Tampere University of Applied Sciences

Remaking a Video Game

Case: Hertan Ruskaretki

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BACHELOR'S THESIS
November 2019

Business Information Systems
Game Production

ABSTRACT

Tampereen ammattikorkeakoulu
Tampere University of Applied Sciences
Business Information Systems
Game Production

KEMPPAINEN, SUVI:
Remaking a Video Game
Case: Hertan Ruskaretki

Bachelor's thesis 33 pages
November 2019

The purpose of this thesis was to observe and analyse the video game remake process along with data found from outside sources to list the characteristics of remaking video games and the issues encountered during development. The thesis had a two-part objective. First, to produce a remake of the Hertan Ruskaretki video game for the Pikku Kakkonen mobile application. Second, to find out and reflect on the characteristics of remaking video games and the problems encountered during this process.

The research done in this thesis is qualitative. The chosen research strategy is a case study. The empirical research method is observation and the empirical data is based on the Hertan Ruskaretki remake project findings. Other data used in this study was collected from selected online sources.

The remake concept was first described and compared to related concepts by analysing the collected data in five aspects: visuals, audio, code, gameplay and platform. The results suggest that a remake is a new version of a game, improved upon in at least one of the five aspects, often containing the definitions of a remaster and a port. Hertan Ruskaretki was classified as a remake.

The characteristics and problems were listed by analysing the collected data and observing the remake process. The results suggest a typical remake project increases in scale, balances the needs of both old and new players and technological considerations, is outsourced to some degree, and is developed because of money, technology, publicity, nostalgia or restoration. The problems may include rolling back changes, communication breakdown, missing assets, various technological problems depending on the original game and the desired result, and failing to consider the impact even small changes may have on gameplay.

The results presented in this thesis provide an overview on the topic and further research is strongly recommended. This further research into the remake process is encouraged to include interviews of industry professionals and should be divided into more detailed areas of interest as the specific effects of the types of technology, assets and goals are lost in the scale of this thesis.

Key words: remake, remaster, port, re-release, video game

TIIVISTELMÄ

Tampereen ammattikorkeakoulu
Tietojenkäsittely
Game Production

KEMPPAINEN, SUVI:
Remaking a Video Game
Case: Hertan Ruskaretki

Opinnäytetyö 33 sivua
Marraskuu 2019

Opinnäytetyön tavoite oli toteuttaa Hertan Ruskaretki -pelin uudelleenversiointi Pikku Kakkosen mobiilisovellukselle. Tavoitteena oli myös samalla selvittää ja pohtia uudelleenversioinnin ominaispiirteitä ja sen aikana esille nousevia ongelmia. Työn tarkoituksena oli havainnoida ja analysoida pelin uudelleenversiointiprosessia sekä lähdemateriaalista kerättyä tietoa näiden ominaispiirteiden ja ongelmien listaamiseksi.

Tässä työssä tehtävä tutkimus oli kvalitatiivista ja lähestymistapana oli tapaustutkimus. Empiirisenä tutkimusmenetelmänä oli havainnointi ja työn empiirinen tieto perustui Hertan Ruskaretken uudelleenversiointiprojektissa havaittuihin löydöksiin. Opinnäytetyössä käytettävä muu tieto kerättiin tarkkaan valituista internetlähteistä.

Ensimmäiseksi työssä kuvailtiin uudelleenversioidun pelin käsite ja tätä verrattiin aiheeseen liittyviin toisiin käsitteisiin analysoiden kerättyä dataa viidellä osa-alueella: grafiikka, äänet, koodi, gameplay ja alusta. Analyysin tulokset viittaavat siihen, että remake eli uudelleenversioitu peli on uusi versio pelistä, jonka vanhaa versiota on paranneltu ainakin yhden listatun näkökohdan puitteissa. Remake myös usein sisältää parannellun pelin eli remaster ja toiselle alustalle siirretyn pelin eli port määritelmät. Hertan Ruskaretki luokiteltiin uudelleenversionniksi.

Ominaispiirteet ja ongelmat listattiin analysoiden kerättyä dataa ja havainnoiden Hertan Ruskaretken uudelleenversiointiprosessia. Tulosten mukaan tyypillinen uudelleenversiointiprojekti kasvaa projektin aikana, tasapainottelee vanhojen ja uusien pelaajien tarpeiden ja teknisten asioiden huomioonottamisen välillä, on jossain määrin ulkoistettu, ja kehitetään rahan, teknologian, julkisuuden, nostalgian tai entisöinnin vuoksi. Ongelmia olivat muutosten mahdollinen peruminen, kommunikaatiokatkokset, puuttuvat tiedostot, erilaiset tekniset ongelmat alkuperäisestä pelistä ja halutusta tuotteesta riippuen sekä epähuomiossa aikaansaatu pienten muutosten vaikutus pelimekaniikkoihin.

Aiheen laajuuden vuoksi työn tulokset nähdään yleiskatsauksena aiheeseen, joten jatkotutkimusta suositellaan. Menetelmiksi ehdotetaan pelialan ammattilaisten haastatteluja ja aiheen rajaamista pienempiin osa-alueisiin. Tarkempaa tutkimusta suositellaan eri teknologioiden, tiedostojen ja tavoitteiden vaikutuksista.

