

Player Engagement – Retention in Hazard Ops

Graduation Project



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Abstract

The briefing for this research was about how to stimulate retention in the free-to-play game Hazard Ops. The game Hazard Ops is newly published by Infernum Productions AG. The company does not know how the game stimulates retention and how this can be improved. They want to have a research about the current retention in the game and advice on how retention can be improved.

The game is a Free-to-Play Multiplayer Online Third Person Shooter with the payment model microtransactions. The game has player versus player and player versus environment modes. The player can gain currencies to buy new weapons, items, perks and gear.

Retention is important for Free-to-Play games. Players often start spending when they play the game for a longer period. A low retention is bad for a Free-to-Play game and often indicated that there is something wrong with the game.

The research in this document is done in a data-analytic way. This means that the game will be analysed based on theory first. After this the game will be analysed by using user metrics. In this research there will be no user research conducted. This does not mean that user research is not important. User research can be used after this research to validate changes. The research is placed in the diagnosis phase.

The research objective of this research was: *to make recommendations to Kristian Metzger, Director Project Management, Infernum Productions AG regarding stimulating retention in the game Hazard Ops by providing an insight in the relations between the current retention, user metrics and game mechanics, by analysing the game using a checklist based on the relevant aspects from the theory about Free-to-Play games, retention and user metrics/analysis.*

In the research first information was collected on the topics of Free-to-Play, retention and User Analysis. Out of the theory there were statements collected. These statements were at first used in a checklist. After multiple iteration of the checklist there was decided that a checklist was in this case not the best device to do the research with. The checklist has then been changed into a heuristic evaluation. A heuristic evaluation is an expert review based on statements.

After the heuristic evaluation was produced it has been used in the research. At first the game has been analysed over the statements. Then the metrics that fitted to the statements have been researched and added to the results. Out of this research came conclusions and advice.

The most important conclusion that came out of the research were:

- The game is correctly accessible and runs on fitting hardware.
- The core of the game is completely free.
- The monetization strategy fits to the western market, the game does not have a payment ceiling and the publisher could sell soft currency for hard currency.
- The amount of grind is correct and premium and free items are balanced. The gamble systems are fair.
- The game does not give premium currency through normal play
- The core loop works correct and most of the Bartle player types are catered
- The goals in the game are communicated clearly

- The game only has fixed reward systems. The game contains collectibles, achievements and events.
- The game caters social play by having clans. Research about emotions is not possible without user research.

After this conclusions advise has been given. The most important parts of advice are stated under here:

- The game does not support Windows XP. A quarter of all PC users use Windows XP, it would be advisable to support Windows XP.
- Nightmare Challenges that are only easy accessible by premium users should be monitored closely to prevent an unfair feeling for non-paying users.
- The publisher could sell soft currency for hard currency
- The publisher has to monitor items to make sure that equity is preserved by making sure that prices not fluctuate heavily
- The publisher can sell hybrid cosmetics
- The publisher should consider to give hard currency away to the player to stimulate spending and buying of hard currency
- The developer should try to cater the Bartle type Socializer more. The clan system is only a clan chat but could be changed into a social hub that would be used by the socializer type.
- The game should change according to the player habits. If the player only plays PvP, they should not get (many) PvE missions.
- The story should be more central in the game and interesting NPC's could stimulate retention even more.
- The game should contain variable reward systems to give the player the motivation to play the core loop repeatedly.

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The research is conducted from March 2014 until September 2014 at Infernum Productions AG in Berlin, Germany.

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Glossary

In the glossary, more uncommon terms are explained. The first time an explained term is used in the text it will be written in italic form.

Term	Explanation	Source
<i>Hazard Ops</i>	'Hazard Ops is a brutal third-person person action shooter for PC, with both co-operative and competitive game modes.'	(Infernum Productions AG, 2014)
<i>Retention</i>	The proportion of users come back to the game on Day+N.	(Sommer, 2014)
<i>PvP</i>	Player versus Player is a game or game mode designed so that players can battle each other, instead of battling against computer-generated enemies.	(Janssen, Player Versus Player (PvP), u.d.-c)
<i>PvE</i>	Player versus Environment is a game or game mode designed so that the players battle computer-generated enemies.	(Janssen, Player Versus Environment (PvE), u.d.-b)
<i>Consumables</i>	Consumables are items that will be used up after time. This are for example health potions and bullets.	(Contributions, 2013)
<i>Microtransactions</i>	Alternatively, Micro Payments are small transactions whereby virtual products are bought with a small amount of real money.	(Mitchell, 2007)
<i>Core Loop</i>	The core loop is the basic action-reward loop in the game. It can for example be finishing a map, harvesting crops or killing an enemy.	(Momoda, 2013)
<i>Mechanics</i>	Game mechanics are rule-based systems / simulations that facilitate and encourage a user to explore and learn the properties of their possibility space through the use of feedback mechanisms.	(Cook, 2006)
<i>Freemium</i>	A business model whereby a part of the product is free and a part of the product is paid.	(Freemium, 2014)
<i>Publisher</i>	Individual or corporation responsible for the printing and distribution of digital or printed publications. Publishers also handle the marketing efforts for the publications and usually are not the creator of the material. Publishers simply serve as the intermediary between the author of the publication and the consumer market.	(Publisher, 2014)
<i>Merc</i>	The player character or avatar in Hazard Ops	(Isenmann, Hazard Ops Game Overview, 2014)
<i>Metrics</i>	Standards of measurement by which efficiency, performance, progress, or quality of a plan, process, or product can be assessed.	(Metrics, 2014)
<i>User analysis</i>	Researching a product with user metrics	
<i>Mnemonic</i>	A device--such as an image, rhyme, or figure of speech--used to assist memory.	(Nordquist, 2014)
<i>Comlist</i>	Criteria of Merit Checklist	(Stufflebeam D. L., 2000)

<i>Pay-to-win</i>	Pay-to-win is defined as: 'If there are any unique purchases that positively impacts the game experience and are only available with premium currency (aka real money), then the game is considered Pay-to-win.'	(Bycer, 2014)
<i>Whale</i>	A whale is a player who spends much more than average, but is only a small part of the total players. Whales spent per month over \$20, but the amounts can go much higher.	(Lovell N. , Whales, Dolphins and Minnows – the beating heart of a Free-to-Play game, 2011)
<i>HC</i>	HC or Hard currency is the currency in a game that can be bought with real money.	(Fields, 2014, p. 192)
<i>SC</i>	SC or soft currency is the currency that can be gained in the game. Soft currency is also called in game money.	(Fields, 2014, p. 192)
<i>Equity</i>	The ownership of stocks, items, real estate, etc. In games used to describe that items do not lose their value in a short period.	(Equity, 2014)
<i>Micro subscriptions</i>	Micro subscriptions are smaller, shorter subscriptions or subscriptions that are for a part of the product.	(Edwards, 2011)

1 Introduction

This document regards the Graduation Project. In this document there will be research done towards improving player retention in the Free-to-Play game Hazard Ops, published by Infernum Productions AG. The company is publishing the game Hazard Ops newly and does not have a view about the retention in the game yet. In this research there will be analysed how the game stimulates retention and how the retention can be improved.

The research will be done on a data analytic base, without user research. A checklist will be produced with statements based on theory about retention in Free-to-Play games. Based on the answers on this list, recommendations will be done to Infernum Productions AG on how to improve retention in the game Hazard Ops.

First the project context and the organisation will be discussed. Hereafter the research objective, research framework and the research questions will be examined. Then there will be looked into the theoretical framework. After this, the checklist will be produced and the evaluation will be done. The document will be concluded with the given advice.

Because of the form of this document with many tables, figures and list the document has become very long. The base information is around 18.600 words without tables, figures and lists.

2 Project Context

This chapter *Project Context* explains what the inducement of the research is.

2.1 Briefing

At the start of this research, the commissioner placed a request. This request is:

Analyse how player retention is stimulated in Hazard Ops. Then research and advise about possible improvement in retention.

Analyse this by analysing the daily retention rates and the theories behind retention (aka best practises) and see how this is done in Hazard Ops. Then compare this with the found theory and write an advice report on actions that can be made to improve retention.

Based on this request the debriefing is produced in the form of the project context.

2.2 The problem

Hazard Ops is a Multiplayer Online Third Person Shooter developed by Yingpei Games. The game is developed with the Unreal Engine 3 for Windows. At the moment of writing, the game is already published in for example Taiwan, Russia and China. The player plays as a soldier with a variation of weapons against both other players (PvP) and computer-controlled enemies (PvE).

Hazard Ops is newly published by Infernum Productions AG. The game is Free-to-Play, which means that there are no costs to start playing the game. However, the game includes an item shop where items such as weapons, clothing and *consumables* can be bought with the virtual (soft) currency and with real (hard) money. Using real money to buy virtual goods is possible with *microtransactions*. The Publisher earns money with these microtransactions. The business model of the company is therefore freemium (Free-to-Play) in which it is possible to play the game for free, but that real money can be used to buy additional features or items through microtransactions. (Isenmann, Hazard Ops Game Overview, 2014)

Often, players start spending money after they played for a while. Therefore, for a game to start making money, players have to return to the game often. This returning to the game over a longer period is called *retention*. A high retention means that many players keep playing the game over a longer period of time. The longer the players play, the bigger the chance is that they will spent real money on the game. Especially players who play longer than average tend to spend larger amounts of money. This kind of big spending player is called a *whale*. (Carmichael, 2013)

Therefore, it is important to know how to stimulate retention in this new game. If this has been identified, advice can be given on how to increase retention. At the moment, the publisher does not know exactly how retention is stimulated in Hazard Ops. The publisher has experience with Free-to-Play games, so they know some general ways to stimulate retention, but they do not know how retention is stimulated within the game itself.

The general background for the research is therefore analysing how retention can be stimulated within the game Hazard Ops, to improve the revenue produced by the game.

2.3 Backgrounds

Free-to-Play games have in contrast to 'normal' pay-to-play games no upfront costs to start playing. As a result, people have no costly motivation to keep playing the game. So players possibly move quickly to another available game. High retention is thus very important for Free-to-Play games. After

all, the more players that are retained, the better. Only when players play the game for some time, they are going to spend money. Low retention is therefore disastrous for a Free-to-Play game. (Lovell N. , 2013b)

2.3.1 Publisher

As stated before, low retention is disastrous for a Free-to-Play game. If the game has not enough returning players, it is very likely that the revenue is much lower as well. This is an enormous problem for the publisher.

2.3.2 Players

A low retention often indicates that there is something wrong with the game. Underlying causes that lower retention often also have impact on the players. Maybe the game is just not fun enough, or the game lacks certain functions that the players are looking for. However, it is still possible that the *core loop* of the game is extremely fun, but that the game lacks retention mechanics. (Lovell N. , 2013b)

2.3.3 Negative influences

Free-to-Play games are for some people the foul word in the game industry. The freemium model would hurt the industry, because it would deliver too many games with a very low quality. It would also ensure that players do not want to pay for games anymore, because when a game is not fun anymore, they will just start playing another game. Nintendo states that Free-to-Play games hurt the hardware market, because people do not want to spend money on consoles and console games anymore. (Makuch, 2014) IGN states that players are wary of Free-to-Play and therefore will never have the same experience as with a purchased game. (Davis, Why Core Gamers Hate Free-to-Play, 2013) Furthermore, another problem with Free-to-Play games is that they can easily become a pay-to-win game, whereby a paying player has unfair advantages over the non-paying users. (Onyett, Separating Free-to-Play and Pay to Win, 2012) In the game Hazard Ops, pay-to-win will be avoided.

2.4 Approach

In this research there is chosen for a data analytic view on the topic. This means that the game itself and the retention mechanics will be analysed. The focus of the research is to find out how the user can be stimulated to return more often to the game. Hereby there is no user research done. This does not mean that the user is not important, but in this research, there will be looked at how the game itself can stimulate retention through mechanics. User research in the shape of interviews or play sessions is a different approach. Before and after the changes are made it is important to monitor the users to see if the changes made sense. To get a more complete view on the changes it is useful to interview the users to find out if the changes had the wished effect. However, this user research goes further than the scope of this research.

2.5 Conclusion

In the business model freemium/Free-to-Play, money is earned through microtransactions. To stimulate microtransactions it is important that players play the game often. To stimulate that players come back to the game often, the game needs retention mechanics. However, having only good retention mechanics do not help if the game is not fun enough. To engage the players to keep playing the game, there need to be a good mix of the different mechanics. In this research there will be looked into specific mechanics that can be used to stimulate the retention in the game Hazard Ops.

3 Organisation

This chapter the organisation for which the research is done will be discussed. First, a brief summary of the organisation itself. After this, the values and objectives and the business model will be described.

3.1 Infernum Productions AG

Infernum Productions AG is a videogame publisher active on the Free-to-Play market in Europe. They publish games made by independent (Asian) developers on the European market. They also configure the (Asian) games to the European market through localisation in the preferred languages. They also handle monetization for the games. At the time of writing, the organisation published two games, Brick-Force and Dragon's Prophet. The new game Hazard Ops will be released in mid-2014. This game is already published in for example Russia and China.

The organisation has ~50 employees, divided over eleven departments, as seen in figure 1. The department Product Management, for whom this research is conducted, consists of 15 employees. The lead of this department is Director Product Management Kristian Metzger, commissioner of this project.



**FIGURE 1 – DEPARTMENTS
(COMPANY STRUCTURE, 2014)**

3.1.1 Values & Objectives

Where the company strives for emerges clearly from the values & objectives.

'We strive to become a leading provider of high quality "Free-to-Play" cross-platform online games.

Every employee is passionate for his work: that's how we make our players feel passionate for our games.

Trust is crucial at all stages: among employees, between Infernum and employees, between Infernum and partners, and most importantly between the community and Infernum.

By using social networks and mobile devices, we help our players to create and maintain long-term relationships with other players and with Infernum.

Players can expect the highest quality in content and service. By delivering first class entertainment, every one of our players becomes a product advocate.' (OUR VALUES & OBJECTIVES, 2014)

3.1.2 Business Model

The business model from Infernum Productions AG is freemium. This means that they publish games that are Free-to-Play but sell virtual items for real money. In a freemium model, it is important that the product has many users, because only a small part of the users will use the premium parts of a

free product. And as stated before, it is important to have a high retention, because a high retention improves the chance to get paying users. (Froberg, 2014)

3.2 Hazard Ops

Hazard Ops is the third game published by Infernum Productions AG. The game is developed by Yingpei Games, based in Shanghai, China. The game is a *Multiplayer Online Third Person Shooter* for Windows PC's. The game is built on the Unreal Engine 3. The game is only in Europe licensed by Infernum Productions AG. In other parts of the world, other publishers publish the game under different names. The game is localized in English, French and German. (Isenmann, Hazard Ops Game Overview v4, 2014)

In the game, the player plays with a customizable character in third person view against various opponents in different modes and maps. The game is split up in two modes, PvP and PvP.

The character can be male or female and has various options in face, hair and clothing. In addition, a different voice can be chosen. The player can only have one character (called a Merc) at the same time. After the player logs in for the first time, they will play through the *Basic Training*, which is a tutorial on the controls and basic gameplay. Afterwards, the player can choose a mode to play in. Then they have to choose for a channel. These channels are to cater different player needs, such as expert channels for players with higher levels or language specific channels. Then the players can join a room or create one themselves.

