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A Case Study to determine the success factors of Clash of Clans

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ABSTRACT

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Clash of Clans has been one of the most popular and successful mobile game since its initial launch and release in 2012. For the last whole decade, it has charted every year in the top mobile games list.

The purpose of this thesis was to determine factors at play that have led to the success and popularity of the Clash of Clans for the last ten year. Passionate and curious game developers can use the results and findings of this thesis to develop successful games using the potential success factors explored in this thesis.

The background of the thesis presents the history of mobile devices and mobile games that initiated the introduction of games to mobile devices that led to mobile platforms becoming the biggest gaming platform today. The thesis then introduces game monetization strategies that developers and companies implement in their business models to generate revenue off their mobile applications and mobile games. The thesis then continues to describe the impact of Covid 19 on mobile gaming and the community with the entire world going into lockdown and been affected by the pandemic. All these topics introduce the reader to various factors affecting mobile gaming habits and the sales, success, and potential of mobile games.

Section 3 of the thesis presents a case study of Clash of Clans, its developing company, Supercell and looks at all the features, attributes and gaming mechanics employed by Supercell to keep the game successful over the years and have a strong player loyalty and player retention.

The results of the research present a clear objective and mission that Supercell has, which is to develop games that are played for years and remembered forever, and they have achieved this with Clash of Clans by having a clearly defined game core loop, making the game playable for infinite number of times. The gameplay of the Clash of Clans also makes for the success factor of the game as it always presents players with something to do such as collecting resources, upgrading, or building new buildings in the village. The study has also given a better understanding of player expectations and player behavior.

Keywords: Clash of Clans, Supercell, monetization, In-App purchases, elixir, mobile games, social and multiplayer feature.

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1 INTRODUCTION

Mobile games have increased drastically in popularity over the last few years. This is due to the rise in the number of smart phone users and demand of new mobile devices with better specifications and features compared to the previous models of mobile phones. Statistics show that around 70-80% of all mobile downloads is composed of mobile games. Such a large demand for games in mobile environment has made it an industry of high scope and visibility.

1.1 Background

This thesis is focused on one of the most popular mobile games of all times, Clash of clans, developed by Supercell, to figure out its main success factors and why it remains to be one of the most successful and popular games today since its initial release and launch in 2012. The thesis introduces the main aspects of the game and how they play a part on its popularity and explores various factors and strategies that mobile companies have to consider, to develop a successful mobile game.

Creating a successful mobile game that is popular for many years, fun to play and generates a profitable revenue for gaming companies and developers is challenges as they have to consider the market, their target consumers, monetization strategies, game design and playability and other factors when creating new games. In addition, the mobile application (App) market is constantly changing and evolving with new trends and requirements, and there are thousands of gaming companies that are competitors, developing new games very often with the aim to develop a very successful and popular game.

The author of the thesis has a very keen interest in game development and game design and therefore aims to learn about factors to consider when developing a game to ensure it performs successfully and is a popular game in the market. Also aims to learn about player satisfaction, behaviour, and expectations.

1.2 Objective and outline

The main objective of this thesis is to investigate factors that Supercell has incorporated in their game, Clash of Clans that work exceptionally well for the game making the game successful and popular over the years. In addition, the thesis also aims to understand player behaviour and player expectations for mobile games. Finally, the thesis aims to study various monetization strategies gaming companies can use to help boost their revenue and discover monetization strategies that can make companies lose player interest and loyalty.

The main research problems are:

1. Why is Clans of Clans a successful and popular game?
2. Why do the players play the game and have a strong loyalty to the game?

The thesis continues with a theoretical background of the relevant concepts and their impact to mobile gaming. The theoretical background is divided into three parts. The first part introduced the history of mobile devices and how various technological introductions to the mobile devices has led to the rise of mobile gaming. The second part introduces the history of mobile games, describing how they started to how games progressed from being built in mobile devices to being available for players on App stores to download and play. The last part introduces monetization and explains various monetization strategies companies utilise in their games. A case study of Clash of Clans is conducted and factors that make the game popular and successful are studied further in this study, after which the results are presented in chapter 4. The conclusion of the study is drawn and presented towards the end of the thesis.

This thesis was conducted using multiple sources, consisting of books, internet articles, game blogs and player community blogs and databases. The case study was also conducted with the user playing the game, Clash of Clans, for a better understanding of the game concept, game design and the mechanics, as well as to understand the various different units the game offers to its players.

2 THEORETICAL BACKGROUND

This chapter is divided into four sections. The Chapter begins with the author of the thesis describing the history of mobile phones and how they have progressively developed and are still continuing to develop today. The thesis then continues with examining the capabilities mobile devices present today. Then on the thesis looks at the history of mobile games from Nokia's Snake game on the Symbian mobile phones to complex, roleplaying and strategic games. After that the thesis introduces game monetization and examines game monetization strategies that game developing companies can implement in their games today. The chapter ends with a look at the impact of the Covid 19 pandemic and how it affected the gaming industry.

2.1 History of Mobile Phones

Mobile phones have rapidly evolved over the past decade and have a very big impact on the world, as the modern society seems to have a great fascination and obsession with technology. Of the world's seven billion population, it is estimated that six billion people have mobile phones (Robson, 2013) and studies show that the average person touches their phone 2617 times per day. (Patrick, 2016)

On average, most people check their phones about 60 times a day and studies show that people spend roughly 3 ¼ hours a day on their phones. With the world going through a pandemic, these figures increased exponentially as the entire world was in a lockdown and people found themselves with a lot of free time in their hands and mobile devices was one major way people could socialise and keep in touch with their families and friends. With the figures rising all the time, it is no surprise that the last ten years have been labelled as the 'decade of the smartphone'. (Zalani, 2021)

The sole use of mobile devices in their early days was for calling other people with ease while moving. Soon after, the ability to send text messages to other mobile phones was introduced and today, people can use their mobile phones for literally anything. The abilities of mobile devices today are limitless, for example, shopping online, paying bills, keeping in touch with friends and family via all social media platforms available, et cetera. Due to the efficiency and necessity of

mobile devices today, the technological advancement of the mobile devices has increased rapidly and with it, increases their prices. (Savov, 2018)

The first ever portable mobile phone was introduced to the world in 1983. It was introduced by Motorola (see Figure 1) and was the “Motorola DynaTAC 8000X” (History of mobile phones and the first mobile phone, 2021) it cost \$4000USD, weighed over a kilogram and took more than ten hours to charge, which when fully charged, only offered thirty minutes of battery. (U Switch, 2021)The only feature it presented was the mobile calling ability. The mobile phone had a Liquid Crystal Display (LCD) with a phonebook memory of 30. (IMEI, 2021)



Figure 1. Motorola DynaTAC 8000X (Motorola Dynatac 8000X)

Motorola followed up the DynaTac mobile phone with the 9800X or MicroTac in 1989. this phone then set the standard for the flip mobile phones since it introduced the fold down keyboard cover, which was seen throughout the 1990's. These mobile phones were referred to as Zero Generation (0G) mobile phones.

In 1991, The Global System for Mobile Communications (GSM), first launched in Europe with the Orbitel TPU 900 and the mass production paved the way for cost-effective consumer handsets with digital displays. Taking advantage of this transition, Nokia launched the Nokia 1011 in 1992. The name 1011 referred to the day and month the phone was released: 10th November 1992. (mobile phone history, n.d.) The Nokia 1011 presented the world with the ability to send text messages along with the ability to make phone calls and had a phone book memory of ninety-nine. (IMEI, 2021)

Nokia then replaced the 1011 with the 2110 (see Figure 2) in 1994. This mobile phone went on to become the definitive Nokia phone of the early 1990s. This mobile phone introduced the famous Nokia tune ringtone. Both the Nokia 1011 and the Nokia 2110 had a monochromatic LCD screen display and had the standard alphanumeric keypad as the input tool. (GSMARENA, 2020)

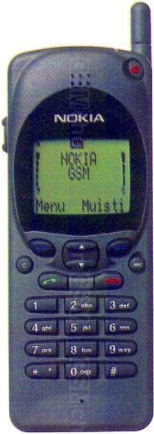


Figure 2. Nokia 2110. (gsmchoice)

In the same year, in 1994, the first principal cell phone game was presented to the world. It introduced type of Tetris, which went ahead on their Hagenuk MT-2000 cell phones.