Avainsanat: uudelleenversiointi, videopeli, remake, remaster, port

CONTENTS

1 INTRODUCTION

There may be various reasons for a video game developer to choose to make a new version, a remake, of a previously released game. The reasons can range from technical to brand-related, but the considerations and possible problems remain the same. Even the term itself is surprisingly open to interpretation. This thesis is going to take a closer look at the subject of remaking a video game, prompted by a work project for Yleisradio Oy.

Yleisradio Oy, commonly abbreviated to Yle, is a Finnish public service broadcasting company. The company is owned by the Finnish people and funded by Yle tax since January 2013. Yle has a multitude of television and radio channels and services as well as online content. (Yleisradio Oy 2019c.) The company also provides entertainment in the form of games, for example children's games in Pikku Kakkosen Eskari application meant for preschool-aged children and Pikku Kakkonen application meant for children under the primary school age (Yleisradio Oy 2019b; Yleisradio Oy 2019a).

One of the games in the Pikku Kakkonen game catalogue was Hertan Ruskaretki (Yleisradio Oy 2014), sometimes also referred to as Hertan Maailma: Ruskaretki [Pearl's World: Autumn Adventure]. The game is part of the Hertan Maailma [Pearl's World] brand which features an approximately 6-year-old girl exploring the world (Alpaca Media Ltd. N.d.). The game was available on the Pikku Kakkonen mobile application until 2016 and on the Pikku Kakkonen website until 2018 (Palovuori 2019). Yle started planning a remake of Hertan Ruskaretki with updated graphics and technology in 2019 with an intended release later in the same year. This thesis was commissioned by Yle as part of the remake process.

The objective of this thesis is two-fold. First, to produce the remake of the previously Flash-based Hertan Ruskaretki for the Pikku Kakkonen mobile application using new technology in the Unity game engine. Second, to find out and reflect on the characteristics of remaking video games and the problems encountered during this process. The purpose of this thesis is to observe and analyse the Hertan Ruskaretki remake process along with data found from outside sources

to list these characteristics and issues. The research done in this thesis is qualitative and the chosen research strategy is a case study. The empirical research method is observation and the empirical data is based on the Hertan Ruskaretki remake project findings. Other data used in this study is collected from selected online sources and consists of both theory and secondary data such as other case studies.

The next chapter of this thesis will focus on the definition of a remake and its neighbouring terms, defining and comparing the terms and classifying the new Hertan Ruskaretki according to the findings. Chapter 3 explores Hertan Ruskaretki in more detail, relaying the background of the game, discussing both the old and the new version, and ending with a report on the remake process. The results of this research are analysed and presented in chapters 4 and 5. The discussion follows in chapter 6.

2 WHAT MAKES A REMAKE?

2.1 Remake

Before going into the case examined in this thesis, the term remake first needs to be explained and distinguished from its neighbouring terms. There are several terms similar to a remake or ones that are involved with the remake process, and even the remake term itself varies in its definition depending on who is asked.

Merriam-Webster's Collegiate Dictionary (2003, 1052) defines 'remake' as "one that is remade", "to make anew or in a different form". Lacking an official definition, remaking a video game could thus be defined as the process of making a new version of a previously released video game. But is the definition as a new version enough or does the amount of modification done or the quality of the changes made to the game matter?

In an article for PopMatters.com, writer L.B. Jeffries (2009) names four elements for video game remakes: a new script, a new visual look, and interface and game design changes "to fit modern sensibilities". Jeffries explains that the new visual look should include both improving on the original and making the game new in its own way. He goes on to point out technology, newness and design as the three areas that remakes contend with. For example, differing control schemes, changing gameplay to fit a new platform, and changing the pacing of the game are all used to create an improved "retelling of the original experience". (Jeffries 2009.)

According to TheGamer.com, a remake is modelled after the original game but does not use old source code or assets (Murray 2019). Assets are files such as graphics, audio or text used in the game engine. Echoing L.B. Jeffries' assessment, TheGamer.com goes on to state developers may even decide to make big alterations to a game like designing a new camera system when they are developing a remake (Murray 2019).

Vice.com reporter Patrick Klepek (2018) divides the remake term into remake and remake-reboot, where the former does large-scale visual overhaul but is consistent with the original gameplay and the latter changes the game itself. The term remake-reboot could not be found from other sources which would suggest such a distinction is not popular. Klepek refers to the Nintendo GameCube version of Resident Evil (Capcom 2002) as such a remake-reboot, where others, such as video game and media website IGN.com, call it a remake (Klepek 2018, Casamassina 2018).

The Resident Evil remake serves as a good example of the far end of the remake definition. The original game has been recreated but altered, the audio and visuals have been upgraded and sometimes completely changed, and new enemies, weapons, puzzles and areas of exploration have been added. The basic gameplay and aspects like the inventory system are the same as in the original but aspects such as combat have been expanded on with the addition of the new enemies and weapons. (Casamassina 2018.)

Representing the opposite end of the remake definition could be the Nintendo Switch remake of The Legend of Zelda: Link's Awakening (Grezzo 2019). VG247.com contributor Alex Donaldson (2019) calls it "a one-to-one remake -- as faithful as remakes come". The game makes very few true changes to the original, only updating the visuals and, for example, combining a previously separated game area into a seamless one. The remake also changes the control scheme for the better. The only new addition in the remake is the ability for players to create their own dungeons for the character to explore. (Donaldson 2019.) It seems evident that the remake term is a spectrum.