Important gameplay parts is hiding. The player can hide against objects and shoot from cover, or they can roll away from enemies. Players can also in some maps and modes play in mechs, which are big robots the player can control. (Isenmann, Hazard Ops Game Overview v4, 2014)

In Competitive PvP, the player plays against other players. There are seven modes in build 0.3.0, as seen in Table 1 – PvP Modes

Mode	Description	Number of maps	Maximum players
<i>Team Deathmatch</i>	Players are split in two teams to compete against each other.	15	16
<i>Elimination</i>	Players are split up in two teams and play in rounds. This mode does not have respawns, the first team who kills the complete other team wins.	16	16
<i>King of the Hill</i>	Players are split in two teams and have to capture and hold certain changing points on the map.	5	16
<i>Defusion</i>	Players are split in two teams whereby the first team have to place and defend a bomb while the other team tries to defuse this bomb before the time is over.	4	16
<i>Deathmatch</i>	Individual players compete against each other.	7	16
<i>Head Hunter</i>	Like Team Deathmatch, but if a player gets a kill, his head grows and his head meter fills. The first player to fill this meter is the <i>King</i> and can use a heavy weapon until someone else becomes king.	14	16
<i>BEAST</i>	Teams compete against each other without the normal Mercs. Players choose a Zombie or Human avatar. With making kills the player scores points. With the points better or different avatars can be chosen.	1	16

TABLE 1 – PvP MODES

The room creator can also change other settings for the specific room. It is possible to give the room a custom name or a password. The creator can choose the map and the maximum Mercs that can play in the room. The amount of needed kills or rounds won can be changed. It is also possible to enable Friendly Fire or to change the team selection into balanced, open or random. Furthermore, the creator can give limitations to the room, such as sniper only or melee only.

In Cooperative PvE, the player plays together with other players in rooms. Instead of fighting against each other they fight together against a common enemy. In Build 0.3.0 there are seven PvE modes, as seen in Table 2 - PvE Modes. Every map has four tiers of difficulty, Normal, Advanced, Expert and Nightmare. The first three are unlockable by playing the map. If the player wins the map on Normal, Advanced is unlocked and so forth. To play nightmare the player has to have a special item.

Mode	Description	Number of maps	Preferred amount of players
<i>Assault</i>	Defending a location against incoming attackers.	6	3-5
<i>Survival</i>	Defend a location against incoming zombies.	2	3-5
<i>Assault Ops</i>	Players play through different locations on a map against changing enemies.	3	3-5
<i>Primeval Ops</i>	Like Assault Ops, but the player hereby fights against dinosaurs.	1	3-5
<i>Massive Survival</i>	Like Survival, but with more enemies.	5	3-5
<i>Massive Assault</i>	Like Assault, but with bigger maps.	3	6-8
<i>Extermination Ops</i>	Like Assault Ops, but then against zombies.	3	6-8

TABLE 2 - PvE MODES

Also in this mode, the room creator can give the room a custom name or a password.

The player can change the Merc in the *Locker*. The player has four (two locked) loadouts for the Merc. In every loadout, the Merc can carry a Primary and a Secondary weapon, a Side Arm and a Grenade. Furthermore, the player can carry a maximum of three Universal Techs/Upgrades and three Techs especially for Co-Op. The player can also change the Gear of the Merc. The Gear is split up in Costume, which are purely cosmetic suits and Gear, which can have certain influences on the gameplay. For example, gloves can give 3% extra coins. Furthermore, the player can put Mods (modifications) on the weapons. These mods give advantages or change the weapon for a certain play style. Not every weapon can have every mod and a weapon has only a limited amount of modification slots. The player also has Turrets, which are self-shooting or self-acting placeable guns who react on the game environment, but have only a limited lifetime. The player can also have other miscellaneous items such as XP- Boosts or Revive Tokens. Some items have only a limited time. The player had the possibility to combine identical items to combine the lifetime of the items. And after an item has expired, the player has the possibility to renew the item. In the locker the player also finds the Shooting Gallery. During playing the player can collect Silver, Gold and Platinum Bullets. These bullets can be used in the Shooting Gallery to gain random rewards. The higher the tier of the Bullet, the better the rewards. During PvP battles, the player can also gain Supply Drops. This are cases with good rewards, which can only be opened with Key Cards. This Key Cards can be bought in the shop.

In the Store the player can buy new weapons, Gear, Mods, Tech and Items for their Merc. Players can buy items with Cash, Coins and Credits. The Store is parted in five tabs, whereby the first three are currencies, as stated in Table 3 - Currencies.

<i>Cash</i>	Needs to be bought with real money. The premium currency in Hazard Ops
<i>Coins</i>	The currency gained by playing the game. The soft currency.
<i>Credits</i>	Credits are gained by doing missions.
<i>VIP</i>	For Cash, VIP access can be bought. In the VIP store there are other weapons and items available for Cash.
<i>Showroom</i>	Shows the items that the player can gain from the Shooting Gallery, Supply Drops or from special events

TABLE 3 - CURRENCIES

In total, there are ~ 200 weapons, ~ 300 parts of gear, 78 mods and 32 perks available. In addition, there are many additional shop items. Some of the items are permanent, while others are time limited. Some items also need a specific level to be able to be used. Items can also be gifted to other players. (Isenmann, Hazard Ops Game Overview v4, 2014)

Missions are also a big part of the game. The player gets missions to do certain things. If the player finishes a mission, a reward is given. A reward is often in coins, experience and/or an item. Missions can be finishing a map, killing a certain amount of enemies and more. There are over 3000 missions in the game. (Isenmann, Hazard Ops Game Overview v4, 2014)

Furthermore, the player can gain achievements and medals by playing. Medals are small achievements that a player can gain more often and gets experience points from. Achievements are permanent and can only be gained once. Achievements are more long-term goals, such as *make 1000 headshots* or *Attain level 41*.

The player can also join a clan. This are guilds whereby the leader can decide who they want to have in the clan and not. There are also clan achievements. The players can also play ranked matches, called Ladder Matches. Players have to be level 10 to join a ladder match.

4 Research Objective

This chapter discusses the objective of the research. In addition, the positioning of the research in the intervention cycle is discussed.

4.1 Research Objective

The objective describes in concrete terms what the research involves and what results from the research can be expected. The objective is formulated in a fixed way, namely in an (a)-part and a (b)-part. Below is the objective of this research described as formulated by the project context. The research objective is

to make recommendations to Kristian Metzger, Director Project Management, Infernum Productions AG regarding stimulating retention in the game Hazard Ops

By

Providing an insight in the relations between the current retention, user metrics and game mechanics, by analysing the game using a checklist based on the relevant aspects from the theory about Free-to-Play games, retention and user metrics/analysis.

4.2 Intervention cycle

The intervention cycle is an implementation model for designing and/or implementing a new system, idea or design into an organisation. The model exists out of five consecutive phases. The intervention cycle is used in practice-oriented research. (Verschuren & Doorewaard, 2007, p. 49)

4.2.1 The model

The model is composed of five phases. These phases together are the complete implementation model. The phases are:

Problem analysis: Analyse the problem and make sure that the problem exists.

Diagnosis: Investigate background and origin of the problem.

Design: Develop a solution to the problem and deliver it in a report.

Intervention: The implementation of the design plan.

Evaluation: Evaluate the change, in order to see if the problem is resolved.

(Doorewaard, 2014)

4.2.2 Stage of the research

The research is positioned in the *diagnosis phase*. In accordance to Verschuren & Doornwaard, research will be conducted to the background and origin of the problem. The accompanying problem analysis is complete. The problem analysis states that there is retention in Hazard Ops, but that it is not known how retention is stimulated and how it can be improved. (Verschuren & Doorewaard, 2007, p. 53)

5 Research framework

This chapter describes the research framework. First, the model is displayed and then the various elements are discussed.

5.1 The research framework

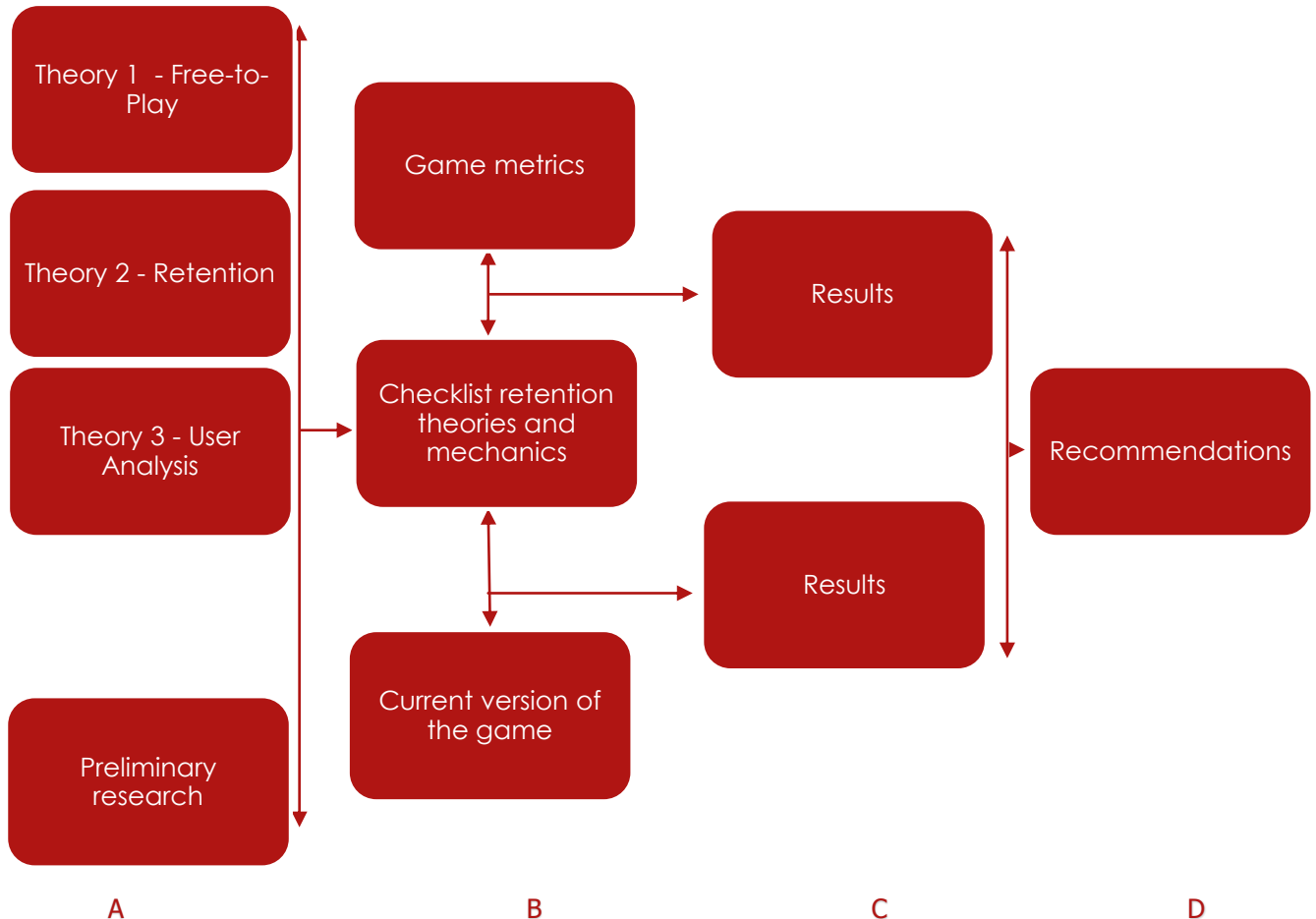


FIGURE 2 - RESEARCH FRAMEWORK

5.2 Explanation research framework

5.2.1 Preliminary research

During the preliminary research, the subject will be discussed with experts in the field. In addition, general meetings will be attended in the company to gather information. There will also be participated in specific meetings on this topic. In addition, an amount of literature and opinions (blogs) will be read about the three theories to develop an overview on the subject. In this way the opinion from experts will be taken into account.

Research will also be done on how to make a good checklist. For this several more general sources will be used, such as *The Checklist* (Gawande, The Checklist, 2007), *Guidelines for Developing Evaluation Checklists* (Stufflebeam D. , 2000) with the associated website www.wmich.edu/evalctr/checklists/ and *A checklist for checklists*. (Gawande, A Checklist for Checklists, 2010)

5.2.2 Theories

During the research, different theories are researched and discussed based on the different key concepts. These topics are *Free-to-Play*, *retention* and *user analysis*. In the first topic there will be researched about what makes Free-to-Play different from other models. In the topic retention, different mechanics will be analysed. And in the topic user analysis research is conducted into the key metrics for retention in Free-to-Play games. A more detailed description of these theories can be found in chapter 7 Theoretical Framework.

5.2.3 Research perspective

From the theories about Free-to-Play games, retention and user analysis, theories and mechanics will be distilled and unravelled. A checklist will be made, based on the found theories. This checklist will contain points that are needed to have retention and/or to increase retention in the game. This list can be seen as a heuristics list, which can be used to evaluate research objects, to see if they contain certain points. The points that the checklist will contain are actions and/or mechanics that the game could contain, or that the organisation could use, to improve retention in the researched game.

5.2.4 Research objects

Metrics

By analysing the user metrics of the game it is possible to see when remarkable events happen in the game. By comparing this with the theories, points may be found where the retention can be improved and where the retention is already good. This comparison is made with the checklist.

Current version of the game

The current version of the game is already improving retention in a certain way. With the help of the produced checklist, the current game will be analysed to map which kind of retention the game contains. The used version in the research will be the most recent version on the date of the tests.

5.2.5 Results

The studies on the various objects will result in different results. The results will be included clearly defined in the document.

5.2.6 Advice

The conclusions and advice will be based on the results found earlier. These conclusions and recommendations will be delivered to the commissioner in writing.

6 Research Questions

This chapter discusses the three research questions addressed in the research. Furthermore, the sub questions of the research questions are discussed.

6.1.1 Research Questions

Research question 1 - Theory

What do the theories say about Free-to-Play models, retention and user analysis/metrics and how can a coherent checklist of retention theories and mechanics be formulated based on this theories?

Research question 2 – Research perspective

What can be said based on the checklist previously developed about the current game concept and the user metrics?

Research question 3 – Results

What recommendations can be made based on comparing the results of the research into the game concept and user metrics?

6.1.2 7.2 Sub Questions

Preliminary research

- What are the dominant views about Free-to-Play games?
- What are the dominant views about retention in-games?
- How can a good checklist be developed?

Research Question 1

- What does the theory say about Free-to-Play games?
- What does the theory say about retention in-games?
- What does the theory say about how user analysis is used in-games?
- How can a coherent checklist be made from important points of the found theories?

Research Question 2

- What results come from the checklist test on the current game?
- What results come from the checklist test on the user metrics?
- What similarities and differences are there between the results of the current game and user metrics?

Research Question 3

- What improvements are possible to increase retention in the game Hazard Ops?
- What recommendations can be made regarding improving retention in the game Hazard Ops?