This cell phone was designed and manufactured by Hagenuk's development centre in, Denmark. This mobile phone was, among the first mobile phones to use soft keys. The MT-2000 was also the first in industry to have a built-in antenna, instead of having the traditional extension antennas. (Mobilecollectors, 2013)

After three years, in 1997, Nokia then planned a rendition of Snake, for chosen mobile phones. It first showed on the Nokia 6110 (see Figure 3) and has since been implanted on 400 million gadgets around the world, making it the most played mobile game on earth. (Wright, 2016)

The first "multi-player" gaming experience was also additionally made available on the Nokia 6110. The game was a two-player adaptation of the Snake game, which could be played between two Nokia 6110 mobile phones utilizing the infrared port. (Microsoft, 2021)

2.2 Capabilities of Mobile Phones

The continuous demand and necessity of mobile phones today, has led to a rapid evolvement of these devices and has enabled these small and portable mobile devices to be equipped with such

extrusive features that keep users captivated and these features keep getting developed further with every new device that is brought out into the market. (Tigermobiles, 2019)

Firstly, these devices have gradually increased in size to accommodate for a lot of these features for instance the inclusion of cameras that all work independently from each other in order to capture a moment in the form of picture or videos in the desired rations, focus and angles. (ibid.)

The sizes of the mobile screens started to be built bigger to accommodate for a lot more text and for a better user experience and accessibility. As the screen sizes started to increase in size so did the developers start to introduce more variation of colour from the standard monochromatic displays earlier. (ibid.)

The first introduction of colour in mobile phone displays was done in 1997 by the Siemens S10. However, this display only offered four colours, but the displays seemed to be livelier. (Tigermobiles, 2019)

In 2007, mobile devices were made 'Smarter', in that, the traditional button method of input was replaced by the swiping, typing, and scrolling feature. The LG Prada was the first touchscreen to be introduced into the market ahead of the Apple iPhone (see Figure 3) in May 2007. However, Apple mobile phones brand was stronger since it had superior knowledge of the touchscreen's potential. (ibid.)



Figure 3. Nokia 6110. (gsmchoice) and the iPhone. (apple, 2021)

The evolution of the display screen has been exceptional over the last decade having gone from a monochromatic screen display to a limited colour graphic display to mobile devices having touch screens that have the qwerty keyboards inbuilt in the user interface of the mobile devices in comparison to the traditional keypads that were used to type. Today, mobile device displays are equipped with a new technology called OLED (Organic Light Emitting Diodes) display due to mobile phones becoming fully touchscreen. These OLED display screens are brighter, more efficient, thinner and feature better refresh rates and contrast than LCD or Plasma display screens. Mobile phones that use the OLED screens are becoming more successful with over 500 million AMOLED screens annually. Almost all successful mobile phone companies today use OLED displays, companies such as Samsung, Apple, Huawei, Asus, Lenovo et cetera (OLED-info, 2021). The biggest screen display size today is 6.8 inches offered in the Samsung Galaxy S21 Ultra. (Samsung, 2020)

The introduction of touchscreens opened various opportunities for mobile devices and their capabilities and potentials. Surfing on the internet became much easier with it leading to the development of various social media applications such as Facebook and WhatsApp that enabled communication with friends and family from a far and near so much easier and enabled the possibilities of video calling and sharing of images and videos. The Bigger screen displays, and touchscreens led to development of various entertainment medias such as YouTube and mobile gaming.

2.3 History of Mobile Games Development

The mobile games industry has grown profusely over the years with over 900,000 active games in google play and iOS App stores. However, the history of mobile games can be tracked to the pioneering mobile phones, when, in 1994, the first mobile game which was an arcade game, Tetris, was launched on a Hagenuk MT-200. However, it was the launch of the Snake game in 1997 on the Nokia 6110 phones that popularised mobile games.

The launch of the snake game in the Nokia mobile phones became a global phenomenon, believed to have made over 400 million copies and its success was due to its simplicity and it could be played by persons of all ages.

In the early year of mobile games, the games came pre-installed on the devices for example, the snake game in the Nokia mobile phones. As a result, players had no of choice of the available games. (Wright, 2016)



Figure 4. A timeline showing the history of Mobile Games. (proreviewsapp, 2020)

2.3.1 Pre-installed games

In the early year of mobile games, the games came pre-installed on the devices for example, the snake game in the Nokia mobile phones. As a result, players had no other choice than to play the pre-installed games (proreviewsapp, 2020). Today, the availability of online game stores for smart phones, presents users with countless games to choose from to install, run and play on their mobile phones.

2.3.2 WAP Technology

After the pre-installed games on the Symbian mobile phones, the next step of early mobile gaming was the WAP (Wireless Application Protocol) games. WAP Technology was where mobile phones browsers interacted with internet-hosted content via the carrier's WAP gateway. The WAP gateway converts between WAP requests and the Hypertext Transfer Protocol (HTTP). The actual content, that is the game, is hosted on a standard internet accessible web server. (Laramee, 2005)

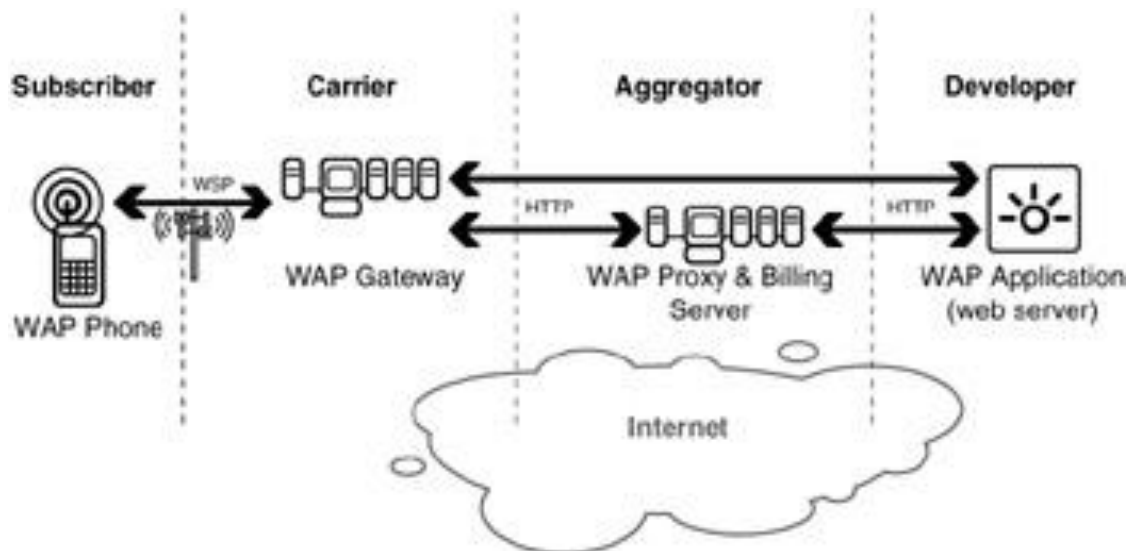


Figure 5. A visual representation of the WAP Technology

The WAP technology (see Figure 5) was a limited technology for games and was slow. There was a browser showing simple web pages, but they were not even HTML as the phones did not support full HTML yet. In this era of gaming, Finnish gaming start-up Riot-E offered some games via WAP technology for example “Spider-Man Pixx WAP” (see Figure 6), “X-Men WAP” and “Forces of Light and Dark”. These games were made of text links and very simple graphics. The graphics were pixelated and just still images as animations would have needed more capacity on the phones and network. WAP was the start of browser-based games for wireless devices. In spite of the disadvantages of black and white mobile phones, slow network speed and technically limited browsers. (Halme, 2018)