It could be argued that the new feature in the Link's Awakening remake prevents the game from being the one-to-one remake Alex Donaldson suggests. The collectables required to use the feature are present in the original-style gameplay as rewards even if the added gameplay itself is more of a minigame than something interfering with the original. However, if a new addition can be disregarded when its connection to the original-style gameplay portion is this superficial, the rest of the Zelda remake can be called faithful.

2.2 Similar Terms and Comparison

Most often a remake is compared to a remaster or a port, so much so that sometimes game makers themselves must clarify what to call a new version of a specific game. In January 2019, Electronic Arts producer Jim Vessella (2019) specified on Reddit that the upcoming Command and Conquer game is going to be a remaster instead of a remake, aiming to combine new technology and re-used source-code to retain the feel of the old version. In June 2017 the reverse was true, when Sony Worldwide Studios president Shuhei Yoshida was interviewed for Japanese gaming magazine Famitsū. Yoshida clarified that the new Shadow of the Colossus (Bluepoint Games 2018) would be a remake instead of a remaster, using modern technology and all-new assets with game content staying the same. (Matulef 2017.) Both Vessella and Yoshida talk about new technology which adds to the confusion amongst the terms. This would suggest that the nature of the technological changes matters along with other modifications.

Vicarious Visions game director Dan Tanguay (2016) introduces a new term for their Crash Bandicoot N. Sane Trilogy (Vicarious Visions 2017): remaster plus. Somewhere between a remaster and a remake, the remaster plus rebuilds the gameplay, level design and art based on the original game but adds new features like new save and menu systems. (Tanguay 2016.) This sounds very much like a remake so where is the line drawn?

Elijah Freeman, the vice president of the Games Division at Virtuos Games, talks about “visual fidelity” being an interest when developing a remaster. A remaster would overhaul the game visually by following the original like a blueprint. According to Freeman, a remake would go a step further by including the visual overhaul but also technological considerations, for example whether the original game engine supports the modifications or whether the visual fidelity is affected by the technical changes. He brings out an interesting point that usually developers are looking into remastering a game, but as more and more required technological changes accumulate, the remaster becomes a remake. (Billcliffe 2019.)

The terms remake and port overlap in a slightly different way. In his book Mediated Nostalgia, Ryan Lizardi (2015) offers his take on the definition of the two terms:

> A video game remake is when the old [game] is redone and recreated while borrowing some elements and adding new ones, and a "port" is when an older game is made available to be played on a newer or mobile console, possibly with some graphical improvement. (Lizardi 2015, 87)

Lizardi continues that distinguishing between the two is sometimes difficult since a remake can be so close a match to the source material that it could be called a port and a port often has new gameplay additions akin to a remake (Lizardi 2015, 87). The overlap is in the porting aspect and begs the question whether a remake made for a different platform is always a port or both a port and a remake.

In his technological analysis for Eurogamer.net, John Linneman (2018) ponders the distinction when it comes to a new version of Luigi's Mansion (Grezzo 2018) released on Nintendo 3DS. The former Nintendo GameCube title has been updated visually with mostly new art and even with different art direction that Linneman says changes the mood of the game. He notes the technological differences as well, for example the changes in performance and the choices made to handle lighting and shadows, and the advantages of the new control scheme made possible by the 3DS system. The changes make the game feel like a remake to Linneman instead of a simple port, although at the end of his article he still chooses to call the game a conversion, which is another word for a port. (Linneman 2018.)

Sometimes different terms are even used interchangeably in magazine articles. TheHookSite.com contributor Alfie Powell (2019) uses both remake and remaster when talking about GoldenEye 25 which is the upcoming new version of the game GoldenEye 007 (Rare 1997). TheVerge.com writer Andrew Webster (2015) does the same when reviewing Grim Fandango Remastered (Double Fine Productions 2015). The new version of Grim Fandango (LucasArts 1998) even has remaster in its name, but Webster still calls it a remake (Webster 2015).

While remake, remaster and port are terms that are mentioned most often in the same context, there are still more terms available. Re-release, reboot and reimagining are all mentioned when remakes are discussed.

Re-release seems more of an umbrella term for the others than an actual separate term. In an article for RockPaperShotgun.com, Mitch Kocen (2017) uses the term for both remasters and remakes, and once again remake and remaster are used interchangeably. On GamesRadar.com, Nathan Brown (2018) mentions remake, remaster and port all under the re-release term, sometimes separating remaster and re-release without explanation. Brown also takes the now-familiar route of referring to a remake as a remaster, even when talking about Shadow of the Colossus which, as discussed in the beginning of this subchapter, Sony Worldwide Studios president Shuhei Yoshida defined as a remake (Brown 2018; Matulef 2017). TheVerge.com talks about remakes and ports as re-releases (Webster 2015).

An unaltered re-release would have no changes made to the game itself except to make it playable on a modern platform, which could also be called emulation. (Kocen 2017.) TheGamer.com also mentions a re-release is often purely “the original code made to run on modern hardware through the use of an emulator” (Murray 2019). This definition matches the more specific unaltered re-release term.