6.2 Research Strategy

The research strategy *Case Study* is appropriate for this research. There has been chosen for a case study because a profound research will be conducted, while the research has only a small amount of research objects and needs qualitative data. The subtype of this case study is the *single case study*. The benefit of this kind of study is that the results are perfectly fitting to the organisation. However, the negative side of this kind of research is that it is very difficult to use the found knowledge on other companies. For this research, this is not a problem, because the results of this research only apply to this company. (Verschuren & Doorewaard, 2007, pp. 184-191)

6.3 Research Methodology

In this chapter, the research methods that are needed to access the correct information are discussed. These methods are classified by the research questions and the preliminary research.

6.3.1 Preliminary research

In the preliminary research, two different topics are discussed.

General information

To gain general knowledge about Free-to-Play and retention and how this is implemented in this company, general meetings will be attended to get an overview. There will also be conversations with the experts in this company about these topics. Furthermore, blogs, books and opinions will be read about the theories, to gain general knowledge about the topics and to differentiate different opinions in the field.

Checklists

To learn to make checklists, selected literature will be studied, described in chapter 6.2.1 *Preliminary Research*. This knowledge will then be used during *Research Question 1 – Theory* to build the checklist needed for *Research Question 2 – Research Perspective*. Furthermore, there will be made contact with an internal and an external expert, who will validate the checklist before the list will be put to use.

6.3.2 Research question 1

The used method with this question is literature review and/or desk research about the three previously discussed theories in *Chapter 6 - Research Framework*. Found material will be put together in a checklist, using the knowledge gained from the *Preliminary Research*. This checklist will be parted in three chapters, *Free-to-Play*, *Retention* and *User Analysis*. These chapters will have subtopics based on the theory found during the literature review and/or desk research.

Free-to-Play

First, desk research will be done regarding Free-to-Play games. Selected literature will be studied. Based on this study, a list can be created with important bullet points regarding Free-to-Play games. This bullet points will be added to the checklist used for Research Question 2.

Retention

Secondly, desk research will be done regarding retention. The attention will go to retention in-games. Retention in other subjects such as work turnover will be ignored. Different opinions will be compared. From this research, important bullet points will be selected and added to the checklist used for Research Question 2.

User Analysis

The last topic researched is User Analysis. Hereby desk research is conducted to find key indicators in the user metrics that connect the metrics to retention. This makes it possible to connect the bullet points from the two other theories to the game itself. This research also makes it possible to make a coherent list of metrics that should be monitored at all times, to keep an eye on the retention in game.

Checklist

After collection the information from the three previous topics the checklist will be produced. The checklist will be sorted into the above named topics and if necessary, the topics will be further more sorted into subtopics. After the checklist is produced, but before it is used in *Research Question 2*, the checklist will be reviewed by two experts, whereby one internal expert and one external expert.

6.3.3 Research question 2

During Research Question 1, a checklist is produced. This checklist is used during Research Question 2 to conduct empirical tests to both of the research objects. Because a checklist is used, the type of measurement instrument is a content analysis. The results of both tests can then be compared in Research Question 3. Below this, the tests are described in more detail.

Current version of the game

The current version of the game will be evaluated with the checklist. Every point on the checklist will be evaluated. This is done with a checklist so that it is possible to verify changes to the game design on a later moment with the same checklist. Hereby it is then possible to iterate while using the same requirements, and to validate that change has occurred.

The checklist will contain a list of possible ways to improve retention. The researcher will then evaluate the game by analysing if the points on the checklist are used in the game or not. The checklist will have the possibility to rate the points on how they are applied. The researcher will fill in the checklist during a test. At the end of the test, the checklist can be evaluated by the researcher or by for example a game designer to identify missing or improvable items.

Metrics

The metrics will be tested with the checklist. For this, mostly the part of the checklist about key metrics will be used. As for the other points in the checklist, there will be verified if they are visible in the user metrics. By this, it is possible that there will be found that there are for example metrics missing or that strange values occur.

Because a checklist is used, it is possible to test the same values again on a later moment and see the changes between the two times. Hereby it is then possible to validate that change has occurred.

The checklist will not be different for verifying the metrics. By checking specific metrics that are connected to the questioned items, it is possible to find discrepancy between the mechanics and the results of the mechanics. It is possible that a certain mechanic and/or point is used in the game, but has no effect or even a contra productive effect. By controlling both the metrics and the mechanics, it is possible to find these differences. On the other hand, metrics could be wrong, can give a false impression or are possible not helpful. By evaluation both the mechanics and the metrics, it is possible to gain a more coherent result than by evaluation only points or metrics. Under here is an example described as how a question on the checklist could be, in a compact way.

Question	Players have the capability to make characters in different classes/forms
Game	Players have four classes to choose from
Metric	Metric tag <i>Player Create Character</i> [PLAYER CHAR CREATE] shows that only 6.4% (4826 from 75412) of the players have created more than one character
Conclusion	Players have not enough motivation to start another play through with another character.

Hereby is visible that the analysis of the game can show a positive result, but that the metric shows a different result. The conclusion from the results is not necessarily made by the researcher self, but could also be made by for example a game designer or a specialized analyst.

6.3.4 Research question 3

The method used to obtain the results of this study is an analysis of the results previously obtained, which is linked back to the research objective and the theoretical framework of the graduation proposal. This question has therefore no other methodology.

7 Theoretical Framework

In this chapter, the theory that has been collected will be researched and discussed. The chapter is separated into the different research questions.

7.1 Preliminary Research

In this chapter, the theory found during the preliminary research will be discussed.

7.1.1 Part 1 – General Information

Meetings

Every day there is a short stand-up meeting about Hazard Ops, whereby progress in the game is discussed. Possible topics are for example timetables, new builds, marketing schedules and tests that are in need to perform. These meetings give a general overview over the game and how the game preforms. There are also more specialised meeting over several different topics.

Literature on Free-to-Play

What is Free-to-Play?

Free to play (F2P) refers to a business model for online games in which the game designers do not charge the user or player in order to join the game. Instead, they hope to bring in revenue from advertisements or in-game sales, such as payment for upgrades, special abilities, special items, and expansion packs. (Jansen, 2014)

The positive views

Chapelle (2014) describes that Free-to-Play has become a profitable business model, not only on mobile, but also on pc. The article describes that the most important thing for a Free-to-Play games is that the game is fun, but that many developers forget this. Because the peak income for a Free-to-Play game mostly comes after years, long-time retention and long-time improvements of the game are essential. It also states that it is healthier for a company to have revenue throughout the year, instead of one peak moment.

A research about professionals' perspectives on Free-to-Play games states different opinions of professionals in the Finnish game industry about Free-to-Play games. Professionals have mixed opinions over Free-to-Play games. That the game is free to try out is considered by most of the professionals as the biggest plus about Free-to-Play games. In addition, the fact that players can decide how much they are willing to pay is considered positive. Furthermore, the persistent development of Free-to-Play games is also considered as a positive aspect. (Alha, Koskinen, Paavilainen, Hamari, & Kinnunen, 2014)

In the research are also player views described. The positive view of player are mostly focussed on hard-core Free-to-Play games such as League of Legends and World of Tanks. The players' opinion on these games are generally positive. The professional states that this is because this games have so much players, they have no problems with keeping the game profitable in an ethic way.

The negative views

In both the gamer community and in the professional community, there are also negative views on Free-to-Play games. The negative aspects of the games are aggressive and/or greedy monetization, cloning of games and pay-to-win. The general view of the professionals is that everything in the game should be possible to achieve without paying money, which helps to make the game fairer. Another

worry was that the professionals think that games will be built around a monetization model, instead of building a good game. Under the players, a small but loud group is very negative about Free-to-Play games. They disregard games just because they are Free-to-Play. Players who normally play hard-core games do not like Free-to-Play games, because they do not consider them 'real' games. (Alha, Koskinen, Paavilainen, Hamari, & Kinnunen, 2014)

The CEO from Novarama has the opinion that Free-to-Play games hurts the whole industry. The article states that Free-to-Play games are not games, but renting schemes used to get as much money out of the player as possible. (Gilmour, 2012)

Alessi (2012) describes that a big problem with Free-to-Play is that the game are not timeless. The games are always prone to disappear, whereby the invested money of the player is permanently lost. The author states hereby that pay-to-play games can always continue to exist as a piece of art. There is also stated that Free-to-Play games are never art because they are focused on making money instead of focusing on the player experience.

Meade (2014) states that publishers shun away from games that are not 'games-as-a-service' and that people suggest that there is no space for paid apps anymore. The article notes a game that was a success despite being a paid game. The author suggests that the growth of Free-to-Play is mostly bandwagon effect, but that players do not truly want Free-to-Play games. Free-to-Play does not deliver a real game ecosystem. However, the author states that the model itself is not the problem, but the quality of the products.

Davis (2012) expresses that Free-to-Play will stay, but that it is understandable that hard-core gamers do not like this shift. There is stated that Free-to-Play is focused on getting more money from the most engaged players. Hereby is stated that this trend is generally not good for hardcore gamers. Free-to-Play mostly means that a player has to pay more if he wants to play more. With pay upfront games, the player would make a purchase once, no matter how long the game would be used.

Literature on retention

Retention is a term that is mostly used to describe technics and theories to retain personnel in a business. In videogames, the term is used to describe technics and mechanics to retain players over a long period. Most of the literature on retention focusses on the social aspect of retention and on mechanics, but less on analytics. The social aspect of retention is researched for casual games, but less for other types of Free-to-Play games such as Hazard Ops. The focus of the literature research is to find out how retention can be stimulated through game mechanics.

Social

Retention is extremely improved by social mechanics. The article states that the players who are engaged in some sort of social network are 34.8% less likely to churn out. Furthermore, the articles states that these social networks can be improved by game mechanics, such as using other social networks outside of the game and leaderboards. (Williams, 2014)

Street (2014) adds that a game can choose for a specific kind of retention. Pocket Starships focusses the retention on a social base for the core, and with a wait mechanism for the casual player.

The game Words With Friends is successful because players can connect with each other, but not necessary on the exact same moment. Because the game is fundamentally social, they retain players. (Dredge, 2012)

Jordan (2012) states that social glue in their games makes them so popular. They focus on 1-day, 7-day and 30-day retention and break down the player base in newbies, mid-range and elite players. To improve the retention for the newbies they focused much on improving the tutorial.

Mechanics

Cheng (2012) describes that the first time a player plays is the most important moment to retain the players over a longer time. The Early Lifecycle Retention is a good metric to predict long time engagement of a player. The early lifecycle retention is the amount of sessions a player plays in the first seven days of playing. Players who have more sessions are more likely to stay retained over a longer period. Personalised play sessions help to make the first play sessions as pleasurable as possible.

If a game cannot hold a reasonable amount of players, the game has a fundamental problem. The goal for a game is increasing the 1-day, 7-day and 30-day retention. This can be done at first by reducing gameplay obstacles and giving out more rewards. Also using a third party social layer over the game could improve retention by adding a social layer. (Jordan, 2013)

Diener (2013) states that interesting characters in a Free-to-Play game can improve user retention. A good character creates a loyalty from the player to the game. There is stated that monetization models of Free-to-Play games can be parted in five types, namely:

- Easy puzzle games that monetize through energy (Puzzle & Dragons)
- Hard puzzle games that monetize through power ups (Candy Crush Saga)
- Battle games with cards (Rage of Bahamut)
- RTS-like simulation games (The Simpsons: Tapped Out)
- First episode/chapter free games (Walking Dead)

Characters can be implemented in all of these types. In puzzle games, the characters can be used as progress markers that appear at the end of a stage, so that positive connects of winning will be combined with the character. For battle games and RTS games, characters can be exaggerated in themselves to make up for missing character development of the player. And in First Episode Free games, the focus can be on rich and deep character development throughout the game. If the player then connects to the character, the chances are high that they will invest in the other episodes as well.

Play sessions

To get the player back to play your game again, a publisher needs to actively target the player again. This can be done by sending messages, such as emails or nudges. The messages are in the best case related to the player and the last play session. (Cheng, 2013)

Andrew (2012) states that it is more difficult to retain players in the game than to acquire them. If a game does not provide value to the player, they will leave again. There is stated that players who get frustrated from the tutorial will leave. There are also players who just do not understand the game or do not find it interesting. In addition, a player can leave the game if there is for example no Facebook log in, because they do not want to remember separate passwords. There is stated that often little things drive people out of the game. There is also stated that developers should not try to get churned players back in, but that they can better invest in improving the retention of the game.

7.1.2 Part 2 – Checklists

In this chapter the preliminary research about checklists is described. In the first chapter there will be discussed how a checklist can be made. In the second chapter there will be discussed how a checklist can be validated.

Make a checklist

'Guidelines for developing evaluation checklists: The checklists development checklist' from the Western Michigan University is a guide on how to make checklists. It described points needed to be done for making a complete checklist. The Western Michigan University also provides theory behind making a checklist in the paper 'The logic and methodology of checklists'. By using these two papers, it is possible to make a coherent checklist. (Stufflebeam D. L., 2000) (Scriven, 2007)

A checklist has a mnemonic function, to aid the human mind in recalling what it already knows. A checklist is not a learning device itself, but it helps to remember and recall what has to be done. A checklist guides the user systematically through a list of points and prevents forgetting or skipping points. There are multiple kinds of checklists, which have different characteristics. In this research, it is not necessary that the checklist follow a certain order, so a strong sequential checklist is not required. However, a weak sequential checklist for a correct workflow is needed, not because of the order of the questions, but of the psychology of doing the list itself.

The checklist is a comlist. A comlist is a *criteria of merit* checklist that is used to rate entries or evaluate items. Because in this test items will be evaluated, a comlist is a logical choice for the structure of the checklist. In a comlist, entries have a weight added and are mostly scored from 1-5 or 1-10, although such a scoring system is not necessary.

Comlists lower the Rorschach effect, whereby the evaluator sees what he wants to see in the data. This is because the evaluator is forced to evaluate every point on the list separately. A good comlist follows seven rules:

1. The checkpoints should refer to criteria and not mere indicators
2. The list should be complete (no significant omissions).
3. The items should be contiguous, i.e., nonoverlapping (essential if the list is used for scoring)
4. The criteria should be commensurable
5. The criteria should be clear (a.k.a. comprehensible, applicable).
6. The list should be concise (to assist its mnemonic function); i.e., it should contain no superfluous criteria.
7. The criteria should be confirmable (e.g., measurable or reliably inferable).
(bron logic methodology)

Besides this information on the methodology of making a comlist, there are more general points described in Stufflebeam (2000) on how the development of a checklist occurs, no matter which kind of checklist is produced. This list is divided into twelve important points to considerate while making checklists. These categories are for example *Focus the checklist task* and *Obtain initial reviews of the checklist*. For the complete checklist, see attachments *Checklist v1-v6*

Validate a checklists

After making a checklist, it is important to validate the checklist to see if it is a workable tool. The Evaluation Center from the Western Michigan University has a part dedicated to Evaluation Checklists. The center provides checklists for a variety of topics, but also offers theory about checklists

themselves. Two checklists that can be used to validate checklists exist. These are 'Checklist for formatting checklists' (Bichelmeyer, 2003) and 'Guidelines for developing evaluation checklists: The checklists development checklist' (Stufflebeam D. L., 2000). With the first list a made checklist can be evaluated on formatting. The second one is a guide for making checklists, which also contains validation points. In addition, 'A checklist for checklists' by Gawande (2014) is used.