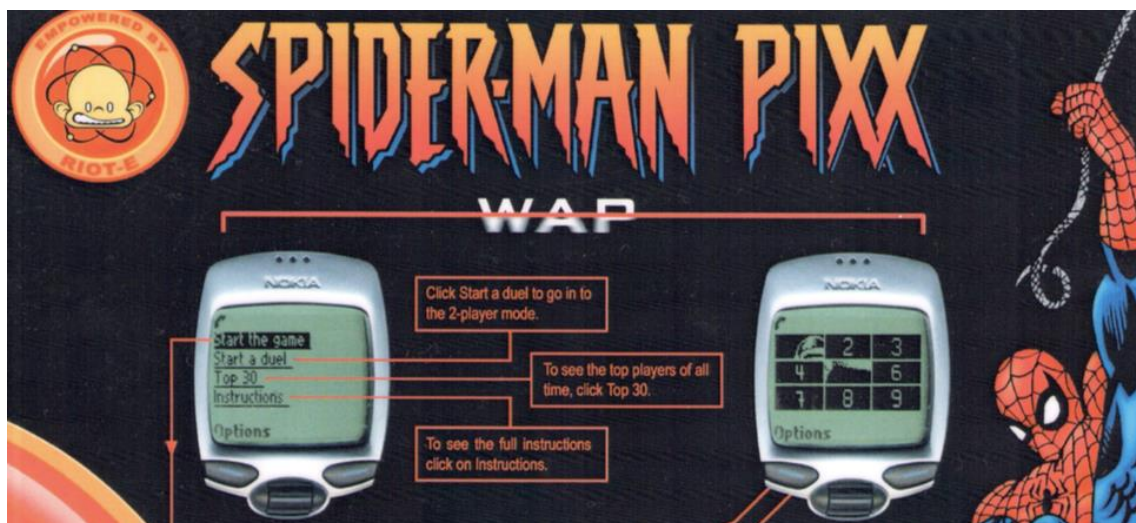


Figure 6. Spider-Man PIXX WAP game by Riot -E (Halme, 2018)

In 1999, mobile games started getting commercialised when a platform known as I-mode was launched in Japan and by the end of the year 2000, downloadable mobile games became available worldwide and on various devices. (proreviewsapp, 2020)

In 2007 when Apple launched their first iPhone, they also launched their own iOS app store. With the help and availability of the app store, developers became more equipped to develop more sophisticated and more engaging games in the form of Apps taking into consideration the touch feature on the entire screen on a mobile device and they could then sell them to reach out to larger audiences. This led to competition among developers leading to various interesting game genres and various new games were made available to the open market. (ibid.)

2.3.3 Hyper Casual Games

After the WAP technology gaming era, hyper casual games started emerging and popularizing around the world. Hyper casual games are games that are lightweight, simple in concept and are very simple and minimalistic in mechanics and the design. (Wagner, 2021)

These games are instantly playable, requiring little to no tutorial explaining the game, hence very easily immerse the user into the game. The user interface of hyper casual games is designed simplistic and minimalistic with no difficult controllers, elements, or complicated menus to navigate around the game. These games are very engaging and are infinitely replayable due to their simple mechanics making players want to play them repeatedly. These games are easy to develop and launch due to the simple design and mechanics.

The downside of hyper casual games is that they tend to have a shorter shelf life than other games. Due to their simplicity, users can move on to another game very easily. Flappy Bird (Figure 7) was the first known hyper casual game, which was developed by Dong Nguyen, and it was released in 2013. At its peak, it was making \$50,000 a day from in-app advertising. (Elhady, 2021)

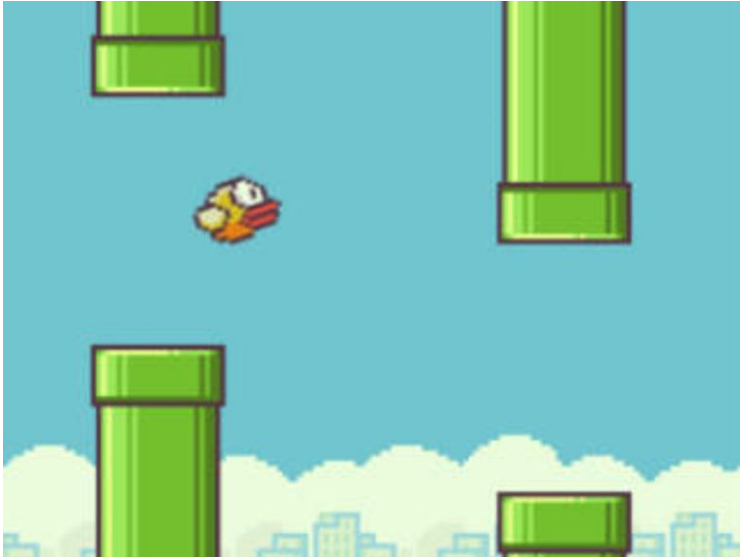


Figure 7. The game, *Flappy Bird*. (Molina, 2021)

In 2014, the mobile phones industry went through an evolution resulting in the development of better phones that possess higher capabilities to run such complex games on such small handheld devices. Since 2014, mobile games have seen such a vast growth and development as game developers look to outdo each other and previously played games. From 2D and 3D mobile games (See Figure 4), we now have games giving a 4K display and entailing complex gameplays to keep gamers stuck on their mobile phone. (proreviewsapp, 2020)

Today, the mobile games developed are available and compatible with both android and iOS platforms to increase their accessibility and users worldwide. The gaming industry is the biggest and most popular industry and is bigger than the movies and music industries combined, and is still growing bigger from various simple 2D (Two dimensional) games such as Rovio's Angry birds (see Figure 8) or freemium mobile strategy video games such as Clash of Clans (see Figure 9), developed and published by a Finnish game developer Supercell or more role playing games or various massive multiplayer online games such as Player Unknown's Battlegrounds (PUBG) which is developed by PUBG Corporation (see Figure10), to various new possibilities and implementations being presented to the gaming world for example, the virtual reality and the esports. (proreviewsapp, 2020)



Figure 8. The game, Angry Bird. (Entertainment, 2009)



Figure 9. The game, Clash of Clans. (Supercell, 2012)



Figure 10. The game, PUBG. (Corporation, 2017)

As various complex mobile applications keep getting developed, they keep requiring more processing power and memory to be able to operate smoothly and at the desired rates and frames per second, and as a result, mobile phones are being developed further and being equipped with more memory space to be able to store all the heavy files of various games and mobile applications and their CPUs are also continuously being developed to be able to run these applications and games smoothly without lagging and overheating the mobile phones or draining battery. (proreviewsapp, 2020)

2.4 Application Monetization Strategies

Game monetization is the process by which game developers and gaming companies make money out of their mobile games. (Elhady, 2021) There are various game monetization strategies, and they all differ for various types of gaming apps. They are:

2.4.1 In-App Advertising

In-app advertising is the monetization strategy where developers make revenue by displaying ads. -due to these ads, these apps are free to instal and use. Games that monetize using in-app ads focus on attracting a larger user base and thereby generating more revenue.

In-App advertising is the most popular monetization strategy. According to AdColony, 63% of all publisher revenues is made from in-app advertising (Knezovic, 2021). Games like Candy Crush Saga, Pokemon Go and Clash Royale make over \$1,000,000 in daily revenue as of July 2017 (Statista, 2021). Also, 90% of Google Play's and 75% of iOS's revenue in 2016 came from games through in-game ads and purchases (Hindy, 2017). Mobile apps present different ad formats and they are as follows:

2.4.1.1 Banner Ads

Banner ads are small ads that appear in dedicated areas on the user's mobile screen, for example, the top of bottom of the screen. Usually they are static, that is, text and image banners but can also be dynamic, in that they display GIFs, or videos. (Elhady, 2021)

2.4.1.2 Interstitial Ads

Interstitial Ads are ads that cover the entire screen of the user (see Figure 11). They can be playable ads, video interstitial ads or just static ads. These ads can be exited after watching them for a certain duration of time and they usually appear on the user's screen in content breaks, for example after completion of an action, finishing a level or after launch of the app.(ibid.)



Figure 11. An Ad about the game Candy Crush, running on a player's mobile phone. (King, 2012)

2.4.1.3 Rewarded video ads

In rewarded video ads users receive a reward from the app in exchange for watching a video ad. These ads are very effective in mobile games for example gamers earn in-game currency when they watch the video advertisement. (Knezovic, 2021)

2.4.1.4 Native Ads

These ads are designed in a format they blend with the apps look and feel, thereby, they do not significantly interfere with the user experience of the game. (ibid.)

In-app advertising presents various advantages and disadvantages. Some of the advantages are they are quick and easy to implement, they do not require a lot of maintenance, the ads can be tailored to users' interest and the app remains free for the users. The disadvantages are user experience can be destroyed by the frequency of the ads, irrelevant and non-appealing ads may affect the user experience and users ignore certain ad formats. (ibid.)