Reboots are often described as taking the idea of the original game and executing it differently. Both gameplay and setting can be different than in the original, for example making a 3D third-person adventure game from a 2D platformer. (Handke 2018; Lassman 2018.) It is difficult to find several reliable sources on video game reboot descriptions. Most often the descriptions read as extreme remakes, so the term reboot is excluded from the comparison in this thesis.

The term reimagining is sometimes mentioned when describing a remake but there is so little information on the term outside discussion forums that this term will also be excluded from the term comparison.

A simplified comparison chart between all the discussed terms can be found below (table 1). The table lists information on visuals, audio, code, gameplay, platform and the term that was used in the reference material. All the sources mentioned above and throughout this thesis are listed if they contain information on the different terms. The information is compared using the adjectives improved, same, different and additional. Improved is used when that aspect of the game has been updated or altered in some way to make it better. Same is written when nothing has changed and different is used when that aspect has been changed completely. Additional is marked when something new has been added to that aspect. If no information on that aspect was found, a simple dash is used.

TABLE 1. Comparison of related terms

	Visuals	Audio	Code	Gameplay	Platform	Term used
(Billcliffe 2019)	improved	-	-	-	-	remaster
(Billcliffe 2019)	improved	-	different	-	-	remake
(Brown 2018)	improved	-	-	same / improved	same / different	remaster
(Brown 2018)	-	-	-	-	different	port
(Brown 2018)	improved	-	improved	-	different	remake
(Casamassina 2018)	improved / different	improved / different	-	additional	different	remake
(Donaldson 2019)	improved	-	different	improved / additional	different	remake
(Jeffries 2009)	improved	-	-	improved / different	-	remake
(Klepek 2018)	same	same	same	same	different	port
(Klepek 2018)	improved	same	same	same	different	remaster
(Klepek 2018)	improved / different	-	-	same	-	remake
(Klepek 2018)	improved / different	-	different	different	-	remake-reboot
(Kocen 2017)	improved / different	improved / different	-	-	-	re-release / remaster / remake
(Kocen 2017)	same	same	same	same	same	re-release
(Linneman 2018)	improved / different	-	improved / different	improved / different	different	port / remake

	Visuals	Audio	Code	Gameplay	Platform	Term used
(Lizardi 2015)	same / improved	-	-	same / additional	different	port
(Lizardi 2015)	improved	-	-	additional	same / different	remake
(Matulef 2017)	different	-	improved	same / improved	different	remake
(Murray 2019)	same	same	same / improved	same	different	re-release
(Murray 2019)	improved	-	improved	improved	-	remaster
(Murray 2019)	improved / different	-	different	improved / different	different	remake
(Powell 2019)	improved	-	-	improved	-	remake
(Tanguay 2016)	improved	-	-	improved / additional	-	remaster plus
(Vessella 2019)	-	-	same / additional	same / improved	-	remaster
(Wawro 2014)	same / improved	-	improved / different	same / improved	different	port
(Webster 2015)	improved	improved	-	same / improved	-	remaster

According to the data above, the visual aspect of a remake is always improved or different and the audio and code are improved or different when they have been mentioned at all. The gameplay is improved, additional or different, and only twice marked as remaining the same. The platform is mostly different.

Considering the discussion in the beginning of this chapter and analysing the data in table 1, a remake could be defined as a new version of a previously released game, improved or changed to varying degrees in at least one aspect regardless of the platform it is developed for. As such it would also contain the definition of a remaster and, when developed for a different platform, a port.

2.3 Classifying Hertan Ruskaretki

Now that the remake term and its neighbours have been analysed, the new version of Hertan Ruskaretki developed for the Pikku Kakkonen mobile application can be classified. The old Hertan Ruskaretki was already present on an earlier version of the mobile application, so the platform will not change. Thus, the new version of the game does not fit the definition of just a port. The art assets of the new game are new, but they are redrawn and improved versions of the old art. All the animations in the game have been remade modelling them after the old version but a few of the cut scenes have been slightly changed. The new game reuses all the old audio files with a few new additions in sound effects. The audio files are thus the only assets in the game that have not been completely remade. The game does not reuse any of the code of the old game, and the gameplay remains almost entirely the same with slight changes but no new additions. Taking the term analysis in the previous section into account, Hertan Ruskaretki can be classified as a remake.

3 HERTAN RUSKARETKI

3.1 Background

Hertan Ruskaretki features an approximately 6-year-old girl, Hertta, who explores the world with her friends Tollo and Aivo. The game is part of the Hertan Maailma brand which started as an animated series with digital game content in January 2008. Yleisradio Oy or Yle has been broadcasting the animated series as part of their children's program Pikku Kakkonen since March 2008. Nowadays there are also story books, colouring and activity books, plush toys and even a boardgame which all feature Hertta and her friends. The originator of Hertan Maailma is Niina Grönholm. (Sunnari 2010; Alpaca Media Ltd. N.d.)

Hertta has been embraced by the public. When the Hertan Maailma games were removed from the Pikku Kakkonen website in 2018, people began demanding their return (Palovuori 2019). There is even a Change.org petition signed by over 3000 people to bring back the games (Change.org 2019).