7.2 Free-to-Play

In the first topic there will be researched about what makes Free-to-Play different from other models. There will also be researched how the business model works and how Free-to-Play can be done ethically. Furthermore, there will be looked into monetization, negative points about Free-to-Play and common mistakes done by developers. Afterwards there will be looked into positive points, pay-to-win and payment systems.

7.2.1 Business model

To make a good Free-to-Play game, the game has to be built as a Free-to-Play game, instead of trying to fit in the business model later on. It is also important that the game is playable on as many platforms and systems as possible, to make the player base bigger. They also state that it is important to give enough free content to the player and to make sure that the players do not feel forced to pay. They also state that selling permanent items can be better than consumables, because permanent items give a longer time retention. There is also stated that it is important to keep bringing out new content. (Marchiafava, 2014)

IS THE GAME BUILT AS A FREE-TO-PLAY GAME?

CAN THE GAME RUN ON LOW END HARDWARE?

Free-to-Play gives the players the chance to pay as much as they want for the game and not be disappointed that a pay upfront game is not fun after they spend the money, they know before they pay that the game is fun. It is also easier for players to recommend the game to friends, because they can quickly look into the game and see if it is also fun for them. (Menz, 2014)

The article states that in a Free-to-Play game, the core game is completely free. In a Free-to-Play game, the player will never hit a paywall. However, players feel not all the same about the models. Some find that optional subscriptions make the game not Free-to-Play anymore, while other players are ok with these systems. In a Free-to-Play game, the player can reach the endgame without paying, and although it could take much time, it is in the end possible. Free-to-Play is often combined with a (micro) subscription model. (Hindman, 2013)

IS THE CORE OF THE GAME COMPLETELY FREE?

IS IT POSSIBLE TO REACH THE END GAME WITHOUT PAYING?

Big Fish Games states that gamers have nothing to lose with the Free-to-Play model. The games are easy to access. They also state that Free-to-Play games are more fun than pay upfront games because the developer *has* to make the game fun and likable, otherwise they will not gain any revenue. They also state that for most Free-to-Play games, there is nothing more required than the hardware that most people already have, such as a simple computer or a smartphone. They state that

in a good Free-to-Play game, there are no paywalls. Payment options should also be passively given. It is important that free players do not feel tricked into paying. (Hall-Stigerts, 2013)

IS THE GAME EASY ACCESSIBLE?

DOES THE GAME RUN ON MAINSTREAM HARDWARE?

DOES THE GAME HAVE NO PAYWALLS?

ARE PAYMENT OPTIONS PASSIVE?

Richard Bartle states that Free-to-Play games will in the end disappear because there are not enough big spending players to support so many games. Furthermore, casual players will recognize that they need to keep spending amounts to keep playing, so they will stop playing the games altogether. He also states that many casual players will shift to games that are more sophisticated after a while, because they want a deeper game than before. He states that most developers do not even want to make Free-to-Play games because they want players to play the game for fun, instead of keeping them in with 'tricks'. This can be prevented by making a game that is fun for the players to play. (Handrahan, 2014)

IS THE GAME DEVELOPED TO GIVE THE PLAYER FUN?

To make a Free-to-Play game successful it is important to retain the players over a long period of time. It is hereby vital to make it possible for the player to bond emotionally with the game and to give the player regularly new content. Because it is important to keep the player interested and to give them new content, it can be devastating to make a sequel to the same game. It gives the player the suggestion that the game is not as good as the sequel. It is smarter to give the game new content. (Moller, 2013)

DOES THE GAME EMOTIONALLY CONNECT WITH THE PLAYER?

DOES THE DEVELOPMENT CONTAIN REGULAR NEW CONTENT?

Onyett states that the success of a Free-to-Play game is based on the balance between game design and the pricing model. There is stated that western games do not understand that game design and pricing model is strongly tied together. It is important to find this balance. If the monetization is too aggressively, players will leave. But if the motivation to pay is too small, players will play, but never pay. To avoid this it is especial that the monetize strategy is developed together with the game design. (Onyett, Seperating Free-to-Play and Pay to Win, 2012)

IS THE MONETIZATION STRATEGY DEVELOPED TOGETHER WITH THE GAME DESIGN?

7.2.2 Ethical design

Often, Free-to-Play games are focused on short-term revenue and neglect long-term retention. They focus on getting much revenue out of the user base in a short moment and then let the game die out. With the involvement of metrics, it became easier to predict the short-term goals, but not the long-term retention. It is possible that a change in the game can in a short-term raise revenue, but can result in churn later on. This is preventable if the developer treats the players with respect and provide them with a game that they love to play. Instead of only focussing on improving monetization, it is important to keep improving the game design itself. The developer has to make sure that they do

not try to trick players into doing actions that they do not want to do such as inviting friends or sending messages. Forcing players into doing anything that they do not want is considered unethical.

DO ACTIONS THAT RAISE SHORT-TERM REVENUE NOT HAVE A NEGATIVE BACKLASH LATER,
SUCH AS CHURN?

Pay to advance is acceptable because it does not change the player in terms of levels or skills; it simply means that the paying player can obtain something quicker than the free player. However, it should never mean that the paying player is better than the free player. For more information, see **Fout! Verwijzingsbron niet gevonden. Fout! Verwijzingsbron niet gevonden..**

It is very important to show payers the value of the buy. If a player regrets spending money on the game they will quit. Considering game design, grinding for items or progression is acceptable for both paying and free players, but pay walls are not. This paywalls do not have to be very obvious. Levels or moments in the game that are unreasonable difficult or very long grinds are also unethical. If players are under the impression that they can gain something by grinding, it should be possible in a reasonable time.

IS THE VALUE OF A PREMIUM ITEM CLEAR AND VISIBLE?

DOES THE GAME NOT CONTAIN SOFT PAYWALLS?

Another point for an ethical game is to have customer service in place. It should be possible for players to get help.

DOES THE GAME HAVE A CUSTOMER SERVICE IN PLACE?

If a developer does want to be very ethical, they can consider a spending limit. Simply put, ethical monetization is making players want to pay for the game, instead of tricking them into paying. This is possible by showing value for money, providing a game with a good design, treating the players with respect, both free and paying players. (Costikyan, 2014)

7.2.3 Monetization

Free-to-Play is a business model that makes it possible to pay both more and less for a game. It is suited for the most loyal fans to pay more for a deeper game experience and it is suited for people who cannot or do not want to pay. Every player can pay for the experience that he or she wants. (Davis, The Dark Future of Freemium Games, and how we can Avoid It, 2012) Free-to-Play games can give a meaningful game experience for free and reinvent the model so, that players want to pay because they love the games. Free-to-Play stimulates another kind of market whereby people have the chance to decide if and what they want to pay themselves. (Sterling, 2012)

IS IT POSSIBLE TO PAY AS MUCH AS THE PLAYER WANTS?

DO THE PLAYERS WANT TO PAY FOR THE GAME OR ARE THEY FORCED?

The biggest part of revenue for a Free-to-Play game comes from whales. It is important for a developer to design the game with in mind that whales can spend high amounts of money. To make whales spend, it is important to sell the correct items. Even whales are very calculating about the expenses and want to feel value for money, so the developer has to make sure that all purchases are

value for money and make sense. Most will spend money on long time investments (permanents) in the game, and not on temporary boosts or skip mechanics. If players believe that they get true value for money they will spend. Chance based items (gambling) are often a good impulsive to spend more, but only if this gambling elements give value for money. To sell the correct items it is very important to know the players of the game, so the developer can sell the right items at the right moment. Hoping that players will buy items that have no value for money is a bad strategy. (Lu, 2014)

CAN WHALES SPEND HIGH AMOUNTS OF MONEY?

DO PLAYERS FEEL LIKE THEY GET TRUE VALUE FOR MONEY?

The current Free-to-Play model focus on whales and on converting normal players into whales. Developers have different ways to get this. *Time Compression* is one of these techniques. Hereby the developer makes artificial time barriers in the game, such as grind or timers whereby the player gets the choice to play for a very long time, wait, or pay. The player can still get or do everything for free, but doing so takes a long time. However, if the balance between grind and reward is not good, players will stop playing the game.

IS THE BALANCE BETWEEN GRIND AND REWARD GOOD?

Some developers withhold features for non-paying players. In contrast to the Time Compression, these features are not available by playing, but are behind a paywall. For many players this is a reason to quit playing. (Murff, 2013)

ARE THERE NO FEATURES WITHHELD FOR THE FREE PLAYER?

Another way to make revenue is with *cosmetics*. This category can be parted into pure cosmetics and hybrid cosmetics. Pure cosmetics are only visual. They give status in the game which something that players that are more social like. Hybrid cosmetics often have besides the visual appearance a passive buff such as more experience points or gold gained. (Murff, 2013)

Cosmetic upgrades are considered as fair Free-to-Play. The developer of the game give the player the possibility to cosmetically upgrade their car, avatar or pets. These upgrades do not have a competitive advantage in any way. The Free-to-Play shooter Team Fortress 2 has for example cosmetic upgrades in the form of an enormous amount of different hats, which players like to have. (Davis, The Dark Future of Freemim Games, and how we can Avoid It, 2012)

DOES THE GAME PROVIDE COSMETIC UPGRADES?

ARE PREMIUM HYBRID COSMETICS NOT PAY-TO-WIN?

Furthermore, some players have a gambling system present such as lockboxes, whereby the player buys a key to unlock them with real cash. These boxes mostly contain good or special items and must always be worth the money; otherwise, players will not buy them and will feel fooled. (Murff, 2013)

DO THE GAMBLE SYSTEMS FEEL FAIR FOR THE PLAYER?

7.2.4 Negative ways to implement Free-to-Play

Negative views of Free-to-Play games also exist. A common worry is that some games grab into the weakness of the player. An example of this is in the game FrontierVille whereby in the first play-session the player encounters a wounded animal. For players who are not used to this kind of emotional influence, such as children, this can cause them to feel forced to pay to save the animal. (Shokrizade, Zynga Analysis, 2012)

DOES THE GAME NOT EXPLOIT PSYCHOLOGICAL WEAKNESSES?

Another negative aspect is that some developers make options or items that are normally free, paid. This included hints or power-ups. This behaviour leads to players to doubt about the game. It is for players not clear anymore if a part of the game is 'just difficult' or that the developer made the part of the game on purpose so tough to make the player pay. (Davis, The Dark Future of Freemim Games, and how we can Avoid It, 2012)

ARE NORMAL FREE ITEMS NOT PREMIUM PRICED?

Energy bars are artificial systems to slow down the game process. It prevents the player from burning through the content in a very short time. This also creates an artificial paywall for more loyal players, who can pay to refill energy. Energy bars are often not logically integrated in the gameplay and can easily disrupt the balance of grind and reward. (Davis, The Dark Future of Freemim Games, and how we can Avoid It, 2012)

DOES THE GAME NOT HAVE ARTIFICIAL TIME BARRIERS?

7.2.5 Common mistakes

In many games, the same mistakes are made. Some games disrupt the balance of the game or the economy. To prevent these common mistakes there can be looked at other games.

Sipe (2013) states five mistakes that Free-to-Play developers make. This are:

- Invite friends or pay to continue playing
- Tricking players into sharing content or paying, instead of making players want to pay
- Advertising in a wrong and intrusive way
- Making paid items better than free items (Pay-to-win)
- Paywalls, whereby the player cannot continue without paying (Sipe, 2013)

Filippo (2012) describes seven ways to fail at Free-to-Play, but also gives tips on how to not fail. The seven ways to fail are:

- *Fail to give users great reasons to pay*, by making the game too easy to play without pay
- *Ignore the whale factor*, which is connected to having a payment ceiling
- *Fail to Guide Users to Payment* by hiding payment options in menus
- *Give your Game an End* so that the players naturally leave the game
- *Make a Mediocre Game*, then people are not willing to play or pay
- *Fail to Test and Iterate* to improve the game
- *Fail to Understand Your Audience*

Achieving something in a game is the most important pulse for players. These achievements are parted roughly in gaining levels, gaining wealth and gaining the highest scores. If those achievements

get monetized, such as selling wealth for real life money or pay-to-win weapons to gain the highest scores, it can destroy the game. (Shokrizade, Virtual Achievement, 2012)

ARE ACHIEVEMENTS ONLY OBTAINABLE BY PLAYING?

IS WEALTH ONLY OBTAINABLE BY PLAYING?

7.2.6 Pay-to-win

Some games also make it possible to spend very high amounts (>\$1000 or even >\$5000) on the game, just to be better than the rest of the players. Other games are making the player continuously notify their friends, in exchange for in-game rewards. Some games even force the player to invite friends, or to pay. Other games are built around waiting systems, so that the player get frustrated and will pay to go around of the waiting. (Shokrizade, Zynga Analysis, 2012)

Good Free-to-Play games may not contain pay-to-win. Premium items should have similar stats as free items. In multiplayer games it is important that all maps are available for everyone. Furthermore, the article suggest that the revenue should be gained through small, cheap buys and additionally, a premium account with a subscription which gives small advantages such as XP boosters or premium cosmetics. (Menz, 2014)

IS PAY-TO-WIN PREVENTED?

ARE ALL MAPS FREE IN CASE OF A MULTIPLAYER GAME?

ARE PAID ITEMS AND FREE ITEMS SIMILAR?

DOES A PREMIUM ACCOUNT ONLY HAVE SMALL ADVANTAGES?

Furthermore, Davis discusses paid power-ups. In competition driven games, selling power ups means that skill become obsolete. If a player has the feeling that another player can win by just spending more money, the player will leave. (Davis, The Dark Future of Freemim Games, and how we can Avoid It, 2012)

ARE THERE NO GAME BREAKING POWER UPS SOLD?

Pay-to-win does not lie in the money but in the design. Developers make the designs of the games so, that the player needs to pay to have a normal game experience. Alternatively, developers break the game by providing overpowered items for premium currency. Often, by paying, the player is moved from the one mechanic to the other. Gameplay should not be possible to skip because all gameplay should add something to the game. A game should be a coherent set of mechanics that the player wants to play. (Shumway, 2014)

ARE THERE NO OVERPOWERED ITEMS IN THE GAME FOR PREMIUM CURRENCY?

DOES ALL THE GAMEPLAY ADD SOMETHING TO THE EXPERIENCE?

IS THERE NONE OF THE GAMEPLAY SKIPABLE?

IS THE GAME A COHERENT SET OF MECHANICS?

In the Chinese Free-to-Play market the most games are pay-to-win. This means that player advantage is based on the amount of money spend, instead of on skill. In Chinese games almost all items in the game are upgradable and paid with real money. Players spend much money to be the best. Often games are also cloned, just for the sake of making more money. Practically, these games are simply moneymakers. (Onyett, Separating Free-to-Play and Pay to Win, 2012) Games can be split up in *Skill Games* and *Money Games*. Players like to play skill games over money games. But Skill Games can shift into Money Games and when this is done very subtle, the player will not notice it quickly. On the end if the player notice this, they will stop playing. (Doctorow, 2013)

CAN A SKILLED FREE PLAYER WIN OVER A PAID PLAYER?