2.4.2 In-App Purchases

The in-app purchase (IAP) strategy keeps apps free to install and use (see Figure12). However, this monetization strategy focuses of potential buyers than all users. Apps based on IAP, offer users with purchasable content, services or features within the game or app. This monetization strategy tends to be the most effective for gaming apps. Examples of this strategy is that users may get

extra lives, in-game currency or various types of skins and clothing for their game characters. Gamers will dedicate to purchasing items as long as the items are valuable enough and will benefit them. (Knezovic, 2021)

The advantages of in-app purchases is that the app is free to use and try by all users, there are no ads display that might ruin user experience and users can buy any extra features that will benefit them, whereas the disadvantages are the revenue depends on the user base that pays for these extra features and if these IAPS are not implemented well, they will lead to bad reviews for the app. (ibid.)



Figure 12. In-app purchase of gems, in-game currency, in Clash of Clans, using real currency (Supercell, 2012)

2.4.3 Premium Apps

Premium apps, also known as paid apps and pay-to-download apps, they require users to pay a onetime fee before they can instal the app in their mobile phones. Once paid for, the users get permanent access to all features within the app. This was the most popular way developers and companies generated revenue when apps first started to appear in app stores. (ibid.)

2.4.4 Subscriptions

Apps that monetize using the subscription strategy are free to download. however, this strategy is based upon impressing users with the benefits of the app and turning them into engaged or loyal

users of the app and as such, user may be willing to pay a subscription fee to access the content or features. (Knezovic, 2021) This monetization strategy has two different approaches:

2.4.4.1 Subscriptions Only

This app can be downloaded for free by all users and be used for a limited time. However, upon the end of the free trial period, users need to pay a recurring subscription fee to keep using the app and its features. The strategy aims to attract a lot of new users and hope they hey hooked to the app within the trial period and thereby making them loyal users and getting them to subscribe and pay the recurring subscription fee. This strategy offers users with several subscription plans, so users can decide which plan fits their needs and budgets best. (ibid.)

2.4.4.2 Optional Subscriptions

In this monetization strategy, the app is made free and available to install and use for all users, however there are two different versions of the app, the basic and premium. Users that do not subscribe to the app only get the basic features of the app, whereas the users that subscribe enjoy the entire app and added features that are of benefit to the users. In this strategy, the basic version of the app needs to be good enough to keep users engaged hoping to turn them into subscribers to make profit and retain them and the premium version has to provide a clear value of the app and if the content behind the subscription gate is valuable enough, users recognize that and become loyal subscribers. (ibid.)

2.5 Impact of Covid 19 on mobile gaming

The world went into a lockdown in March of 2020 following the outbreak of the Corona virus pandemic. Everyone was asked to stay at home and maintain a social distance from friends, family, and others. The pandemic and lockdown put many in a state where they had a lot of free time in their hands with nothing really to do and boredom started striking. With all the spare time everyone found themselves in, many turned towards gaming to relieve some boredom, stress, and help take minds off the devastating news of the pandemic.

The impact of Covid 19 on businesses varied with most sectors being affected negatively, however, for the gaming industry, the impact was beneficial with gaming apps seeing a 90% rise in the number of installs in hyper casual games compared to the previous year, 2019.

Mobile game developers, companies and marketers took advantage of the opportunity presented to them and put a strong focus on User Acquisition (UA) campaigns, with non-organic installs rising to 250% (Wagner, 2021). User acquisition is the method by which new users or customers are acquired for mobile apps through marketing activities to make business. The pandemic acted like a catalyst in the mobile gaming world for it introduced numerous new players to numerous available mobile games. (Appsflyer, 2021)

3 CASE STUDY – CLASH OF CLANS

In this chapter, the author of the thesis will present a case study of one of the most successful mobile games of all time, Clash of Clans. The author will also study about the game's developer, Supercell and discuss various factors that are implemented by supercell to achieve the great success of their most popular mobile game, Clash of Clans.

3.1 Supercell



Figure 13. Clash of Clans (Supercell, 2021)

Supercell is a mobile game development company based in Helsinki Finland. The company was founded by was founded by: Ilkka Paananen, Mikko Kodisoja, Lassi Leppinen, Petri Styrman, Visa Forsten, Niko Derome, in June 2010 and then released its first game in 2011 which was a massive multiplayer online game, Gunshine, that was played on Facebook with a browser and was also available on mobile phones. However, in November of 2011, Supercell parted its way with Gunshine, since it did not interest players for long enough to their liking, the game was difficult to play, and the mobile phone version of the game did not work as well as the browser version of the game. From then on, Supercell decided to focus on mobile games, and cancelled the browser-based game in Facebook. (Lappalainen, 2015)

Supercell has released five mobile games since it was found and since it decided to shift its focus on developing mobile games. The five games are: Hay Day, Clash of Clans, Boom Beach, Clash Royale and Brawl Stars (Supercell, 2021). All these games are freemium games that are fast

paced and have been very successful for the company since their initial releases. The company performs with the main objective of developing successful games that stay popular over a long period of time. (Lappalainen, 2015)

As of 2021, Supercell has 340 employees, and the company has a revenue of 1.3 billion Euros. (Paananen, 2021)

3.2 Clash of Clans

Clash of Clans is a free-to-play mobile strategy game which is developed by Supercell. The game was released on the 2nd of August 2012 for iOS devices and a year later, 7th October 2013, on google play for Android devices. In the years 2013 and 2014, Clash of Clans was the most profitable mobile game in the world and has remained one of the most profitable and successful games to this day with 61.54 million downloads (Statista, 2021)

Clash of clans is a massively multiplayer online game (MMO), and therefore requires a network connection for the game to play and for players to be able interact with their friends and clan. Having a keen interest in game development and game designing, the author of this thesis wanted to study the main features of the game and the reasons behind its great success. (ibid.)

In this thesis, Clash of Clans was chosen, since it is one of the most successful mobile games there exists. As a basis of evaluation, the author of the thesis played the game for a period of three weeks, in November 2021. After that, an evaluation was conducted on the game and the following topics were studied and further researched:

1. Gameplay loop and playability
2. First Time User Experience (FTUE)
3. Graphics and visuals
4. Main Features of the game
5. Social and Multiplayer aspect
6. Player Retention
7. Monetization Strategies

3.2.1 Game loop and Playability

Clash of clan is a free to play mobile game that is a combination of strategy and fast-paced combat. In the game, players build their own village, raise a clan, build an army of barbarians, war wizards, dragons and then compete in wars using their armies, troops, and magic spells to defeat the goblin King, other villages, and clans. Players form a clan and invite friends to join the clan, or they join existing clans to build and forge alliances and strengthen their forces when they attack other villages and clans and, in such, earn valuable magic items, rank higher and level up as they win. From every war that is fought the winners take loot from the losing villages and clans. The loot obtained is gold coins and elixir. (Koistila, 2014)

Gold coins and elixir are the two soft in-game currencies. Players need to build gold mines to one these gold coins and gold collectors to store the gold coins. Similarly, they need to build the elixir mines to produce the elixir and elixir collectors to collect the produced elixir. Once the mines are built, the resource production is automated, in that, the players don't have to initiate the production of the resources or wait till resource production is completed. (Katkoff, Clash of Clans - the Winning Formula, 2021)

However, these production facilities have a maximum capacity, in that, they will keep on producing resources until the specific amount that a player can mine depending on his level in the game is met. To increase production capacity, the players then need to upgrade the resource facilities and their own townhalls. (ibid.)

Players plan unique battling strategies with numerous combinations of spells, troops, and heroes. They collect resources and steal loot from the raided villages to upgrade their own village and turn it into a strong hold. They also plan strategies to defend their own village from enemy attacks using Towers, Cannons, Bombs, Traps, Mortars, and walls.

Players unlock battle heroes for example the Barbarian King, Archer Queen, Grand Warden who possess various strengths and powers that help in winning battles and protecting the village. The game also enables users to upgrade research in their townhall laboratories to make their Troops and Spells more powerful. (Koistila, 2014)

The game also allows players to watch clanmates attack and defend their villages in real-time as spectators when they are on the gaming application or view the battles in the video replays for battles that occurred while they were away from the game.

