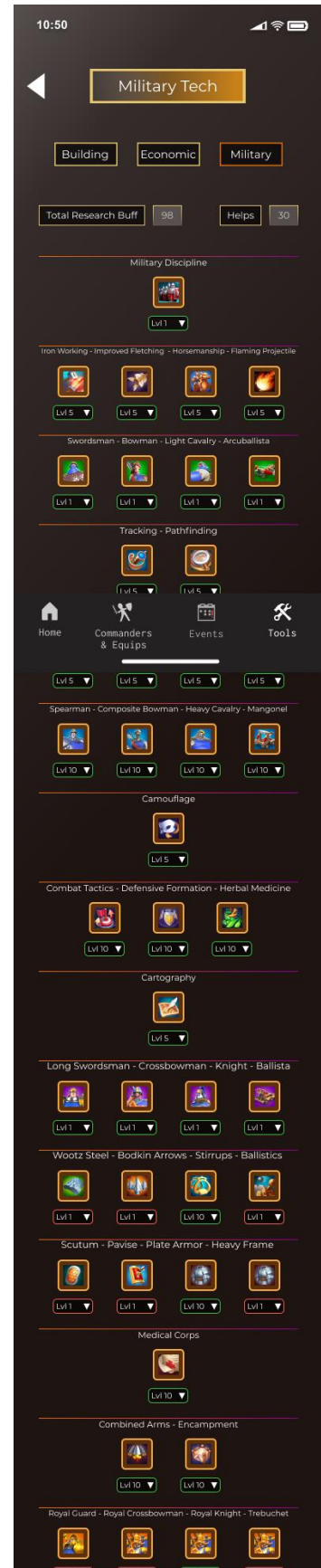


Figure 198-Tools Page - Road to T5 Military Stage

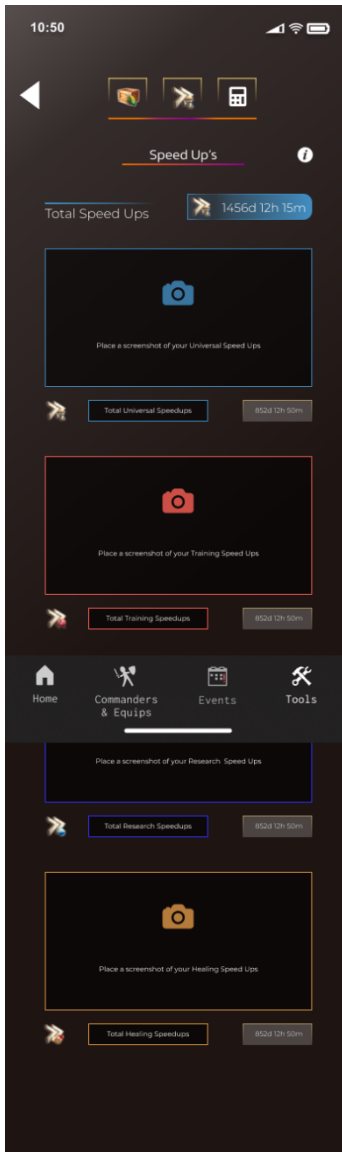


Figure 203-Tools Page - Speeds Calculator

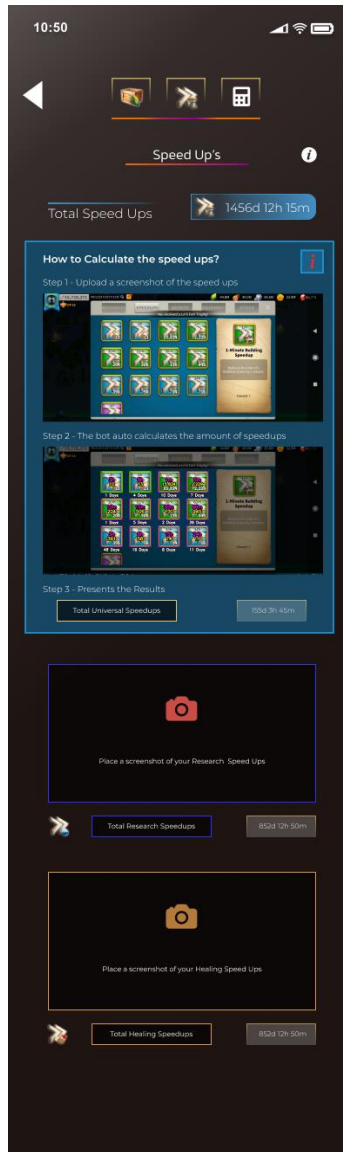


Figure 201-Tools Page - Speeds Calculator Info

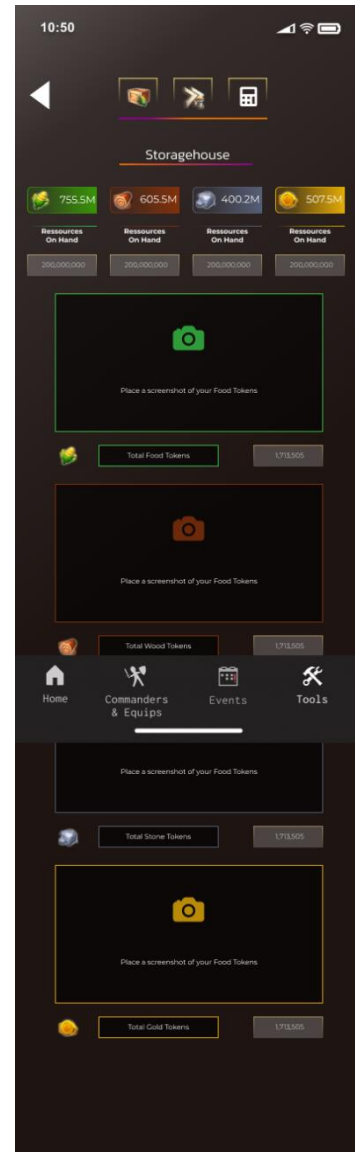


Figure 202-Tools Page - Rss Calculator