The subtle change from skill game into money game is called Coercive Free-to-Play. Coercive Free-to-Play is a theory about Visibility of Control (VoC) and Tolerance to Control (TtC). VoC is how obvious the controlling system is to the users. If the VoC is high, it can be lowered by adding steps in between the relations. TtC is the amount of control users can and are willing to accept. The TtC in users changes over time. VoC and TtC are related to each other as $VoC < TtC = Transaction\ proceeds$ and $VoC > TtC = Transaction\ rejected$. In Coercive Free-to-Play the developer lowers the VoC of the game to sell the most of the product in the shortest time, before the TtC will be higher than the VoC. If the TtC will be higher, the product will stop being popular. It is hereby possible that this kind of unclear Free-to-Play games will die out. (Shokrizade, Systems of Control in F2P, 2013)

IS THE VOC SMALLER THAN THE TTC?

Games where the balance between paid and free players is intact gives the least feeling of pay-to-win. A game such as Hearthstone, whereby players can play and pay for new packs of cards has this balance. (Friedman, 2014)

IS THE GAME BALANCED SO THAT PLAYERS DO NOT CATEGORISE THE GAME AS PAY-TO-WIN?

7.2.7 Positive ways to implement Free-to-Play

Davis states that the game Pocket Planes applies Free-to-Play in a good way. The games gives the player the premium currency also through normal gameplay. It is in this way possible to obtain premium items without paying. This is considered a fair way of applying Free-to-Play. (Davis, The Dark Future of Freemim Games, and how we can Avoid It, 2012)

DOES THE GAME GIVE PREMIUM CURRENCY THROUGH NORMAL PLAY?

Another way to do Free-to-Play correctly is by offering real premium content, states Davis. Hereby it is possible to play the core game for free, but the player can buy additional content, such as extra teams of levels. (Davis, The Dark Future of Freemim Games, and how we can Avoid It, 2012)

DOES THE GAME PROVIDE REAL PREMIUM CONTENT?

For players it is very important that equity is preserved. Equity, in games sometimes called persistence, it the preserving of the game state over time. If a player gains a certain amount of gold and then stops playing for the day, the same amount of gold should be there the next time he plays. This it called equity. Equity can be very easy destroyed. If an item loses suddenly value, players will be upset. This is very easy to do with microtransactions that sell game content. This is for everything that can be gained in the game itself too. Therefore, to have a successful Free-to-Play game it is very

important that the equity is preserved for the players so that they do not get upset. (Shokrizade, The Barrier to Big, 2013)

IS EQUITY PRESERVED?

Gamesbrief (Lovell N. , Design rules for free-to-play games, 2013) has 15 design rules for Free-to-Play games. If all 15 rules are used the game has potential to become popular. Of course not all rules fit to any game, and it is up to the developer to choose from them. The rules are:

<i>Rule 1: Make it Fun</i>	It is hard to acquire players, retain player or monetize in a game which is not fun.
<i>Rule 2: The Starbucks Test</i>	For a mobile game a play session should be meaningful in the time that it takes to make a coffee.
<i>Rule 3: Come for a minute, Stay an hour</i>	Make a player feel that he can play for a minute, but keep them in for much longer.
<i>Rule 4: Build complexity in Layers</i>	Make sure that a player can play a simple game, but when he wishes he should find much more complexity in the game.
<i>Rule 5: Be Evergreen</i>	A developer needs to make sure that the game never ends and that the player can always do something different or new.
<i>Rule 6: Generosity</i>	Giving things to the players triggers a couple of basic feelings. For example it stimulates the happiness of a player who can tell friends about it. It triggers basic feelings as described by Cialdini, such as liking and reciprocation.
<i>Rule 7: Be Free forever</i>	Do not add paywalls in the game, but the whole content should be Free-to-Play.
<i>Rule 8: Make it easy to spend One dollar</i>	To let players make the first payment (so possibly more) sell an item which has so much value for the price that it should be logical that the player buys the object. It should be cheap.
<i>Rule 9: Make it possible to spend One hundred dollars</i>	To make it possible to spend so much in the game per month the developer makes sure that on average a different player can spend \$20 on items he or she likes.
<i>Rule 10: Have Pizzazz, not polish</i>	Pizzazz is a term for player feedback on an emotional level, whereby the player will get the feeling that he did something very good with his action.
<i>Rule 11: No tutorial</i>	The first minutes of the game are important on a Free-to-Play game, a developer needs to reward the player for playing the game, whereby the player needs to have fun.
<i>Rule 12: No failure</i>	A player should not be able to fail in the game. Failing is off putting and players who often fail will not play again.
<i>Rule 13: Sell Emotion, not content</i>	Emotion can be sold through items that grab into an emotion the player has, such as status or relationships.
<i>Rule 14: Experiment and learn</i>	Experiment with the game and learn from the failures
<i>Rule 15: Never stop developing</i>	A game is never done and keep giving players new things and new experiences.

TABLE 4 - FIFTEEN FREE-TO-PLAY RULES

DOES THE GAME APPLY THE 15 RULES?

7.2.8 Payment systems

Microtransactions promise the developer an ongoing stream of revenue, as long as the game is online. The idea of the system is that all players can pay little amounts for the games. In most games this is not the case. The most revenue comes from whales who spend high amounts on the game. With microtransactions, players can buy virtual goods in the game. These goods have to be implemented in a correct way; otherwise the virtual goods can disrupt the in game economy and drive away players. (Noonan, 2013)

DO THE VIRTUAL GOODS NOT DISRUPT THE ECONOMY?

Free-to-Play games mostly use variable hard-to-soft currencies. This means that the player can buy the soft currency with hard currency, if the player does not have enough from playing through the game. In most of the games the ratio of soft currency for hard currency variable throughout the game. Variable ratios are better controllable by the developer of the game. However, the player expects that the rates are somewhat similar throughout the game. This makes variable price points confusing for players. (Jordan, Monetizer Special: Analysing hard-to-soft currency conversion rates in F2P games that use a 'percentage fill' IAP economy, 2014)

CAN THE PLAYER BUY SOFT CURRENCY WITH HARD CURRENCY?

IS THE VARIABLE PRICEPOINT TOO CONFUSING FOR THE PLAYERS?

Subscription based models are models whereby the player pays a recurring and continuous price to have access to a game. A subsection of subscriptions is microsubscriptions, whereby instead of subscribing to the whole game, the player can subscribe to a part of the game. This makes it possible for a player to fit the subscription to his individual needs. Instead of subscriptions, the developer can also choose for using *microtransactions*. The first flavour of this is the *virtual goods sale*, whereby items are sold to the player for real money. These items should have not break the game. The second variant is *content sales*. By content sales a part of the games is hidden behind a paywall. It is like DLC. The third variant is *time controls*. Time controls make sure that a player with more time cannot go ahead much further. This makes it possible to sell items to overcome these barriers. (Shokrizade, The Language of Monetization Design, 2013)

DOES THE GAME CONTAIN MICROSUBSCRIPTIONS?

DOES THE GAME CONTAIN MICROTRANSACTIONS?

DO THE VIRTUAL GOODS NOT BREAK THE GAME?

IS CONTENT SALE IN PLACE, BUT NOT TOO RESTRICTIVE FOR FREE PLAYERS?

(Shokrizade, How (Not What) to Charge for Games, 2012) states that players are clear about how they want to be charged for games. This are:

- Pay-to-win is out of the question and players will not play a pay-to-win game
- Players rather have subscriptions than microtransactions
- Some prefer on time fees over recurring fees
- Microtransactions accepted for cosmetics

It is hereby important that the goods that are sold are superior and that it is possible that players can buy real luxury goods (aka something that not everyone can buy) to keep the value of the goods up. If the developer sells a good that disrupts the balance of the game, all the goods will gain a lower value.

IS IT POSSIBLE TO BUY BOTH PERMANENT AND TEMPORARY ITEMS?

ARE PREMIUM ITEMS REAL LUXURY GOODS?

DOES NONE OF THE GOODS DISRUPT THE VALUE BALANCE?

7.3 Retention

Retention is the measurement of how effective a game is in retaining players over a period of time. User retention can be stimulated by using certain technics and mechanics in the game. This topic will be separated in multiple subjects. (Lovell N. , Retention rate, churn and duration, 2011)

7.3.1 Game design

To create a game for retention in the first place the game design needs to be good. A game has to be fun, so that players like to play your game, feel happy through it and feel good about playing it. A healthy game thrives on good gameplay, and a healthy game sees players coming back and having fun with it. (Luton, 2013, S. 27)

Retention is also known as long-term engagement. The article described certain points to improve retention with game design choices in social based games:

- 1: Story and Characters: An interesting story in a game can motivate players to come back to find out what happens next, such as in a television series. Interesting characters complement the story
- 2: To Do Lists: Actions the player can do, but which last longer than one play session. This includes missions, achievements and other long-term goals. For more about this point see 7.3.4 Goal systems
- 3: Ownership and Collection: Collecting loot and completing sets. For more about this point see 7.3.4 Goal systems
- 4: Guilt: Getting the player back by explaining that something bad will happen if they do not return. This can be potential dangerous, because the player can choose to leave forever if they lost too much. Guilt can be also be a negative trigger that can lead to videogame addiction. For more see 7.3.6 Emotions
- 5: Missed opportunities: Events that happen when the player is not playing, which is a motivation to look into the game often. For more about this point see 7.3.4 Goal systems
- 6: Daily Events: Reasons to come back daily, such as daily missions and log in bonuses. . For more about this point see 7.3.4 Goal systems
- 7: Weekly Events: Reasons to come back weekly, to motivate players who cannot log in daily. For more about this point see 7.3.4 Goal systems
- 8: Cooldown timers: To make the play session artificially longer. This does not fit in every type of game
- 9: Interacting with friends: Mechanics that stimulate playing together (Marques, 2010)

DOES THE GAME HAVE A STORY?

DOES THE GAME HAVE INTERESTING CHARACTERS?

DOES THE PLAYER HAS GOALS IN ONE PLAY SESSION?

DOES THE PLAYER HAS GOALS THAT SPREAD OVER MULTIPLE PLAY SESSIONS?

CAN THE PLAYER COLLECT?

CAN BE PLAYER GET BACK TO THE GAME WITH A GUILT FEELING?

DOES THE PLAYER HAVE MOTIVATION TO GO BACK TO THE GAME OFTEN, OTHERWISE HE WILL MISS SOMETHING?

DOES THE GAME HAVE DAILY EVENTS?

DOES THE GAME HAVE WEEKLY EVENTS?

ARE THERE SOCIAL MECHANICS IN PLACE?

DOES THE GAME HAVE COOLDOWN TIMERS?

The most important loop in the game is the core loop. This is the basic action in the game, such as playing a match. The core loop is an action-reward system. The core loop needs to be good because the player is confronted with the loop continuously. A bad core loop destroys the fun for the player. Most core loops contains an upgrade step whereby the player gets better. This is a motivation to keep playing. (Luton, 2013, S. 32)

DOES THE GAME HAVE A GOOD, POLISHED CORE LOOP?

DOES THE GAME HAVE UPGRADES?

The developer has to make sure that players not binge on content, because players who play very much in one session are less likely to come back later for more sessions. There can also be made use of grind. While grinding, players need to do multiple rounds of the core loop to gain a certain reward. This gives a motivation to play multiple rounds. (Luton, 2013, S. 38)

DOES THE GAME CONTAIN GRIND?

Sessioning is when the game gives a reason to stop playing. Part of sessioning is also getting the player to return. This is done with a so-called *return trigger*. Return triggers give the player a clear reason to return to the game. (Luton, 2013, S. 39-44)

DOES THE GAME GIVE A REASON TO LEAVE, BUT ALSO COME BACK?

There are three return triggers, *appointment*, *social commitment* and *nudge*. An appointment trigger is when the player gets a reward for coming back on a later moment. This is often combined with a wait or energy system. If the appointment is not followed up, then the reward can be changed into a punishment. Because of this, the player will feel needed to come back and keep up the promise. Log in rewards are also a part of appointments, because they stimulate to return to the game every day, especially when the rewards get better with every next day. Appointments stimulate habit. (Luton, 2013, S. 44-46)

DOES THE GAME HAVE APPOINTMENTS?

DOES THE GAME HAVE LOG IN REWARDS?

DOES THE GAME PUNISH MISSED APOINTMENTS?

Competitive triggers are triggers that stimulate the players competitiveness. Leaderboards are a way to get this trigger, whereby also not getting on the leaderboard can be a retention mechanic, because this triggers the will to be the best. Every game with PvP creates this emotional trigger. (Luton, 2013, S. 46)

DOES THE GAME HAVE A LEADERBOARD?

Social Commitment Triggers are triggers that make the player feel that they have to return to the game because someone else is waiting or relying on them. Players will feel more obligated if it is a person waiting than a computer. Guilds or clans are systems that can provide Social Commitment Triggers, because the guild can rely on the other player. (Luton, 2013, S. 47)

DOES THE GAME HAVE CLANS/GUILDS?

Another kind of trigger can be the Sales and Events Triggers. This are time based sales or events that if the player misses this out, they will not be able to get this again. This can be a trigger to participate in events and sales. (Luton, 2013, S. 48)

DOES THE GAME HAVE SPECIAL EVENTS?

DOES THE GAME HAVE SPECIAL SALES?

The last trigger is the Nudge Trigger that is not necessarily a direct return trigger, but a long-term one. Nudging, or sending messages to the player is mostly used to send to players who have churned. (Luton, 2013, S. 49)

ARE THERE NUDGES FOR CHURNED PLAYERS?

7.3.2 Developer

Retention and satisfaction are based on trust, commitment and perception of the quality of the product (Debeauvais, Nardi, Schiano, Ducheneaut, & Yee, 2011, S. 180)

DOES THE PLAYER TRUST THE DEVELOPER?

IS THE PLAYER COMMITTED TO THE GAME?

DOES THE PLAYER SEES THE GAME AS A QUALITY PRODUCT?

If a game can continue to implement new features and change the game following player habits, it is possible to retain players over longer periods. (Debeauvais, Nardi, Schiano, Ducheneaut, & Yee, 2011, S. 180)

DOES THE GAME IMPLEMENT NEW FEATURES REGULARLY?

DOES THE GAME CHANGES FOLLOWING THE PLAYER HABITS?

7.3.3 Bartle types

Players can be split up in four Bartle Types. The player types are looking for different kinds of motivation and the fitting rewards. The four Bartle Types are *socializers*, *killers*, *achievers* and *explorers*. The Socializers are looking for interaction with other players in the game. The Killers are looking for competition and winning. This applies to both PvP and PvE. Achievers like to be rewarded for their actions in the form of achievements, medals, titles and collections. They thrive well on games with clear goals. Explorers like to discover the game and for example write guides. It is important to keep in mind that this are stereotypes and that players can have a mixture of the different player types. The stereotypes can be used to create the goal system in the game. (Luton, 2013, S. 52-53)

DOES THE GAME APPEAL TO ALL FOUR PLAYER TYPES?