Clash of clans is very well developed by Supercell as it presents a very easy and clear designed core loop, that rewards its players every time they are active in the game, and it also promises users with progress for each return session. The game is developed in such a manner that it keeps running and performing tasks in the background, when the user is not on the gaming app, in that, if another clan attacks the players village, the troops gathered and trained strategically will try to defend the village to their full abilities, when the user is not active in the game, or any mining of gold, gems or elixir that the user had started, which would take a long while to obtain, will have been completed and collected once that duration of time has completed. (Katkoff, Mid-Core Success Part 1: Core Loops, 2013)

However, all this is only possible if the user has an active internet connection on their mobile phone, to achieve all this in the background.

The game core loop of Clash of Clans comprises of the following three different actions (see Figure 14):

1. Building, upgrading, and training troops.
2. Resource Collection. Players collect coins and elixir.
3. Battling other players, goblins, or clans.



Figure 14. A Visual representation of the core loop of Clash of Clans. (Deconstructor of fun, 2021)

3.2.1.1 Building and training troops

The game is designed in such a manner that building anything and upgrading uses either gold coins or elixir, and time to complete the upgrade, whereas training the troops uses elixir and time to completion (see Figure 15). The time a building takes to upgrade or train troops, depends on the current level of the building and troop training. As the upgrading progresses, the time it takes to upgrade increases. (Katkoff, Mid-Core Success Part 1: Core Loops, 2013)

Upgrading building is a vital part of the game and for progression of the game, as the players keep needing more resources to build bigger and better units of their village. The game is developed in such a manner that everything is tied to one another and therefore, players need to upgrade everything simultaneously to progress in the game. They cannot focus on just upgrading one specific building. (Katkoff, Clash of Clans - the Winning Formula, 2021)



Figure 15. A Visual representation of the core loop of Clash of Clans. (Deconstructor of fun, 2021)

As seen in figure 15 above, to upgrade a gold mine the player requires elixir whereas to upgrade an elixir collector, the player requires gold coins. Also, when upgrading from one level to another there is a fixed number of resources required and a fixed amount of time. As the levels keep increasing so does the number of resources required to upgrade and so does the time it takes for the upgrade.

3.2.1.2 Resource Collection

Once the players have built the initial buildings, that is the elixir collector, and the gold mine, they then need to build the elixir storage and the gold storage. The automatic game mechanics will continuously make the elixir collector mine the elixir from the ground and on tap they player collects

the elixir and stores it in the elixir storage. Similarly, the gold mine will automatically mine the gold and on tap, the mined gold is collected and stored in the gold storage. (Katkoff, Clash of Clans - the Winning Formula, 2021)

The mined gold and elixir are used within the game to further build more buildings or upgrade current buildings and train troops. As seen in figure 16, on tapping the resource buildings in the inventory shows the buildings name, description, and purpose within the game.



Figure 15. Clash of Clans' resource buildings descriptions.

3.2.1.3 Battling

Training troops requires elixir and time. However, as players progress to better their troops, the training keeps increasing the requirement of not only time and elixir, but also more housing space. The demand of a better army requires a bigger army base, and these army bases need to be constantly upgraded, taking more resources and time. (ibid.)

The downside of battling and having to train troops and army camps is that all troops used in battle are consumed regardless of if the player wins or loses a battle. Therefore, players have to face situations where they build strong armies and upgrading them only to lose every single troop when they attack or get attacked. (Katkoff, Clash of Clans - the Winning Formula, 2021)

The game presents the players with the single player mission flow where they fight goblins that is Artificial Intelligence (AI), which is presented on a separate map making it easy to follow for the user. Even though the battles in this map are hard compared to the rewards the player gets in

return, this feature has shown to work very well for the game, as it keeps the players engaged until they can play in the player vs player battles. (Katkoff, Clash of Clans - the Winning Formula, 2021)

Additionally, the shield feature within the game, works exceptionally well for the players and helps them after lot battles. The main plot of the game is for players to battle other players in clan wars and be part of the strongest clans. However, there are players that lose battles and as a result lose ranks, therefore, the game presents the shield feature which is activated once a player loses a battle. This shield can last for several hours after every lost defence. The shield enables players to rebuild their village and strategies to be able to withstand attacks in the future. (ibid.)

Players can defend their villages from destructions in two ways. Firstly, players build their defences with the aid of walls, traps, cannons, and training troops to defend the village automatically in a player versus player battle. Secondly, players need to join a clan since players can revenge on behalf of clan members. To join a clan, players first need to restore the castle next to their village and once that is restored the new players can join clans and then players can donate troops to clan members and in such a way strengthen their defences. (ibid.)

3.2.2 First Time User Experience (FTUE)

Clash of Clans is quite addictive as it hooks players to the game from the very first launch of the game. Right as the game launches, the first-time user is in the game tutorial and is suddenly caught in the middle of an attack by the Goblins and instinctively wants to save his village from the attack. The game continues with the tutorial which further gives instructions on what the player should do, to protect the village and right then, the player is sucked into the game due to its very high sticky factor, making the player come back repeatedly to continue playing the game. (Jordan, 2012)

Supercell focuses a lot of their attention on the first-time users of the game since they believe that players at this phase of the game must successfully complete this initial run of the game to become valuable and engaged members of their gaming community. (ibid.)

They have therefore deployed numerous tactics to ensure user satisfaction and loyalty. They have achieved this by ensuring the game is easy to play and follow, they have presented these users with a very quick and easy to follow tutorial of the game, ensured that the game is infinite times

playable and have a promised reward system whenever the user logs in again to the game. (Jordan, 2012)

3.2.3 Graphics and Visuals

The graphics of clash of clans are very cartoonish yet visually pleasing considering the plot of the game being clan wars (see Figure 9). The strategy to keep the graphics simple yet childish, in that, they are cartoonish, have paid off the developers' efforts to make the game playable for all ages. The game can be played by children and teenagers since there is no graphical or sensitive playability features, for example, spilling of blood during battles. The game is likewise enjoyed by young adults and older people as the game is easy to play and follow. (Katkoff, Clash of Clans - the Winning Formula, 2021)

The game has also used vibrant yet distinctive colours in the game making the game and village feel lively. Even though the game displays a big game area, the entire village of the user, on mobile phone screens, players can easily differentiate between the various building, troops and activities going on in the village. For example, when the builder is upgrading a building next to barbarian's troops training, players can easily follow the progress of the game. (Fandom, 2021)

Just like the graphics, the developers have also utilised cartoonish game fonts that are animated to keep the players hooked and engaged the cartoonish font also as a result does not affect the whole playability of the game as any pop-up text feels like another element of the game and hence not breaking the players attention to the game. (ibid.)

3.2.4 Main Features of the game

The main features and units of Clash of Clans are the army units and spells. However, the game possesses other units, and they are many. These multiple units further have multiple units within the parent unit types. The game has lots of content and thereby always exposing the players to new content, and their upgrades and thereby keeping the players hooked to the game as the constant new content keeps the players boredom away, as it eradicates the same monotonous game play over and over. (Fandom, 2021)

Every unit has certain attributes, characteristics, and preferred style of play. Examples of these units can be: Damage caused to enemy troops, movement speed, hit points, cost to purchase and a certain amount to unlock. Additionally, these units have upgrades. They can take either certain amounts of elixir or gold to upgrade and the upgrade makes them better units as their attributes increase for example a unit will cause more damage to enemy troops after upgrade or their movement gets faster. (Fandom, 2021)

The game begins with a player in a village and then they start developing the village. They build buildings for example are:

- The town hall
- The gold and elixir mines, to collect gold and elixir
- The army camps to house the armies.

In addition to the buildings, the player also creates spells in the spell factory and researches the spells in the laboratory to make the spells more powerful and use them during battle to help his village and armies. (ibid.)

Finally, the player also makes an army and trains them to protect the village. The game has various troop units that the player can choose from to make their army. Every troop unit further has sub troop units. (ibid.)

This thesis will continue looking at all the various types of troop units available in the game and discuss their main roles, strengths, weakness and when they can be obtained or unlocked for battle. The evaluation of some of these troops is by their attack speed which will be in seconds (s) and other evaluations based on the time it takes to form one unit which can be again in seconds (s) or minutes (m)

3.2.4.1 The Army Units

A player builds an army, and that army is used to fight goblins on the campaign map or against other players of the game, to win loot, that is, gold coins and elixir, and to win trophies and rank higher. The troops are created in the barracks, housed in the army camps, and use elixir to train. Some troops get boosted temporarily into super troops, boosting their abilities compared to normal troops.