The love and nostalgia felt for the character and the games is one reason Yle started planning a remake of Hertan Ruskaretki with updated graphics and technology in 2019. Hertan Ruskaretki, also known as Hertan Maailma: Ruskaretki, is a game about Hertta, Tollo and Aivo on an autumn adventure. The game was available on the Pikku Kakkonen mobile application until 2016 and the Pikku Kakkonen website until 2018 (Palovuori 2019).

The Hertan Maailma brand is widely-known and respected and therefore Yle wanted to retain the brand as part of their game selection. As the original Hertan Ruskaretki was developed using the now-deprecated software platform Adobe Flash, a technological update was required. Yle decided to utilize the Unity game engine to produce a new version of Hertan Ruskaretki that would be suitable for and more functional on the modern mobile platform. (Hyytiäinen 2019b.)

The outdated game content was previously converted to be used in the Unity game engine via a plugin. The plugin is no longer supported which means there is no way to receive bug fixes for it. If the Unity game engine would be updated and the old plugin broke as a result, it could make the game itself stop working. (Hyytiäinen 2019b.)

The converted Flash content and the bitmap graphics format of the original game also take up a lot of space. By replacing the old bitmap files with Scalable Vector Graphics or SVG files, Yle hopes to achieve a smaller application file size for the Pikku Kakkonen mobile application that hosts the Hertan Ruskaretki game. (Hyytiäinen 2019b.)

Replacing the old Flash animation with newly created animation in the Unity game engine should make it feel smoother and thus improve game content. The remake will also provide a better way to manage that content as programming the remake with C# makes the code readable and easily fixed if required. The Unity game engine can also be updated without the risk of breaking the game. (Hyytiäinen 2019b.)

3.2 New Hertan Ruskaretki

A new game script was written for the new version of Hertan Ruskaretki with slight changes in it when compared to the old one. These deviations included an altered cinematic sequence with a character moving four times across the screen instead of three times or an additional scene placed in the middle of an old sequence. These types of changes affect cut scene animation for the sequences involved so any altered cut scene had to be remade by combining the new script's direction with the events of the old game. Animations that were unchanged in the new script were redone using the old game as a blueprint. All the animations were done using newly created art assets.

The new art was redrawn as faithful recreations of the old Hertan Ruskaretki visuals. The main character, Hertta, was changed the most. The formerly short and chubby Hertta has been replaced with a leaner girl who feels taller and slightly

more realistic than her former self. The background artwork has also been simplified. An example comparison can be seen in picture 1 below.

PICTURE 1. Comparison of the original Hertan Ruskaretki artwork in the image at the top and the remake in the image at the bottom (Yleisradio Oy 2014)

The new script contains changes to the game audio, but no new lines were recorded for the remake, so the original audio was used instead. The only changed or added audio were sound effects such as a door handle turning that was missing in the original game or a different sound for opening window blinds.

The new game remains almost identical to the old version when it comes to gameplay. Some changes have been made to reflect the new script, but the alterations are minimal and improvements on the original. None of the old Flash-based game code has been reused so the entire game has been reprogrammed with C#.

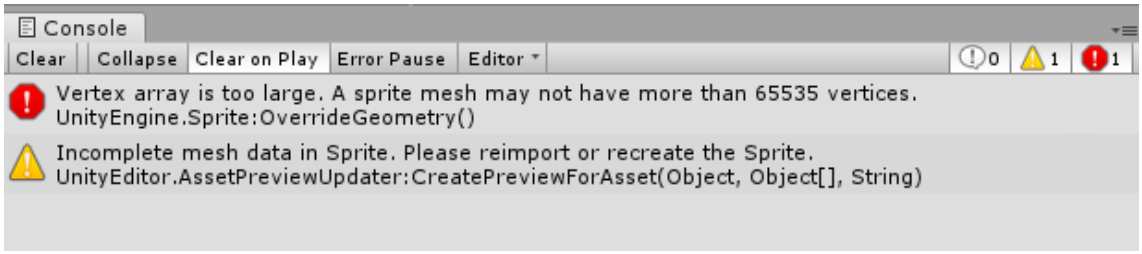
3.3 Remaking Hertan Ruskaretki

Yle acted as the mediator between all parties working on the Hertan Ruskaretki remake and was responsible for the completion of the project. Yle personnel would also handle the integration of the finished remake into their Pikku Kakkonen mobile application. Separate parties provided the new script, the new art assets and the old and new audio files. Yle provided finishing touches to the graphics files and modified them when required.

As part of this thesis, a Unity project was set up for the game remake and the audio and graphics files were imported into the project. The latter were imported using Unity's own SVG importer. The game characters and scenes were then assembled and animated using the original Hertan Ruskaretki as a blueprint and modifying the scenes when the new remake script indicated it. Gameplay and other functionality were then programmed into the game combining the new script with the original. Audio files were also added as indicated.

A few notable issues arose during development. The new game script was sometimes difficult to understand and had discrepancies with the audio and graphics that were indicated in the script and the files that were available. This resulted in slight delays in development whenever clarification was needed. Compromises were mandatory because missing graphics and sounds could not be acquired. Variations of already existing graphics and combinations of old sound files could sometimes be used to create a result closest to the one indicated by the script. The end product is thus different in some ways than the one envisioned in the script.