7.3.4 Goal systems

Goals retain the player over a longer period. The goal system provide mechanics for distributing rewards. The way rewards are distributed is called *reward schedule*. The schedule can be *fixed*, *variable* or *increasing*. In a fixed schedule, the player knows what reward will be gained when a goal is finished. A variable reward system is more engaging because the player has always the chance to obtain highly desirable items. This stimulates the repeating of the task more than a fixed schedule. As long as the player has a change on a desired reward, there is a motivation to keep playing. But if the reward is known, the repeatable task will feel like a chore or grind. If the reward increases over time every next time is more desired than the last. This gives motivation to continue playing. Combining variable and increasing rewards helps to keep the excitement from not knowing what you get and getting better value. The *increasing variable reward* schedule is the most used system and often the best working scheme. This schedule only works in the rewards are given regularly. If the rewards are given out not often, it is better to go with a fixed schedule. Schedules need a lot of fine-tuning to make them feel good for the player. It is important that the balance of the game is not disrupted by the rewards. (Luton, 2013, S. 53-62)

DOES THE GAME HAVE MULTIPLE REWARD SYSTEMS?

DO THE REWARD SYSTEMS APPEAL TO ALL FOUR PLAYER TYPES?

Flow is a system whereby the person becomes in a focused state of mind wherein the time flies. Flow is the balance between skill and difficulty of the game. The difficulty of the game and the skill of the player must be in balance, otherwise it causes boredom or anxiety. In a state of flow, the player will experience a strong feeling of focus on the game and a loss of self-awareness. Flow can be stimulated through game design. To stimulate flow it is important to have concrete goals in the game. These goals should fit to the capability of the person. The goals and performance should give clear feedback and distractions must be eliminated. (Baron, 2012)

DOES THE GAME HAVE CONCRETE GOALS?

DO THE ACTIONS AND GOALS FIT TO THE PLAYERS CAPABILITIES?

DOES THE GAME GIVE TIMELY AND CLEAR FEEDBACK ON THE PERFORMANCE OF THE PLAYER?

DOES THE GAME REMOVE AS MUCH EXTERNAL INFORMATION AS POSSIBLE?

Examples of goal systems are *collections*, *missions*, *leaderboards*, *friends* and *unlocks*. *Collections* are actions whereby the player can collect a set of items. Collections fit to the Achievers player type.

Missions or *Quests* are goals who have a known set of actions and when finished the player gets a reward. The quests have mostly fixed rewards because quests take more time to finish. Quests fit to achievers and explorers. *Leaderboards* or *scoreboards* are lists, which state the players' in-game achievements. This is mostly a score. Leaderboards can be considered a fixed reward schedule and fits to the Bartle Type *killer*. *Friends* is a not directly clear goal system. It is more focused on socializers. For socializers, being able to connect with friends is meaningful. *Unlocks* increase play to reach the requisites for unlocking a new item, level or other game play. Unlock fits good to explorers and is a fixed reward schedule. (Luton, 2013, S. 63-65)

DOES THE GAME HAVE COLLECTABLES?

DOES THE GAME HAVE QUESTS OR MISSIONS?

DOES THE GAME HAVE LEADERBOARD(S)?

DOES THE GAME HAVE UNLOCKABLES?

Achievements in games are often added for extra motivation besides the game goals. Achievements can prolong the game because they add extra goals. Some designers fear that achievements also have a negative backlash. They think that some players will play bad games just to get more achievements. It is said that achievements decrease the intrinsic motivation that comes out of the player itself. The research states that players who expect achievements and know which achievements to expect play more and more directed on getting the achievement. Also immediate feedback on the achievement increases effort. Furthermore, achievements are enjoyed by the Bartle Type *achiever*. (Blair, 2011)

DOES THE GAME CONTAIN ACHIEVEMENTS?

IS THE FEEDBACK WHEN A PLAYER GETS AN ACHIEVEMENT IMMEDIATE?

7.3.5 Social play

Social play or playing videogames while interacting with other people can create more retention. Many people like to play with someone else, whether this is in person or online. (Mideastmedia, 2014)

Debeauvais et al. (2011) state that *social play*, such as challenges that cannot be completed by one person, can result in the bonding between players and paving the road to friendship between strangers. Social players stimulate each other to play more or more regularly. (Debeauvais, Nardi, Schiano, Ducheneaut, & Yee, 2011, S. 185) Social play also caters the need of the Bartle Type *socializer*.

DOES THE GAME STIMULATE SOCIAL PLAY?

Debeauvais et al. (2011) researched that people who made real life friends in the game play much more per week on average than people who did not make any real life friends in the game. Especially female players tend to make real life friends in games. Also people who found their real life partner in the game play more hours per week. Female players find partners more often in games than men. Making friends and eventually finding a partner through the game seems to be a more important goal for females than males. (Debeauvais, Nardi, Schiano, Ducheneaut, & Yee, 2011, S. 183-184)

DOES THE GAME CATER MAKING FRIENDS AND BONDING?

Furthermore, guilds and clans can improve retention. Players who are not part of a guild have a higher stop rate than players who are part of a guild. Basic members of guilds have again a higher stop rate than guild leaders. The social part of being a guild leader has as a result that players are less likely to stop playing the game (Debeauvais, Nardi, Schiano, Ducheneaut, & Yee, 2011, S. 183)

DOES THE GAME HAVE A CLAN OR GUILD SYSTEM?

7.3.6 Emotions

Emotion

NOUN

1A strong feeling deriving from one's circumstances, mood, or relationships with others
(Oxford Dictionaries, 2014)

During playing games, layers actively search of certain emotions. The five emotions people experience and search for the most in videogames are *amusement*, *contentment*, *wonderment*, *excitement* and *curiosity*. Because players actively search for these emotions, it is important that the game can trigger this kind of positive emotions. (Bateman, 2008)

Amusement: Amusement is stated in the four keys of fun under People Fun. People fun is produces by social play. For more information on social play see 7.3.5 Social play (Lazzaro, 2004)

Contentment: Contentment is stimulated by having fun during play, with not much frustration. It is related to relaxation. (Lazzaro, 2004)

Wonderment: Wonderment is described in Lazzaro's four keys of fun under Easy Fun. Easy fun is the immersion in a game that produces positive emotions. (Lazzaro, 2004)

Excitement: Excitement is also described as Serious Fun. Serious Fun is stimulated by relaxing play, repeated play and collecting. (Lazzaro, 2004)

Curiosity: Curiosity is described in Lazzaro's four keys of fun under Easy Fun. Easy fun is the immersion in a game that produces positive emotions. (Lazzaro, 2004)

Many players consider experiencing emotional reactions on games important. Action games, Role Playing Games and Shooters are considered to produce the most emotional responses. (Altizer, 2014)

DOES THE GAME PRODUCE EMOTIONS IN THE PLAYER?

DOES THE GAME AMUSE THE PLAYER?

DOES THE GAME MAKE THE PLAYER FEEL CONTENT?

DOES THE GAME WONDER THE PLAYER?

DOES THE GAME MAKE THE PLAYER EXCITED?

DOES THE GAME MAKE THE PLAYER CURIOUS?

Jolley, Mizerski and Olaru (Jolley, Mizerski, & Olaru, 2006 S. 772) states that retention is in certain situations connected to habit. This means that if a player plays regularly on the same platform, it is more likely that they will return to this platform. The frequently of use of a platform can be an indication of habit forming. There is also stated that habit behaviour is not depending on reasoned behaviour. This means that a player, who uses a platform out of habit, does not necessarily have good reasoning for this behaviour.

DOES THE GAME STIMULATE BEING A HABIT?

When the game is a habit, this can be considered positive, because the player can still decide if they want to stop playing. However, this feeling of habit can change into addiction. This is often triggered by guilt. The feeling of guilt in a person can lead to videogame addiction. If a player feels that people rely on them or that social bonds in the game are so strong that bonds outside of the game are neglected, there is a risk of addiction. Addiction is unhealthy behaviour. (Flanagan, 2014)

DOES THE GAME HAVE ADDICTIVE TRIGGERS?

During gaming the brain releases dopamine. Dopamine is the chemical that makes the person feel good. Every time anyone is playing a game, dopamine is released in the brain. Dopamine is only released experiences that the brain considers new. Thus getting dopamine from the same source is not possible. This is a reason that players can get quickly bored with a game where they have to do the same repeatedly. If the game changes and challenges the player, this will happen slower. New gamers get higher doses of dopamine from simple games. An experienced player needs a more complex game to get the same dose of dopamine. For high dosed gamers there are many games available. For the medium dosed gamers there are not so much games yet. If the game can catch the low dosed players first and keep them with the game while they become more high dosed gamers, the chance is high that the gamer stays with the game. Although in high dosed games, it is important that the game rounds are short, because high doses of dopamine exhaust the person. (Shokrizade, Game Dosing, 2013)

DOES THE GAME CATER ALL THREE KINDS OF DOPAMINE PLAYERS?

7.4 User Analysis

Analytics is collecting game data and understanding this data. The data is made of actions that players do. Analytics are used to improve the game. In a better game, the Key Performance Indicators will increase. In games with a high KPI, players play more and spend more. In Free-to-Play games it is possible forever improve the game. Free-to-Play games are released as a *Minimal Viable Product* and is then improved over time. (Luton, 2013, S. 107-108)

Analytics are about not asking the player what they want, but analysing what they do. Players often do not know what they want in a game or their actions differ from their spoken opinion. (Luton, 2013, S. 109)

Analytics give the developer the possibility to look in a scientific way to the game. With the use of the scientific method, the developer can test hypotheses in the classical way. This method is:

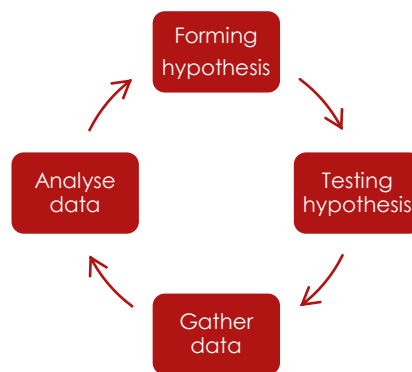


FIGURE 3 - SCIENTIFIC METHOD

With this system, it is for the developer possible to continue improving the game based on analytical information. (Luton, 2013, S. 110)

7.4.1 Collecting data

To be able to collect the data the company needs a software package. Analytic software packages range from free for small games to high prices. Some companies create their own software solution for their games. The software consists always of an API, which makes the connection between the game and the analytics software, and an analyse dashboard. (Luton, 2013, S. 111)

In the API, *event triggers* are used as a variable for an event in the game. A trigger could be for example that a player starts the game or that the player bought a blue hat. (Luton, 2013, S. 114)

The industry has certain standard KPIs that every commercial packet tracks. (Luton, 2013, S. 114)

To find out which custom metrics a game should track, it is smart to identify difficult game design decisions and merge this with a traceable metric. (Luton, 2013, S. 114)

7.4.2 KPI

KPIs or Key Performance Indicators are the basic metrics that a game has. Key Performance Indicators (KPI) are formulas and variables used by developers to monetize games. KPIs are furthermore used to make decisions in the development process. KPIs are mostly visualised on a dashboard to make them easy accessible for the developer. KPIs should be easily understandable by the people who use them. KPIs also have to be catered to the specific kind of game. Not every game needs the same KPI's. (Thibault, 2013, S. 483-493)

Acquisition KPI's

New players/ Player install		The gain of unique new players, to be defined by day, week or month.		(Thibault, 2013, S. 515-531) (Ninja Metrics, 2014)
Cost per acquisition/ Cost per Install	CpA/ CpI	How much it costs to acquire new players, based on advertisement, marketing, etc.	Cost of Campaign/New Installs = CpA	(Thibault, 2013, S. 515-531) (Xicota, 2013)
Cost per Engagement	CpE	Advertisement whereby the player gets something in return for the action, such as an item.		(Xicota, 2013)
Source of traffic		Where new players come from.		(Thibault, 2013, S. 515-531)
Tutorial loss		The loss of players between the first entry into the game and the end of the tutorial. Sometimes called <i>first day dropoff</i> .	Should be maximum 33 percent.	(Thibault, 2013, S. 515-531, 542)
Virality		New players gained through already playing players.		(Thibault, 2013, S. 515-531)
K-Factor		Average new players gained through referring from the game itself.		(Thibault, 2013, S. 515-531) (Ninja Metrics, 2014)

TABLE 5 - ACQUISITION KPI'S

Retention KPI's

Monthly Active Users	MAU	Amount of unique players who have played the game one or more times in a month.		Thibault 553 (Luton, 2013, S. 115) (Xicota, 2013) (Ninja Metrics, 2014)
Daily Active Users	DAU	Amount of unique players who have played the game one or more times in a day.		Thibault 553 (Luton, 2013, S. 115) (Xicota, 2013) (Ninja Metrics, 2014)
Sticky Factor		The amount of Monthly Active Users who are Daily Active Users.	DAU MAU Ratio in percentages	(Xicota, 2013) (Ninja Metrics, 2014)

Churn rate/ Attrition rate		Amount of players who stopped playing the game over a specified period of time.	$(\text{Users turned inactive} / \text{Average number of users}) * 100 = \text{Churn Rate in \%}$ whereby the Average Number of Users is $(\text{Users at the start of the period} + \text{Users at the end of the period}) / 2$	(Thibault, 2013, S. 553) (Xicota, 2013)
Average gaming time		The average number of hours played by all the players on a daily, weekly or monthly base.	$\text{Total hours played} / \text{Total amount of players} = \text{Average gaming time}$	(Thibault, 2013, S. 559)
Average number of game sessions		The average number of gaming session played by the entire player base on a daily, weekly or monthly base.	$\text{Total gaming sessions} / \text{Total amount of players} = \text{Average number of gaming sessions}$	(Thibault, 2013, S. 565) (Luton, 2013, S. 117)
Average Session Length		Measures the session of a player and takes an average of all sessions, which is used to understand the player base.	$\text{Total session time of a player} / \text{the amount of sessions of the player} = \text{Average Session Length}$	(Luton, 2013, S. 117) (Ninja Metrics, 2014)
Retention curve - Level		The progression of a player through the game based on level progression. Used to analyse churn in the progression.		(Thibault, 2013, S. 565) (Luton, 2013, S. 116)
Retention rate		Amount of players who kept playing the game over a specified period of time.	$(\text{Active users} / \text{Average number of users}) * 100 = \text{Retention Rate in \%}$ whereby the Average Number of Users is $(\text{Users at the start of the period} + \text{Users at the end of the period}) / 2$	(Luton, 2013, S. 115) (Xicota, 2013) (Ninja Metrics, 2014)

TABLE 6 - RETENTION KPI's

Monetization KPI's

Revenue		The total amount of money gained with the game.		(Luton, 2013, S. 114-115)
Paying users		The percentage of player who made at least one purchase in the game.		(Thibault, 2013, S. 571)
Average Revenue Per Paying User	ARPPU	The revenue per paying user, whereby non-paying players are ignored.	$\text{Revenue} / \text{Paying user} = \text{ARPPU}$	(Thibault, 2013, S. 576) (Xicota, 2013) (Ninja Metrics, 2014)
Average Revenue Per User	ARPU	Revenue per playing player.	$\text{Revenue} / \text{Active Users} = \text{ARPU}$	(Thibault, 2013, S. 576) (Xicota, 2013) (Ninja Metrics, 2014)

Average Revenue Per Daily Active User Average Revenue Per Monthly Active User	ARPDau ARPMau	The average revenue per active user per day or per month. Subsection of ARPU.		Luton 115_(Luton, 2013, S. 115)
(Customer) Lifetime Value	CLV/LTV	The value of one customer (whatever one customer spend on the game) or the average revenue produced by one player.	Gross Profit – Cost of Acquisition = Net Profit	(Thibault, 2013, S. 576) (Xicota, 2013) (Williamson, 2013)
Conversion rate		The amount of player who have become paying users, by making at least one purchase in percentages.		(Thibault, 2013, S. 581) (Luton, 2013, S. 115)
Source of income		Where the revenue streams come from, such as item sale or advertisement.		(Thibault, 2013, S. 586) (Luton, 2013, S. 114-115)
Item gain		The revenue per item sold in the game.		(Thibault, 2013, S. 586)

TABLE 7 - MONETIZATION KPI'S

Other

New user flow	The actions what a new user does, used to polish the tutorial.	(Luton, 2013, S. 116)
Drop out	The status of the player on the moment of churn.	(Luton, 2013, S. 116)
First Purchase	What item the player bought on the first buying moment.	(Luton, 2013, S. 116)
Missions and achievements	What missions and achievements the players start, finish and or discard.	(Luton, 2013, S. 116)
Peak Usage	A metric for analysing when the most players play.	(Luton, 2013, S. 117)

TABLE 8 - OTHER KPI'S

7.5 Checklist

The checklist is developed based on the earlier discussed questions. From the checklist there were multiple iterations. The final version of the checklist is version 5. The other versions can be found in the chapter 12 Attachments.