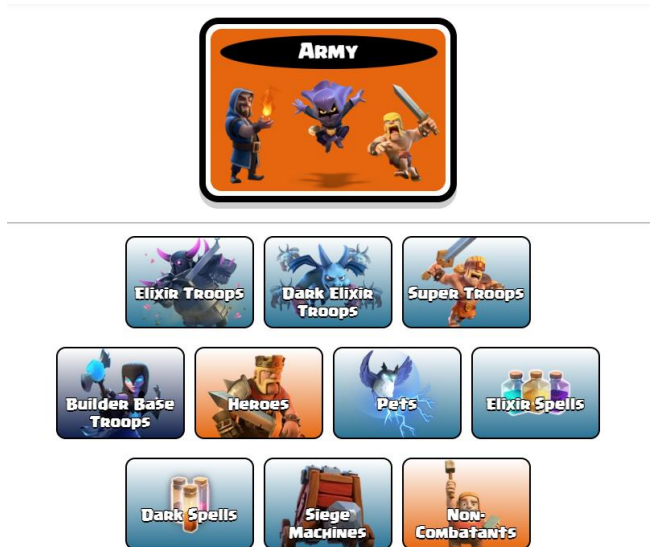


Figure 16. All the parent Army Units in Clash of Clans.

The players army comprises of various troops and every troop has its distinct characteristics, strengths, and weakness. These various troop categories further have multiple troops within it to for the parent troop. The troops unit categories are:

1. Elixir troops
2. Dark elixir troops
3. Super troops
4. Heroes
5. Elixir spells
6. Dark spells
7. Siege machines
8. Pets

Elixir Troops

These troops are trained in the regular barracks. As players keep upgrading the barracks, they keep unlocking more elixir troops. These troops can be made more powerful by doing research within the Laboratory (Fandom, 2021). Examples of units that belong in the elixir troops are (see Table 1):

Troop name	description	Preferred target	Attack type	Attack speed (seconds)	Move ment speed	Bar-racks level re-quired	Range
Barbarian	A single target melee troop that attacks the closet enemy building	None	Melee (Ground only)	1s	16	1	0.4 tiles
Archer	Female warrior that attacks enemies using arrows from a distance or her tower	None	Ranged (Ground and air)	1s	24	2	3.5 tiles
Giant	They are slow but huge and therefore attack on defences to weaken enemy vil-lages.	Defences	Melee (Ground only)	2s	12	3	1 tile
Goblin	Attack resource build-ings to obtain loot	Re-sources	Melee (Ground only)	1s	32	4	0.4 tiles
Wall breaker	Attack walls surround-ing a village. Blow themselves up in the process	Walls (Damage x40)	Area splash (Ground only)	1s	24	5	2 tiles

Table 1. Assessment of the different Elixir Troop Units. (Fandom, 2021)

Dark Elixir Troops

These troops are trained in the dark barracks upon unlocking and require dark elixir to train. The dark elixir troops can be researched in the laboratory to make them more powerful, just like the elixir troops (Fandom, 2021). Examples of units that belong in the dark elixir troops are (see Table 2):

Troop name	description	Preferred target	Attack type	Attack speed	Move ment speed	Bar-racks level re-quired	Range
Minion	A fast and weak air troop with short range that spits dark elixir at targets	None	Ranged (Ground and air)	1s	32	1	2.75 tiles
Hog rider	Fast ground troop able to jump over enemy walls to cause damage to enemy defences	Defences	Melee (Ground only)	1s	24	2	0.6 tiles
Valkyrie	Fierce warrior that spins hers attacking multiple buildings structures at once	None	Area Splash 1 tile radius (ground only)	1.8s	24	3	0.5 tile
Golem	Ground troop that once defeated, spawns into two or three golemites (small versions of the golem) each carrying 1/5 th of the golem's stats.	Defences	Melee (Ground only)	2.4s	12	4	1 tile
Witch	Shoots a blue projectile at the target and can summon dead warriors from past battles. Only a certain number of dead warriors can be summoned	None	Area splash 0.3 tile radius (Ground and air)	0.7s	12	5	4 tiles

	per witch to the battle at the same time						
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Table 2. Assessment of the different Dark Elixir Troop Units. (Fandom, 2021)

Super Troops

These troops are elixir troops that have been boosted. They are more powerful than the normal elixir troops and have special abilities. Players temporarily boost their original troops into super troops with dark elixir or super portion once they have reached the town hall 11 and have reached base troop level requirements.

Super troops take more housing space, and their training time and training costs are increased proportionally. Additionally, players are only able to have up to two active types of super troops at any given time (Fandom, 2021). Examples of units that belong in the super troops are (see Table 3):

Troop name	description	Preferred target	Attack type	Attack speed	Move ment speed	Special ability
Super Bar- barian	It is based on the bar- barian in the elixir troops. The super bar- barian has a higher damage per second and his rage ability enables him to have increased speed and damage for the first 8 seconds after he is deployed to battle.	None	Melee (Ground only)	0.8s	20	Rage
Super Archer	Super archer is a long-ranged unit that	None	Ranged (Ground and air)	1.5s	24	Sharp Shot

	fires arrows that penetrate through multiple building at once, causing damage to all of them at once.					(Arrow deals damage to multiple targets)
Super Giant	The super giant has wall buster abilities allowing it to deal extra damage to walls.	Defences	Melee (Ground only)	2s	12	Wall Buster
Sneaky Goblin	The sneaky goblin can go unnoticed for 5 seconds after it is deployed due to its special cloak ability	Re-sources	Melee (Ground only)	1s	32	Cloak
Super Wall breaker	Super wall breakers roll on large barrels that are pre-ignited bombs that blow up under all circumstances when they hit a wall.	Walls (Damage x40)	Area splash (Ground only)	1s	28	Mega Bomb

Table 3. assessment of the different Super Troop Units. (Fandom, 2021)

Heroes

The hero units are immortal and therefore the most powerful troops in the game. They are immortal, in that, the players just train them once. In case they are defeated in battle, they regenerate to fight again (Fandom, 2021). Examples of units that are in the heroes' army unit are (see Table 4):

Troop name	description	Preferred target	Attack type	Attack speed	Move ment speed	Search Radius	Range
Barbarian King	Immortal Hero unit that when defeated or injured must regenerate health by sleeping for a period of time	None	Melee (Ground only)	1.2s	16	9 tiles	1 tile
Archer Queen	The archer queen shoots 3 rapid arrows per shot. All these arrows however cause damage to a single target.	None	Ranged (Ground and air)	0.75s	24	10 tiles	5 tiles
Grand Warden	The grand warden can walk over walls or fly high. He can also make the troops nearby him immune to damage once his Eternal Tome ability is unlocked.	any	Ranged (Ground and air)	1.8s	16	10 tiles	7 tiles
Royal Champion	The royal champion has a spear and uses it to attack at short range. She is also able to throw her shield to weaken enemy defences once her Seeking Shield ability is unlocked by the player	Defences	Ranged (Ground and air)	1.2s	24	9 tiles	3 tiles

Table 4. Assessment of the Heroes Troop Units. (Fandom, 2021)

Elixir Spells

Spells are created in the spell factory. Players upgrade their spells factories to unlock more spells and to be able to house all the spells. The spells are further researched on in the laboratory to make them stronger more effective and more powerful (Fandom, 2021). Examples of spell units in the Elixir spells are (see Table 5):

Spell name	Description	Spell factory level requires to unlock	Brewing time
Lightning Spell	The spell is cast to cause damage to buildings and enemies by electrocuting the enemies with a bolt of lightning inside a small area.	1	3m
Healing Spell	The healing spell heals troops to keeping them in a fight. Casting the spell creates a ring and units are healed when they are inside the ring	2	6m
Rage Spell	This spell enrages players units to make them bigger, faster, and stronger.	3	6m
Jump Spells	This spell is cast near enemy walls. It creates a route straight over them enabling troops to jump over the affected wall.	4	6m
Freeze Spell	This spell carries out a blast that temporarily immobilizes enemy troops and disables enemy defence buildings within the radius it was cast.	4	3m

Table 5. Assessment of the Elixir Spells Units. (Fandom, 2021)