Some of the larger art assets, the large backgrounds, were also problematic and needed to be reworked for Unity to even import them. Yle was aware of this issue and one of the largest scenes was tested straight away to detect any issues. The problematic images produced a vertex array error upon import (picture 2). Yle solved the error by reworking the image to fit within the vertex limit.



PICTURE 2. A vertex array error produced by large background art upon import to Unity

The development of the project was delayed well beyond its originally planned two-month workload as one person both programmed and animated the game. Yle offered to provide an animator to help with the workload but it was decided the project could stand to be delayed while providing a learning opportunity in animation. The communication issue indicated by the script and file mismatch also slightly affected the development delay but mostly impacted the workflow.

4 CHARACTERISTICS OF REMAKING VIDEO GAMES

The reasons for remaking a video game are varied, and they provide both a starting point and something the remake process is trying to accomplish. As such, what is characteristic of remaking video games is partly influenced by the reason behind the remake. As remakes can contain both remasters and ports, their characteristics as part of remakes are also included in the discussion below without differentiating between the three terms.

Elijah Freeman, vice president of the Games Division at Virtuos Games, mentions that developing a remake can be more cost-effective than a new project. The company can follow the blueprint of the old game and does not have to spend as much time and money on coming up with new ideas and how to develop them. Remakes can also be outsourced to companies specialising in these types of projects which frees up the original developers to focus on new games like sequels and new intellectual property or IP, for short. This can save time and money and help to give the original developers new publicity. (Billcliffe 2019; Brown 2018.)

Outsourcing can be counted as a characteristic of remaking video games as companies such as QLOC and Bluepoint Games have been responsible for developing various large-scale re-releases in recent years. QLOC was responsible for such titles as Dark Souls Remastered (QLOC 2018a) and the PC version of Devil May Cry HD Collection (QLOC 2018b) while Bluepoint developed Shadow of the Colossus (Bluepoint Games 2018) among others. (Brown 2018.) The development of the Hertan Ruskaretki remake used outsourcing as separate parties produced the audio, graphics, and the code and animation. Yle provided finishing touches to the graphics when required but was mainly responsible for the completion of the project and acted as the mediator between the parties. Yle personnel also handled the integration of the finished remake into their Pikku Kakkonen mobile application.

The ever-changing state of technology is also a factor when companies think about resurrecting an old title. RockPaperShotgun.com contributor Mitch Kocen (2017) points out that all old games eventually become unplayable on new, faster systems and it is the remakes that make it possible to enjoy them again without resorting to illegalities. A remake can also provide a way to finally carry out the development team's original vision if it was left unfulfilled because the required technological advancements were not yet available. (Billcliffe 2019.)

Like mentioned in chapter 2, Elijah Freeman of Virtuos Games pointed out that a remaster often becomes a remake when too many technological changes are needed along the way (Billcliffe 2019). The development project might even start out as a simple port to another platform, then turn into a remaster and after that into a remake. The shift occurs as needed when the development team examines the original code, asset possibilities and cost. (Brown 2018.) A common characteristic of remaking video games thus seems to be that the project starts out as a smaller endeavour and then needs to be re-evaluated. It is also clearly characteristic that technology will impact the project in some way and must be considered and evaluated throughout.

Even if the required technology existed at the time of developing the original game, some features might have been cut from the released game. Remakes can make it possible to add these features like originally envisioned. (Billcliffe 2019.)

Nostalgia can be a factor when choosing to develop a remake. Fans of the old game get to enjoy the game on a modern platform without the added hassle of first making the old game playable on that platform if it is even possible. Nostalgia can also be deceitful and trying to play the old version can leave a fan disenchanted. A remake can update the old game enough to rekindle the players' love for the game and experience it again. Fans of the old game can also share it more easily with younger generations as a remake. This is done by companies as well, because a remake can be a good way to recruit new players who would otherwise skip an outdated title. (Billcliffe 2019; Brown 2018; Byrd 2019.) If the design itself is changed, the game might even become easier for younger players to understand as players' expectations of a good video game experience has changed

over time (Jeffries 2009). It is thus characteristic for remaking video games to try to cater to both old fans and possible new players while considering the visual and gameplay needs of a modern audience.

By recruiting these new players and making original fans fall back in love with the game, remaking a game can be used to revive a dying franchise paving the way for new instalments or to just re-sell a game to the original audience. (Billcliffe 2019; Brown 2018.) The reason behind remaking the game would again be financial gain which might make old fans feel tricked. This issue is discussed in the next chapter.

Remakes can be viewed as restoring video game history instead of preserving it. Preservation would be just making sure old games are not lost when technology changes, but restoration ensures that they can be enjoyed at the same level as they once were. (Billcliffe 2019; Brown 2018.)

Considering all the reasons named above for starting a remake project, the most prominent characteristic of remaking games becomes its varied instigator: It is characteristic of remaking video games that the reason behind the project is money, technology, publicity, nostalgia or restoration. As discussed in chapter 3, the Hertan Ruskaretki remake was prompted by the need for more up-to-date technological solutions as well as nostalgia and retaining an important brand (Hyytiäinen 2019b).

The characteristics of remaking video games can be concisely listed as follows:

- The remake is developed because of money, technology, publicity, nostalgia or restoration.
- The project tries to balance the needs of both old and new players while taking the visual and gameplay needs of a modern audience into account.
- The development is outsourced to at least some degree.
- Incremental changes make the project increase in scale.
- Technological considerations are inevitable and need to be evaluated throughout the lifetime of the project.