Free-to-Play retention checklist

This checklist is for analysts and developers who want to check their Free-to-Play game on common design choices and retention actions. This checklist can be used during the development of a game, or before any update. To use the checklist the analyst has to control if the question is in the game, if there is a metric in place for this question and what conclusion can be get out of the metric and the question. For this, the developer has to make sure that there is some kind of user analysis with metrics in place.

Marianne Spijkstra – Version 5 – 21-08-2014

Retention		
<i>Question</i>		<i>Answer</i>
Game Design		
There is a story implemented in the game	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game has interesting characters	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The core loop works flawlessly	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game appeals to all four player types	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game follows the players habits	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game gives clear and timely feedback to the player	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The player can upgrade	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The core of the game is completely free	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is the game considered a quality product	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Reward systems		
The game has multiple reward systems	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game has log in rewards	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The player has appointments to come back to the game	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game punishes missed appointments	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The player can collect items and complete collections	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The balance between grind and reward are correct	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Events		
The game has daily events	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game has weekly events	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game has special events	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game has special sales	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game nudges churned players	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Goals		
The game has concrete goals	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The player has goals in one play session	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The player has goals spread over multiple play sessions	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The actions and goals fit to the players capabilities	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game contains missions or quests	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game contains achievements	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Social		
The game stimulates social play	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game has leaderboards	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game has clans/guilds	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Emotion		
The game gives the player fun	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game wonders the player	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game excites the player	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game makes the player curious	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game makes the player feel content	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game caters all three dopamine players	<input type="checkbox"/> Yes <input type="checkbox"/> No	

TABLE 9 - CHECKLIST V5 RETENTION

Free-to-Play		
<i>Question</i>		<i>Answer</i>
Basics		
The game is built as Free-to-Play	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The core of the game is completely free	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game runs on low and main stream hardware	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game gets regularly new content	<input type="checkbox"/> Yes <input type="checkbox"/> No	

The game has customer service in place	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Game design		
The game does not contain paywalls	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Achievements are only obtainable my playing	<input type="checkbox"/> Yes <input type="checkbox"/> No	
All gameplay adds to the experience	<input type="checkbox"/> Yes <input type="checkbox"/> No	
A skilled free player can win over a paid player	<input type="checkbox"/> Yes <input type="checkbox"/> No	
It is possible to reach endgame without paying	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Monetization		
Payment options are passive	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game has no payment ceiling	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The balance between grind and reward is correct	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The gamble systems are fair	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game does not exploit	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Multiplayer maps are available for all	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Wealth is only obtainable by playing	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Micro subscriptions are implemented	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Equity is preserved	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Microtransactions are implemented	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Short term raise of revenue does not have backlash	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Premium items		
The value of premium items are clear	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game has (hybrid) cosmetic upgrades	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Normally free items are not premium priced	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Free and paid items are similar	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Premium items do not break the game	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game provided real premium content	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Hc is given through normal play	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Can items be bought permanent and temporary?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game is easy accessible	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The monetization strategy is developed together with the game design	<input type="checkbox"/> Yes <input type="checkbox"/> No	

TABLE 10 - CHECKLIST V5 FREE-TO-PLAY

8 Heuristic Evaluation

8.1 From checklist to heuristics

During the research, the checklist is reconsidered. A checklist is a device to control the steps made and is based on unchangeable facts. For this research there the answers on a checklist change from game to game, there is no definite truth. A checklist is mostly used to verify that no steps are forgotten. However, in case of game design, some steps are different based on monetization strategy, game design or other business decisions. Hereby is it not possible to verify certain steps as correct or incorrect. Because of these arguments the checklist was reconsidered. It seemed like the checklist was not the best fitting device for this research.

A checklist would be more useful if the lists are separated into different game genres and will be used for user research. However, the checklist as how it was developed is not the best device for this research. A heuristic evaluation seems to be a better device to use in this research because heuristics do not have a right or wrong, the answers are depending on the product. After discussion with the commissioner there was decided to step away from the checklist

Multiple checklists have been developed before the change to heuristics. The statements found in chapter 7 are included in the checklists. In the first version as stated in chapter 12.1 Checklist v1, the statements are collected into a first rough table and are stated if the questions can be answered without user research. The statements are sorted into their categories as they are made in chapter 7. In the second version, some of the questions were slightly fine-tuned. The second version can be found in chapter 12.2 Checklist v2. The questions have gotten fitting metrics that were taken from internal sources. Some questions got basic answers and basic advises. This answers and advises were not final, but were used to validate if the questions could get a reasonable answer. This checklist has been revised twice in version three and version four as found in chapter 12.3 Checklist v3 and 12.4 Checklist v4.

The last version six is version five that is discussed with the commissioner. The most important point that came out of the discussion was that it is needed that the first questions should be about the genre and target audience of the specific game. In the development of the checklist this has been taken for granted. This means that the user of the checklist would have taken the genre and target audience in mind, so it was not explicitly named in the beginning of the checklist. This ended up in confusion. Another point was that the yes/no in the end did not have a real value. If the checklist would end with five times yes, this would not mean that the game is good or not good. This means that the checklist would have been changed every time another genre or target audience was used. To overcome this, the checklist would have been split and adapted to different genres, so that the amount of yes or no would gain value. After this evaluation there was figured out that a yes/no structure was confusing for the user and had no concrete value. To give this questions more value, they have been changed into a heuristic evaluation.

To do this, questions are combined and are made more detailed. The heuristics are thus based on the checklist and are not new but adapted questions of the checklist. The categories of the heuristics are adapted to fit better to a heuristic evaluation.

8.2 Heuristic Evaluation

Heuristic evaluation is a known technic developed for usability evaluation of software and websites.

Heuristics were developed to speed up evaluation of usability in comparison to user testing. In the field of software and web development, the usage of heuristics is accepted and widely used.

In game design, heuristics are fairly new and not yet standardized. Different researchers have made and improved heuristics for (video) games. These heuristics are guidelines for the design of games and are mostly used to analyse and evaluate designs.

An often-used heuristic evaluation list for games is the Heuristic Evaluation for Playability (HEP). These heuristics are catered for game designers to use during the process of creating a game. The HEP heuristics are based on literature research. The HEP was validated with user research. Heuristic evaluation does not rule user research out and is often used together with user research. User research is directed more to the game where heuristics are more global and can be used on multiple games. The HEP is often used to evaluate a game in the early design phase when user research is not yet possible. (Desurvire, Caplan, & Toth, Using Heuristics to Evaluate the Playability of Games, 2004)

Because the HEP was not useful in every kind of game, the Heuristics of Playability (PLAY) was developed. The PLAY is broader list than the HEP. The user can change the PLAY themselves to fit to the game they evaluate. It is important to keep in mind that there is not a right or wrong with heuristics, but that heuristics are guidelines that can be changed or ignored when necessary. (Desurvire & Wiberg, Game Usability Heuristics (PLAY) For Evaluating and Designing Better Games: The Next Iteration, 2009)

Heuristics can be developed for specific software solutions as video games. Heuristics can then be developed by researching literature and already existing products. Heuristics are useful for games because heuristics are not rigid and can be changed to fit the specific game. (Pinelle, Wong, & Stach, 2008)

The developed heuristics in this research are also based on literature research. The F2P heuristics keeps in mind that the overall game design can be evaluated with other heuristics such as the HEP or the PLAY. The F2P is specifically made for non-casual free to play games.

A heuristic evaluation takes less time and fewer resources than other methods of evaluation such as user research. Because heuristics are based on the opinion of the researcher, it is important to have multiple researchers. There is stated that ~five evaluators will find around 2/3 of the problems. (Nielsen & Molich, 1990)

8.3 Development and usage

The Heuristic evaluation for Free-to-Play games is developed based on literature review about free to play games. The heuristic evaluation was first developed as a checklist but is later changed into the format of a heuristic evaluation. For the development, literature about Free-to-Play games and retention in Free-to-Play games is researched. Best practices are then distilled from the literature. Out of this theory, the statements for the heuristic evaluation are developed.

By the use of this heuristic evaluation it is important to keep in mind that the object of research not necessary contains all points. However, it is important to know why certain points are followed or not followed. This heuristic evaluation is used to identify design flaws. It is also important to keep in mind that heuristic evaluation is not a substitution for user research. However, heuristic evaluation can find other flaws than user research and thus can be a valuable tool. (Desurvire, Caplan, & Toth, Using Heuristics to Evaluate the Playability of Games, 2004)

8.4 Heuristic Evaluation for Free-to-Play games

This heuristic evaluation list is for analysts and developers who want to check their Free-to-Play game on common design choices and retention actions. This heuristic evaluation list can be used during the development of a game, or before any update. To use the heuristic evaluation list, the analyst has to control if the question is in the game, if there is a metric in place for this question and what conclusion can be get out of the metric and the question. For this, the developer has to make sure that there is some kind of user analysis with metrics in place.

Marianne Spijkstra – Version 2.0 – 31-08-2014

Heuristic Evaluation - Free to Play non-casual Games
Meta-Game
The game is playable on hardware that is fitting to the target audience.
The game is easy accessible, fitting to the target audience
The game gets regularly new content.
It is possible for the player to contact and communicate with the game company. (developer or publisher)
Game Design
The game is developed and designed as a Free-to-Play game and is not an adaption of a pay-to-play game.
The core of the game is completely free and the endgame is reachable without paying. Multiplayer maps are free for all players.
When the game is non-casual, the game does not contain paywalls
A skilled non-paying player can win over a paying playing in player-versus-player situations
Monetization and Payment
The monetization strategy is developed together with the game design
Payment options are fitting to the game and monetization strategy
The game has no payment ceiling
When the game has a player driven economy, wealth is only obtainable by playing
The game has implemented microtransactions and premium memberships/subscriptions.
Items which are normally free and whereby the player expects them to be free, such as hints and tips, are not premium priced
Balancing
The ratio of grind and reward is balanced and fair
Equity is preserved. The player does not lose hard-won possessions.
Free and paid items are balanced
The gamble systems are fair for the player. The gamble systems obey the law.
Premium Items
The value of premium items is clear and items are meaningful for the player
The game provides cosmetic and hybrid cosmetic upgrades

Currencies
The game rewards the player with hard currency through normal play
Both permanent and temporary items are sold for premium currency

TABLE 11 - HEURISTIC EVALUATION - FREE TO PLAY NON-CASUAL GAMES

Heuristic Evaluation – Retention in non-casual Free to Play Games
Game Design
The core loop works flawlessly. The core loop includes an upgrade step
The game caters different player types and game styles
The game experience changes after the player habits.
The game gives clear and timely feedback to the player
The story should be interesting and be a motivation for the player to continue playing. The player must find the characters interesting.
Goals
The game provides and communicates clear goals.
The game provides one or more goals in one play session.
The game provides goals that spread over multiple play sessions.
The actions and goals fit to the players capabilities
The game contains missions or quests when fitting to the game genre
Reward Systems
The game has multiple reward systems, which are fine tuned for the specific game
The game has log in rewards
The game has an appointment system in place and punishes the player for missing the appointment, if appropriate for the game and target audience.
The player can collect items and complete collections
The game contains achievements which are meaningful in the context of the game and most are obtainable by playing
The game contains daily, weekly and special events
Social Play and emotions
The game stimulates social play
The game contains clans, guilds or similar systems. The game stimulates e-sports
The game contains rankings or comparison between players
The game nudges churned players in a correct way
Playing the game triggers positive emotions in the player

TABLE 12 - HEURISTIC EVALUATION – RETENTION IN NON-CASUAL FREE TO PLAY GAMES

9 Research Hazard Ops

9.1 Introduction

The earlier introduced heuristic evaluation is used on the game Hazard Ops in this case study. First the statements will be paired with metrics. Then the statements will be answered. How certain categories are researched is stated in their associated chapters.

Used game version and metrics:

Version of the game: 0.3.0 – Open Beta Live Server

Language: English

Date set: Monday 04-08-2014 – Sunday 24-08-2014 (20 days)

Similar games: APB Reloaded, GunZ, Warframe, World of Tanks

These dates are chosen because they are between two updates in the open beta. This means that the peak of new users because of virality is flattened out and that retention is better visible and more realistic.

9.2 Specified heuristics

9.2.1 Metagame

The first category metagame describes questions that are not based in game mechanics. It is focused on everything around the game, such as the publisher and developer and hardware. The metagame items are researched by looking at items and actions outside of the game. For example, for seeing if the game gets regular new content there has been looked at the internal planning for the game and at the frequency of updates from other similar games. For researching if communication is possible there has been looked at functions in the game and functions outside of the game such as on the website of the game or social media and the activity on these platforms.

Heuristic Evaluation - Free to Play non-casual Games		
Metagame		
Question	Metric	Answer
The game is playable on hardware that is fitting to the target audience.	[PLAYER BELOW 20FPS INFO] [PLAYER BELOW 10FPS INFO] [PLAYER BELOW 5FPS INFO]	The minimum system requirements for Hazard Ops are: Cpu : Pentium 4 2.0 GHz Memory : 2GB Ram Hard Drive : 10 GB Graphics: 7600GT or better (must support

		Shader Model 3.0) OS : Vista or Windows 7 It was not possible to validate the results of the before named metrics due to restrictions.
The game is easy accessible, fitting to the target audience	<ul style="list-style-type: none"> • New players/ Player install • (New) Downloads • Amount of steps needed to access game 	In the specific period, there were 34.079 new registrations, which is 1704 registrations per day, with the spread between 981-2397. From the homepage www.hazardops.com it takes one click (Hover over game, click download) to download the download manager. Opening the download manager will download the game in the preferred folder. For client-based games this is regular. Other client-based games need more clicks (such as GunZ) or alike (World of Tanks).
The game gets regularly new content.	<ul style="list-style-type: none"> • Frequency of updates 	Updates are scheduled around every month. Updates contain new maps and items. Every update gives new content to the players.
It is possible for the player to contact and communicate with the game company. (developer or publisher)	<ul style="list-style-type: none"> • Ways of contact 	Infernum Productions AG has a customer service. Players can send reports in game or contact the customer service directly through a ticket system. Furthermore, the players can come in contact with the publisher through Twitter, Facebook and Reddit.