Dark Spells

Dark spells are created in the dark spell factory. Players upgrade their dark spell factories to unlock more dark spells. Players can research about the dark spells in the laboratory to make the spells more powerful (Fandom, 2021). Examples of spell units in the Dark spells are (see Table 6):

Spell name	Description	Spell factory level requires to unlock	Brewing time
Poison Spell	This spell slows down all enemy troops inside the area it is cast. This spell does not affect buildings	1	3m
Earth-quake Spell	This spell deals damage to all buildings in the area of its effect except for the storages. Repeated casting of the spell on the same buildings progressively reduces damage caused. However, repeated casting of the spell on walls, keeps increasing the damage on them.	2	3m
Haste Spell	This spell boosts the movement of troop in the area that it is cast.	3	3m
Skeleton Spells	This spell is summons an army of skeletons anywhere on the battle ground. This spell does not trigger any traps and therefore can provide a very good distraction	4	3m
Bat Spell	This spell summons an army of bats on the battle grounds over time. The bats are low on health and target defences, and they do not trigger traps.	5	4m

Table 6. Assessment of the Dark Spells Units. (Fandom, 2021)

Siege Machines

Siege machines are created in the workshop, and they are special weapons that carry the clan troops. Every siege machine has a unique way of transporting and deploying reinforcements during attacks. The siege machines are destroyed when they complete their objective, they take excessive damage by defences or by the player's command. The siege machines release the clan troops housed in them when they are destroyed (Fandom, 2021). Examples of machine units within the siege machines category are (see Table 7):

Machine name	Description	Preferred Target	Attack Type	Movement Speed	Attack Speed	Workshop Level Required
Wall Wrecker	The wall wreckers primary target is the Town Hall, and it will fight any building and wall on its way to reach its target. Once there, it automatically breaks apart to reveal the troops inside.	Walls (Damage x10)	Area Splash	12	1.3s	1
Battle Blimp	The battle blimp prioritizes the town hall as its target over other buildings and as such will fly over all other types of enemy buildings and troops to reach the town hall. Once there, it automatically breaks apart to reveal the troops inside.	None	Area Splash	18	1.5s	2
Stone Slammer	The stone slammer aims for the enemy defensive structures therefore it will pass all other types of enemy buildings and enemy troops to reach its target.	Defences	Area Splash (Ground only)	16	2.5s	3
Log Launcher	This siege machine upon deployment shoots logs every few seconds. These logs can travel up to 20 tiles or hit 4 buildings.	Walls (damage x4)	Area Splash (Ground only)	5	3s	5

Flame Finger	The flame finger shoots projectiles that are fire spirits from a distance. On impact, it causes damage to all units within a 2.5tile radius and the affected area is set on fire for 22 seconds.	Defences	Area Splash (Ground only)	6	5s	6
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Table 7. Assessment of the Siege Machine Units. (Fandom, 2021)

Pets

Pets in the game are units that can be assigned to Heroes to help and support them in battle. Every pet in the game can only be assigned to one hero at a time and only deployed together with the hero it is assigned to. Pets too are immortal like the heroes, in that they only require to be summoned once and do not require to be regenerated once they are defeated. Every pet has a unique ability to help the hero they are assigned. The pets are unlocked and upgraded in the pet house building (Fandom, 2021). Examples of the pet units include (see Table 8):

Pet name	Description	Special Ability	Pet house level required	Targets
L.A.S.S.I	Helps the hero fight any target that is within 2.5 tiles of the hero. This pet is able to jump over walls to attack buildings and troops behind the walls	High jumper	1	Ground
Electro Owl	The Electro Owl attacks enemies with chain lightning which is only able to hit two targets.	High Voltage	2	Grounds and Air

Mighty Yak	The mighty Yak has a very high health and attacks on enemy walls doing an extra damage of x20 to walls	Wall Buster	3	Ground
Unicorn	The unicorn heals ant minor or major injuries of its assigned hero. if the hero gets knocked out, then the unicorn will go on to heal all other troops. The unicorn can heal both air and ground units	Personal Healer	4	Ground and Air

Table 7. Assessment of the Pets Units. (Fandom, 2021)

3.2.5 Social and Multiplayer aspect

The multiplayer aspect is the feature that lets more than one player play in the same game environment at the same time. The multiplayer features present players with the ability to play against other, one or more human player, cooperate with other human players to achieve a common goal together or supervise other players playing behaviour. (Grubb, 2013)

Clash of clans is a massively multiplayer online (MMO) mobile game and since the plot of the game is for players to join clans and forge alliances to strengthen their clan, communicating with fellow clan members is very vital. Clash of clans offers this communication through a simple chat system, where players can talk with other players and clan members. The competitive and multiplayer aspect of clash of clans has kept the game in the top grossing charts for almost every year since its official release and launch in 2012. As a result of the social aspect and multiplayer aspect, players donate or request for troops from clan members and help each other win wars for the clans making the game more playable compared to when players have not enough troops to defend their village from a battle and in return losing rank, trophies, and loot.

3.2.6 Player Retention

The player retention rate is the rate that shows how effective developers and gaming companies are at getting their users to come back and play their game. For example, what percentage of players that played the game on day one, are coming back to play the game on day two. (Lovell, 2011)

Ilkka Paananen from Supercell mentions that the main indicator that Supercell tracks is the 1,7 and 30-day retention rate. Lasse Louhento from Supercell furthermore adds that for Clash of clans, the company breaks down its users into three group: newbies, mid-range, and the elite-group. Each of these different groups play the game in various ways and have different retention rates. (Jordan, 2012)

Supercell pays a lot of attention on the newbies, since they are at that stage that players have to successfully complete to become valuable and engaged members of their gaming community and they have achieved this successfully with the by developing a very effective first-time user experience for these newbies, and this is furthermore achieved using the very effective game tutorial on first time launch of the game that hooks the users to game as they keep learning new things one after another. Supercell has furthermore improved the tutorial and updated it over the years for a better user experience and understanding of the game and that has in return boosted the retention of the players of the game, Clash of Clans. (ibid.)

Lastly, Clash of Clans has also managed to retain its players by sending out notifications to the players mobile phones, informing of the progress of the village, for example, informing players that the building they had started building is not complete. (ibid.)

3.2.7 Monetization Strategies

Clash of clans is a free to download and play mobile game. However, almost every detail in the game is designed towards monetization, for example training troops and building the village, thereby creating a place always for players to spend their in-game currency on. (Koistila, 2014)

The game is designed in the manner that it has its own in-game currency in the form of gold coins and a substance known as elixir. The players use these in game currencies on upgrading their town halls and setting down defences that protect the village during a war. There also is a premium currency in the game which is in the form of Gems, and this is used to speed up production and purchasing missing resources which are used in the production process. The elixir and gold are mined and obtained from loots after victory from battling other villages and clans, but gems can be found from removing tree and rocks from the village plot, but this process takes gold or elixir. (appfreak, 2021)

Mining the coins and obtaining gems, that is the in-game currency, can take time and therefore, additional in game currency can be purchased for real money using the In-App purchases that the game offers (see Figure 12).

Game monetization presents the aspect of competitive level of game play, where some players are willing to spend a generous amount of money to be better and faster than others within the game, for example by being able to train troops to higher levels and upgrading their town halls to higher ranks sooner. One of the top players of Clash of clans, Jorge Yao, has reported to have spent about 3000 Us dollars into Clash of Clans, to stay dominating the Top Players rank list for six months. (ibid.)

Supercell does not utilise the in-app advertising monetization strategy to generate income. Running ads in the game at intervals or covering a designated area of the game plot to display banner ads, ruins the user experience of the game. Also, frequent running of ads can be frustrating and annoying to players and as a result trigger them to uninstall the game or lose interest in the game very easily as they don't experience the game to its full potential. Therefore, not using the in-app strategy for monetization is helping Clash of Clans retain its players and hence playing an important role in the success of the game. (appfreak, 2021)

4 SUMMARY OF THE CASE STUDY

Clash of Clans is a game developed by supercell. Supercell is a mobile game development company from Finland. Since it was founded in 2010, supercell has launched and released 5 games into the gaming markets and for players all around the globe. Supercell has a clearly defined mission statement and that is to create games that are played for year and remembered forever.