5 PROBLEMS ENCOUNTERED DURING THE REMAKE PROCESS

Developers must prepare themselves that they might be facing several problems along the way as they start a video game remake project. Like the characteristics outlined in the previous chapter, the problems described below include issues with remastering and porting as the two are usually part of the remake process.

When starting a remake project, the first thing to consider is the extent to which the old game should be remade. Problems can already arise from the decisions made at this first stage, as fans of the original game might not like the changes made to it. On GamesRadar.com, Nathan Brown (2018) wrote that fans of the 2011 action roleplaying game Dark Souls (FromSoftware 2011) had mixed reactions to its new version Dark Souls Remastered (QLOC 2018a). Some complained the developer had not altered the game enough to warrant a new release while others felt the game had changed for the worse (Brown 2018).

It was mentioned in the characteristics of the previous chapter that remakes try to please both old and new players. It seems the problem is in trying to balance the need for modern additions and alterations to entice new players and the need to retain enough of the old with slight improvements to keep original fans happy. Too few changes might even make old fans feel tricked into buying what is essentially the same game they already own. This is not entirely unjustified as some remakes are intended for not much more than re-purchase. (Brown 2018.)

Original developers might not like the changes either. In an interview with RockPaperShotgun.com, Ron Gilbert, the creator of adventure game classic Maniac Mansion (Lucasfilm Games 1987) among others, expressed his concern with new high-resolution releases of old games. Gilbert feels that redoing the art of the original game changes the aesthetic of the game and undermines the original artistic decisions that were based on the technological limitations of that time. (Kocen 2017.)

Brian Moriarty, designer of the 1990 adventure game Loom (Lucasfilm Games 1990), agrees with Ron Gilbert. He notes that the artists of the 1992 re-release of Loom (Lucasfilm Games 1992) had a palette of 256 colours to work with compared to the 16 colours available for the original game and thus more colours with which to improve a game scene. However, the new artists neglected to note the original artistic intent. In the original game, a bright red leaf is placed into the scene for the specific purpose that players learn to identify interactive objects (picture 3). (Kocen 2017.)

PICTURE 3. Screenshot of the opening scene of the original Loom (Lucasfilm Games 1990)

In the re-release, the scene has been altered with a competing red hue of a sunrise which diminishes the visual importance of the leaf and might make players miss the object (picture 4). (Kocen 2017.)

PICTURE 4. Screenshot of the opening scene of the 1992 re-release of Loom (Kocen 2017)

So, while original developers not liking changes done to their games could be seen as simply being possessive of their intellectual property, it can be proven that alterations might cause actual gameplay issues, and this should be considered when remaking a game. LucasArts, the developer and publisher originally known as Lucasfilm Games, made the decision to develop re-releases where the players can switch between original and re-worked graphics during gameplay. This way the players can see and appreciate both versions and the original art can be preserved. (Kocen 2017.)

If there is dissatisfaction with the direction the game is headed when the remake is still in development, the developers might choose to change their plans for the game or reverse changes that have already been made. Cyryl Matuszewski, the lead programmer for QLOC, described being forced to do the latter while working on the PC version of the Devil May Cry HD Collection (QLOC 2018b) when the publisher Capcom Japan rejected the improvements made to the game UI in favour of keeping the original (Brown 2018).

While having to reverse changes might stem from publishers changing their minds or because of fan influence, it might also be a communication issue. Communication is a significant problem in any joint venture. During the Hertan Ruskaretki remake process there were issues with the new game script being sometimes difficult to understand and discrepancies between the audio and graphics that were indicated in the script and the files that were delivered. It is evident that a communication issue was present somewhere along the way. This resulted in having to stop work on the Hertan Ruskaretki remake several times to ask for clarification, and the end product is in some ways different than the one envisioned in the script. Discrepancies and the communication issues that cause them build uncertainty in what the client is looking for and what they will be satisfied with so they could potentially lead to reversed changes in addition to the slowed-down workflow.

The Hertan Ruskaretki remake file discrepancies also introduce the issue of missing assets. In the Hertan Ruskaretki project it was not possible to get most of the missing graphics indicated by the script since they were produced by a third party before most of the development even began. Variations of already existing graphics could sometimes be used. The missing audio files were not available either so original files were used instead, combining them when possible to create the result closest to the one indicated by the script.

As mentioned in chapter 4, it is characteristic of a remake project to increase in scale. This can cause problems if the development team is not equipped to handle the change or if the required changes result in delays. Like the previously mentioned QLOC does for their clients, this can be managed by doing extensive research on the assets of the original game and performing a cost evaluation before starting the project (Brown 2018). Therefore, it is also important to consider how much can realistically be done to remake a game when considering how much should be done.

Relating to the scale of the project and its realistic workload, various technological problems can arise depending on the original game and the desired remake result. QLOC programmer Cyryl Matuszewski names performance as a typically problematic area when developing a remake. Since old games commonly have

a target framerate of 30 frames per second or FPS, a new target console with a desired framerate of 60fps could impact, for example, animations and game physics. Bluepoint Studios echoes QLOC and they named the rise to 60fps as the culprit that for a time hindered the player's ability to climb onto a colossus while development of their Shadow of the Colossus remake was still ongoing. (Brown 2018.)

Performance is also a problem in the sense that the visuals of a remake need to be modernized without impacting performance. Bluepoint faced this problem when remaking Shadow of the Colossus and had to rethink their approach because of the heavy emphasis on the visual side. The visuals were also used as part of a key gameplay mechanic. The protagonist's sword is meant to catch light to show where the next colossus is but the system in place in the original game no longer worked in the remake. The team had to replace the entire light-detection system with their own creation. (Brown 2018.)

To an extent the graphics were also a problem with the remake of Hertan Ruskaretki as some of the newly created art assets were too much for the Unity game engine itself to handle and resulted in an error, as discussed in chapter 3. The graphics involved had to be reworked so that Unity would even import them, and the largest scene in the game was tested for performance issues straight away. Performance was a consideration before even starting the development process since scalable vector graphics or SVG was chosen to be used for the image files. When using SVGs there should be no considerable impact on memory or performance (Hyytiäinen 2019a).

In an interview with Gamasutra.com, Miguel Angel Horna, co-founder of BlitWorks, detailed the problems they faced when developing a port of Fez (BlitWorks 2014) for the PlayStation Network or PSN. They had to consider whether to keep the coding language of the original game or to convert the game code to a more suitable coding language. The original language, C#, would cause performance issues, and converting the code into C++ would be a big undertaking but would also offer optimization. They also had to contend with graphics performance because of the way a console handles the graphics workload would be different to how a computer performs under the same stress. (Wawro 2014.)

Horna also lists considerations for the general porting process. The game may not even run on the target platform at first. If the original game has been developed using closed-source tools and the tool does not work on the new platform, the game needs to be rewritten in another language. If original tools or software have been open-source, the developer needs to check platform compatibility as well as whether a suitable license exists. Code needs to be checked and altered for proper graphics support and performance. (Wawro 2014.)

Horna says the biggest issues are with getting the game and graphics to run on the target platform and working at a good framerate. After the big problems are handled, the rest of the issues deal with tweaking or changing controls and input methods, adapting UI, resolution, text and localization, and platform specific things. Horna even recommends keeping portability in mind when starting an original game project and carefully considering engine, library and programming language choices along with memory and CPU usage. (Wawro 2014.)

The problems discussed in this chapter have been listed below for conciseness:

- Various technological problems arise depending on the original game and the desired remake result.
- Fans or developers might not like the new changes which might lead to the need to reverse them during development.
- Balancing the need for modern alterations to entice new players and the need to retain enough of the old to appease old players.
- Even small alterations may cause gameplay issues. Matters such as original artistic intent should be considered before making a change.
- Communication issues cause uncertainty, delays and interrupted workflow.
- The tendency of the project to increase in scale causes delays during development.
- Assets might be or become unavailable.

6 DISCUSSION

The remake exists on a continuum of a new creation based on an old game variedly altered and improved to deliver a new experience for fans old and new. The entire thesis could have been dedicated to the remake definition itself. There is so much information, so many opinions from people in the industry, fans and journalists, and no official definitions to be found that even the definitions offered in this thesis are sure to be challenged.

An interesting topic to delve into, the remake discussion deserves more dedicated research than this thesis can offer. It would be beneficial to directly interview industry professionals on their thoughts on and definitions of the term as the time constraints of this thesis did not allow it. Do precise definitions even matter and do differing opinions cause problems in the industry? It is clear they at minimum cause confusion among players and arguably affect a player's decision to buy the game. A game that is called a remaster might not be enough to sway someone to buy it if they consider only a remake is worth their money.

The characteristics and problems presented in this thesis also deserve additional research. These research findings themselves were surprisingly diverse. Technological and communication issues are guaranteed in any game development project but the idea that even a slight increase in colour can impact gameplay is not commonly considered. On the characteristics side, nostalgia and restoration were a pleasant counterweight to the more common monetary and marketing needs. It is also interesting how the nature of remakes makes them a balancing act between appeasing the old players and enticing the new.

It was difficult to divide the information that was found into characteristics and problems and even harder to differentiate between what is characteristic of the process and what of the product itself. This study focused more on the process than the product, but some things were so closely related that they were included in the results. Describing the characteristics of remaking video games thus turned out to be the most difficult and imprecise part of the thesis. More research is sure to uncover a more detailed list and again interviews could yield insight into how

developers themselves would describe characteristics. It can also be argued that this part of the objective is too confusing, and the research question should be reformulated.

The problems and characteristics are partly dependent on the differences between the assets, technology and goals of the original game and the ones of the new version. This indicates the need for more specific research within those constraints since this thesis is more of an overview that is only slightly delving into the Flash-based development background of the original game.

The remaking process is becoming more and more an outsourced project as developers need or want to focus on other productions or lack the specialized skills to remake the game on a different platform. This might mean that acquiring a suitable skillset specific to remaking games could be a career opportunity in either a company specializing in game remakes or in the original developer's employ. The ever-changing state of technology guarantees that remaking old games will not suddenly become a lost art and the money to be made from a well-executed remake should not be ignored, nor the satisfaction of restoring a nostalgic game back to its former glory.

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