Clash of clans is one of the most successful and popular mobile games in the world. Supercell and its developers are paying attention to certain factors keenly and employing these factors into their games, making their games popular and successful. An evaluation of the game was done with the following factors studied to determine the success factor of the game:

1. Gameplay loop and playability

Clash of Clans has a very clear game loop that makes the game infinitely playable. The game loop is divided into 3 parts. Firstly, building and troop training. The game plot is based on players developing their village this is done by building resource buildings that accumulate resources for the player. These resources are gold and elixir, they are the two main in-game currencies. The resources are then used on build and army that protect that village and these resources form goblins, enemy troop battles.

Secondly, resource collection. The player then has to collect the resources produced by the resource buildings. The collected resources are used in building new buildings or upgrading old buildings to increase resource production.

Finally, Battling. With the resources collected the players then forge armies and train them. Players then attack neighbouring villages, goblins, or clans to get loot, which is their resources, trophies, and increase rank, thereby making their own village a strong hold.

2. First Time User Experience (FTUE)

The developers of clash of Clans have designed the game and game mechanics very well. On the very first launch of the game, the players are sucked into the game as they catch themselves in the middle of an attack by the goblins, halfway into the game tutorial. Instinctively, players want to save their village and right then get hooked to the game.

The game also has a very well-designed tutorial that is easy to follow by persons of all ages. The tutorial continues by instructing the players on what to do and what defences to deploy to save their village from the goblin attack.

Supercell also mentions that they give a lot of their focus on the first-time users as they will be valuable members of their gaming community once they complete the initial first-time user experience. They facilitate this by promising the players return rewards every time the players relaunch the game.

3. Graphics and Visuals

The game has a very cartoonish style and animations. This style of the game attracts users of all ages. The cartoonish style avoids the blood or any gore game play considering it is a game about war and battles, therefore making the game user friendly for the players that are very young. The colours of the game are very bright and vibrant ensuring the game is visually pleasing encouraging users to continue playing.

4. Main Features of the game

The main features of the game are the army units as the game is about war and battling. The game presents users with numerous army units with various skills and capabilities. The numerous army units further have other army units within them, equipping players with numerous options and skills to choose from.

These army units are:

- 4.1 Elixir troops- They are regular troops that are made in the regular barracks. Examples of troop units under the Elixir troops are the Barbarian and the Archer.
- 4.2 Dark elixir troops- Once players unlock these troops, they require the dark elixir to train and are trained in the dark barrack. Examples of troop units under the Dark elixir troops are the Minion and the Hog Rider.
- 4.3 Super troops- these are just elixir troops that have been boosted. They therefore are more powerful and have special abilities. However only two super troops can be active at a given time. Examples of troop units under the Super troops are the Super Barbarian and the Super Archer.

4.4 Heroes - They are most powerful troops in the game, since they are immortal, in that, they regenerate when killed. Examples of troop units under the Heroes troops are the Barbarian King and the Archer Queen.

4.5 Elixir spells- These Spells help the village by making the troops stronger or weakening enemy defences. They are created in spell factory. Examples of spell units under the Elixir Spells are the Lightning Spell and the Healing Spell.

4.6 Dark spells – These Spells help the village by making the troops stronger or weakening enemy defences. They are created in the dark spell factory. Examples of spell units under the Dark Spells are the Poison Spell and the Earthquake Spell

4.7 Siege machines – They are created in the workshop; they are weapons, and they carry clan troops in them. They release the troops once they are destroyed. They are destroyed when they complete their objective, get destroyed in battle or when the player destroys them. Examples of units in the Siege machines troops are the Wall Breaker and the Battle Blimp

4.8 Pets – Pets are assigned to Heroes to help and support them in battle. They can only be assigned to one hero at a time and deployed only with the hero they are assigned. They are Immortals like heroes, that is, they regenerate once defeated. They have unique special abilities that help the hero they are assigned to.

5. Social and Multiplayer Aspect

The multiplayer feature gives players with the ability to play against other, one or more human players, cooperate with other human players to achieve a common goal together or supervise other players playing behaviour. Players prefer playing with friends or people they know, and that social aspect gives them more reason to play the game

6. Player Retention.

This is the rate that shows how effective developers and gaming companies are at getting their users to come back and play their game.

Supercell has achieved a great player retention by employing the promised reward strategy for players when they relaunch the game. They have also achieved this by the notifications they game about the game progress that the app sends to the user on their mobile device.

7. Monetization Strategies

Clash of Clans is free to install, download and play. The game generates Supercell revenue through the in-app purchases. Players buy the in-game currency once depleted or running extremely low, using real money. The game also occasionally gives the players 'special offers' with the hopes that players will make a transaction for the in-game currency with real money.

This technic is a strategy, for studies show that the initial purchase is always the hardest. Once players make their first purchase, they do not question their need on spending on the app and there by purchase more freely, comfortably and unreluctantly. This is another reason why the developers have made Clash of Clans freemium App, that is, free to install and play for they are targeting a large player base to play their game, and generate a revenue when these players carry out in-app purchases

5 CONCLUSION

The purpose of this study was to explore and understand the factors that make Clash of Clans a very successful and popular game since its initial release and launch in 2012. The thesis also aimed to notice user behaviour and user expectations, considering things they like or do not like in a game, what causes them to lose their interest in a game and hence stop playing the game and being loyal consumers of a game. The conclusion is presented according to the findings in the Case study of the game done in chapter 3.

Research problem 1:

Why is Clash of Clans a successful and popular game?

The developers of Clash of Clans, Supercell, have a clear mission statement that they always focus on. The mission statement is that "Supercell aims to create mobile games that are played for years and remembered forever."

Secondly, the game has a clear gameplay loop that makes the game playable over and over again. This is also facilitated by the cartoonish graphical approach of the game that makes the game fun to watch as well as play. The cartoonish approach also ensures that the game can be played by persons of all ages, increasing Clash of Clans' player base.

Additionally, the game offers numerous playable units to the players. The game design approach that Supercell has to the way the unit's works is very well thought of, in that, the players can only unlock units once they reach a certain level. Once the players unlock a new unit, they are made to use the unit and understand the unit's skills, strengths, and weaknesses. Furthermore, the players have to keep upgrading these units and as a result keep bonding with these units on a level. The approach to introduce one unit at a time to the player makes the game more fun, unique every time because they play with a new character time to time making the game more fun to play than to just having a monotonous routine with the same outcome. Whereas if they introduced all the playable units at once, the game would have become overwhelming for the players and too hard to understand, follow and play, resulting in players stopping to play the game.

Finally, the developers of Clash of Clans, that is Supercell, pay a lot of importance to player retention and the new players of the game. If these new players play the game long enough, they end up becoming loyal consumers and as such help grow Supercell's gaming community. To facilitate that

many players keep playing the game, Supercell has made a very lucrative tutorial of the game that hook the players to the game from the first launch. They have also facilitated this by promising players rewards every time they relaunch the game and frequently sending notifications of the villages progress on the user's mobile phone.

Research problem 2:

Why do the players play the game and have a strong loyalty to the game?

Player behaviour and player expectations is something that developers and companies focus on in order to make a viable game that user need and as well as how they need it.

Clash of Clans is a very strategic game and players enjoy that as it is anyone's battles with the examples of spell units, that make player troops stronger and enemy troops weaker, players can never guess what tricks the enemy is holding up their sleeve. This Strategic uncertainty of the enemies' troops excites the players.

Players play Clash of Clans because it presents its players with the social and multiplayer feature. Players enjoy gaming with friends and people they know rather than playing alone. This was evidently experienced with the covid 19 pandemic that put the entire world in a lockdown and people started playing games and socialising on the games with the social distancing. Players also tend to play longer sessions when they play with friends.

Secondly, the monetization strategies supercell has implemented in Clash of Clans causes players to play the game. Despite it being a freemium game, Clash of clans does not run In-app advertisements. Many times, players stop playing games as ads ruin the general experience of the game as they pop up suddenly blocking content and ruining the gaming experience. In addition, some gaming applications run too many advertisements leading to layer dissatisfaction causing players to withdraw from playing these games.

Finally, Clash of Clans presents new users with a very good first-time user experience impression. The very well-designed game tutorial has players attention from the very beginning and with the help of the graphics and vibrant colour, players enjoy the game and find themselves playing the game for hours and end up being hooked to the game, winning wars, raiding villages, winning loot and trophies, and ranking higher in the game.

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