9.2.2 Game Design

The category Game Design is about the basic ideas of the game. It is not focused directly on mechanics, but on the overall idea and built of the game. Often, this information can be found in a Game Design Document. Because there was no Game Design Document present, the answers to these questions are mostly collected out internal documentation that describes functions in the game. Furthermore, there has been looked at the game itself. For example for researching if the game does not have paywalls the monetization documents have been researched. In addition, the statistics have been looked at to see if the strategy was used.

Game Design		
The game is developed and designed as a Free-to-Play game and is not an adaption of a pay-to-play game.	<ul style="list-style-type: none"> • Game Design Document 	The game is built as a Free-to-Play game in the beginning. The precursor of Hazard Ops, <i>Mercenary Ops</i> , was also already built as Free-to-Play.
The core of the game is completely free and the endgame is reachable without paying.	<ul style="list-style-type: none"> • Player who bought nothing on the highest level • Paying players on highest level 	The multiplayer PvP maps are all accessible to all players. In the PvE channel the most difficult mode <i>Nightmare</i> is only accessible with Nightmare Tickets. This can be bought for HC or can be won by playing missions. Non-paying players cannot play unlimited maps in Nightmare modes.

Multiplayer maps are free for all players.	<ul style="list-style-type: none"> • Maps free / unlocked / played 	
When the game is non-casual, the game does not contain paywalls	<ul style="list-style-type: none"> • Conversion rate • Drop off on certain level • Slow level progression 	It is possible to play the game until the maximum level without paying. However, it is not possible to play unlimited Nightmare maps. The level spread in the game does not have strong drop-offs. Most players are between level 1-10. The higher levels slowly get less players, without any significant drop off.
A skilled non-paying player can win over a paying player in player-versus-player situations	<ul style="list-style-type: none"> • Paying vs free players. • [PLAYER KILL] • [PLAYER TEAM KILL] • [PLAYER SPECIAL KILL] • [PLAYER DIE] • [PLAYER REVIVE] 	As cash and coin weapons are mostly similar, a skilled player with coin weapons can win over a player with cash guns. The most important difference between coin and cash guns is the level restriction. The fairly similar weapons <i>sniper SVD</i> and <i>sniper Kar98K</i> have almost the same stats. The cash Kar98K can be used at level 15, but the SVD can only be used at level 32. If a player wants to be better earlier in the game they can choose for a cash weapon. If the paying player is not good, he will not necessarily win from a player with a coin gun. Other statistics such as stated before were not accessible.

9.2.3 Monetization and Payment

Monetization and Payment is about how the game stimulates the player to pay for the game. Monetization is an important part of a Free-to-Play game and can be done in many different ways. To research these questions there has been looked at the monetization strategy and the game itself. For example to research if the game has a payment ceiling there has been calculated how much a player can spend before they bought everything that is available in the game.

Monetization and Payment		
The monetization strategy is developed together with the game design	<ul style="list-style-type: none"> • Monetization strategies 	The monetization strategy is different by each publisher and is changed according to the market of the publisher. The developers did develop a monetization strategy themselves for the Chinese market.
Payment options are fitting to the game and monetization strategy	<ul style="list-style-type: none"> • Amount of advertisements • Ways of payment 	The game contains microtransactions and premium packs. Microtransactions can be done by buying credits that can be spend directly in the game. The packs are bought directly from the website without the use of credits. Packs are cheaper than buying all parts loose, or contain special items. This caters both people who want a complete set of usable items and people who want to buy in smaller amounts.
The game has no payment ceiling	<ul style="list-style-type: none"> • Payment ceiling 	Buying all permanent weapons and costumes costs around €500. Additionally, the player can buy 30-days grenades, mods for the weapons, perks and other items. The player can also spend money on keys to open the supply drops, which contain special weapons that cannot be bought. They can also buy a VIP subscription that

		has an extra category for special weapons. The non-permanent items can be bought multiple times. This means that the game does not have a payment ceiling.
When the game has a player driven economy, wealth is only obtainable by playing	<ul style="list-style-type: none"> • HC to SC conversion ratio • [PLAYER INGAME GOLD] • [PLAYER GOLD] 	It is not possible to buy SC for HC. The game does not have a player driven economy so it could be possible to sell SC for HC without backlash. Many of the premium items are similar to the soft currency items, so it may not be needed to sell SC. Furthermore, SC is easy gained in the game. In the period stated before an average of 107.848.690 coins per day were gained. Over an average DAU of 6.769, this makes 15.934 coins per player per day. Of course, this includes beginners and experts and players who played some minutes and players who played hours on a day. A coin store weapon cost for a 3-day version 8.000-10.000 coins. An average player could buy every day a 3-day version of a weapon. An average player would have to play 10 days to afford the most expensive permanent coin weapon in the game.
The game has implemented microtransactions and premium memberships/subscriptions.	<ul style="list-style-type: none"> • Subscriptions sold • Items sold 	The game has a microtransactions based monetization model. The game sells items in an in game item shop. One of the items sold is a VIP subscription. This subscription gives small advantages and costs €3.86-€4.67 per 30 days. The VIP access gives 30% XP bonus, 30% coin bonus, access to special VIP items, the possibility to create sticky rooms that stay on top of the channel and VIP members can enter full channels.
Items which are normally free and whereby the player expects them to be free, such as hints and tips, are not premium priced	<ul style="list-style-type: none"> • Items sold for premium prices 	Hints or tricks are not sold. One item could be considered selling normal items. With Revive Tokens the player can resurrect his own character and those from other players. This item is for both HC as SC sold and can also be gained by normal play as mission rewards.

9.2.4 Balancing

Balancing is important for Free-to-Play games. Balancing free and paid items is a delicate topic and has to be done in such a way that the game stays fair for both paying and non-paying players. If the items are not balanced, the game will feel unfair. There has been looked at the difference between hard currency items and soft currency items. This is done by comparing the stats of the items. For the gamble systems there has been looked at the amount of gamble systems and the rewards that the player can gain from the gamble systems.

Balancing		
The ratio of grind and reward is balanced and fair	• Level progression	To gain currency the player needs to play the core loop repeatedly. The player can make the choice that they play through the missions or play random maps.
Equity is preserved. The player does not lose hard-won possessions.	• Player stats and items	Items and gold stays and does not change value in a short time. It is important to make sure that items stay and have the same values as stated.
Free and paid items are balanced	• Items stats and user research	As stated before, coin and cash items are similar in use, but the difference is the level restriction. Coin and cash items are in this way balanced. There is no item in the premium store that is exceptionally stronger or better than items in the coin store. However, it is important to monitor player behaviour to see if certain items need fine-tuning.
The gamble systems are fair for the player. The gamble systems obey the law.	• Gamble systems used by people and how often people use it repeatedly.	The gamble systems in Hazard Ops are behind the <i>shooting gallery</i> category in the lobby. The gamble systems are parted in four kinds, <i>silver bullet</i> , <i>gold bullet</i> , <i>platinum bullet</i> and <i>supply drop</i> . Silver bullets are gained by (daily) missions and give cheap rewards such as a couple of respawn tokens. Gold bullets are more difficult to gain and give better rewards. Platinum bullets are only gained through Nightmare maps. Supply drops are given by playing PvP maps and can only be opened with key cards. These key cards are bought for 1500 HC per piece. Supply drops gives rewards that are at least the same worth as 1500 HC. This is €2.00-€2.50

9.2.5 Premium Items

Premium Items are items in a Free-to-Play game that can be bought with hard currency. Premium items are special and need to be valuable. To answer the questions there has been looked at the items available in the in game story for premium currency.

Premium Items		
The value of premium items is clear and items are meaningful for the player	<ul style="list-style-type: none">• Premium items that are more special.• Stats	Costumes are luxury goods. Additionally, VIP weapons are special because a VIP voucher has to be bought beforehand. VIP weapons are then only available with HC.
The game provides cosmetic and hybrid cosmetic upgrades	<ul style="list-style-type: none">• Stats from items	In the item store, there are no hybrid costumes. However, premium players can open supply drops with key cards. In this supply drops there can be costumes with stats, but this are mostly minor stats such as 10% extra coins gained.

9.2.6 Currencies

Currencies are the different kinds of money that are included in the game. Mostly Free-to-Play games have two currencies, a soft currency that can be gained in the game and a hard currency that can be bought with real money. To research if the game gives currency through playing there has been looked at the mission rewards because it was not possible to get statistics about paying and non-paying users. There is also looked at the items for sale in the item store to see if they are permanent or temporary.

Currencies		
The game rewards the player with hard currency through normal play	<ul style="list-style-type: none">• Gamers who paid and gamers who have premium currency ratio	The game does not give premium currency for normal play. However, premium items can be obtained through missions and the shooting range. Missions also give another kind of currency, the quest currency. Players can buy different weapons in this store.
Both permanent and temporary items are sold for premium currency	<ul style="list-style-type: none">• Item descriptions	It is possible to buy items for a temporary time and permanent, but not every item has this option. Weapons are permanent buys, but mods and tech are only temporary.

TABLE 13 - HEURISTIC EVALUATION - FREE TO PLAY NON-CASUAL GAMES

9.2.7 Game Design retention

The category Game Design for retention is about how retention can be stimulated via game design choices. To answer these questions there has been looked at the game and its mechanics. Where possible there are also design documents used. For example for the different play styles and player types there has been looked at the theory and then in the game to pinpoint certain parts that fit to the play styles and player types.

Heuristic Evaluation – Retention in non-casual Free to Play Games		
Game Design		
Question	Metric	Answer
The core loop works flawlessly. The core loop includes an upgrade step	• Rounds played	Every match is a run in the core loop. A player will play matches repeatedly. After the match, they get experience and coins that can be used to upgrade, such as buying new weapons.
The game caters different player types and game styles		Shooters fit mostly to the classic Bartle types Killer and Achiever. Killers are catered very well with the PvP play style. Achievers are catered with the multiple achievements and medals they can get. Achievers can show of their achievements by putting the icon of the achievement as their head-picture what other players see. The game also has 'business cards' that can be customized. This customizations are often difficult to gain and can be an achievement on their own. The other types of Explorers and Socializers are not focused on in the core game. Explorers can enjoy the game by figuring out the different maps and good or special play styles. The Socializers can focus on the clans and on Co-op games.
The game experience changes after the player habits.	• Sort quests	The game does not change according to the players habits. If a player only plays PvP, they will still get PvE missions.
The game gives clear and timely feedback to the player		Yes, when the player gets an achievement they get directly a message from this. After the battle they get another message. The medals are only shown in the top for a moment and are not listed. The game also shows the points and specialities such as headshots directly during play.
The story should be interesting and be a motivation for the player to continue playing. The player must find the characters interesting.		The player does not meet many NPC's, only in cut scenes in certain PvE missions. The players own character does not have much customization to make it interesting. The game has a backstory, which is not very clear in the game itself. The backstory only explained in the mission briefing on the website and in certain PvE missions.

9.2.8 Goals

The part goals is about different goal systems that can be included into a game. Goals can work as a motivation factor for a player and give reasons to return to the game more often. To research these questions there has been looked at the goals that the game gives. For example for the question if the game provides clear goals there has been look at the game to see if there are goal systems in the game such as achievements. Afterwards there will be looked at the systems to see if they are clear.

Goals		
The game provides and communicates clear goals.	<ul style="list-style-type: none"> • [PLAYER ACHIEVEMENT] • [PLAYER MEDAL] • [PLAYER QUEST DONE] 	The game has clear daily and weekly goals in the form of missions. Furthermore, the player can win medals if they do something noteworthy in the game round, such as triple kills or getting the highest score. Metals can be gained multiple times. Achievements can be gained once and can be done over multiple rounds, such as <i>revive 200 team members</i> or <i>score 200 headshots with the M4A1</i>
The game provides one or more goals in one play session.	<ul style="list-style-type: none"> • Quests done DAU dailies 	The player has up to seven daily missions. Furthermore, the player has the event missions that stay longer.
The game provides goals that spread over multiple play sessions.	<ul style="list-style-type: none"> • Quests done WAU/MAU 	The player can have a weekly challenge. Some normal goals also can take multiple days to be completed. Players can also compete in challenges that are provided on the website. Metrics for started or finished challenges where not available.
The actions and goals fit to the players capabilities	<ul style="list-style-type: none"> • Won/failed goals • Won/failed maps 	From the 428.644 players that started a match, 89.760 players quit the match. The players who lost is not a practical metric because this is inclusive the players in a PvP match. In a PvP match, there is always one team that loses, but this does not mean that the actions and goals did not fit to the capabilities. The 21% quits do also not mean that this are players who were not good enough, because players could have experienced disconnects or other meta-game related actions. If only PvE loses are counted, there were 28669 loses on 184967 matches, which is about 15.5% (Period 06.08 – 12.08). There are no metrics available about won or lost goals.
The game contains missions or quests when fitting to the game genre	<ul style="list-style-type: none"> • [PLAYER QUEST ACCEPT] • [PLAYER QUEST DONE] • [PLAYER QUEST CANCEL] 	The game contains missions that give a certain progression through the game. The missions are fitting to the game because missions are for example <i>complete a game on the map Killville</i> or <i>Finish Gangrene Mine on Advanced Difficulty</i> . Such quest give a motivation to play more rounds and thus fit good to the game.

9.2.9 Reward Systems

This category described how the game could motivate the player more with different kinds of rewards. To research this topic there has been looked if the elements from the questions are in the game. For example to see if the game has multiple reward systems first the rewards had to be identified. After this, there has been looked into the rewards to see if they are fixed or variable.

Reward Systems		
The game has multiple reward systems, which are fine tuned for the specific game	<ul style="list-style-type: none"> • Variable, fixed, and increasing reward system 	The fixed schedule is used for (daily) missions. The player knows what reward will be given after finishing the mission. For example, the mission <i>Kill 150 enemies in co-op</i> will give 500 coins and 250 Exp. The variable system is not present. The increasing variable reward schedule is not present.
The game has log in rewards	<ul style="list-style-type: none"> • Daily log in rewards 	The game does not have log in rewards.
The game has an appointment system in place and punishes the player for missing the appointment, if appropriate for the game and target audience.	<ul style="list-style-type: none"> • Appointments 	If a player is competitive, a motivation could be the ladder matches, which are ranked matches that only occur on certain times. Timed items could also be a reason the player wants to return to the game. Appointments as a game mechanic are not included in the game.
The player can collect items and complete collections	<ul style="list-style-type: none"> • Collections completed 	The player can collect bronze, silver and golden medals. The player can also collect achievements. Furthermore, there is a gear set to be collected from the shooting range. This gear is difficult to get.
The game contains achievements which are meaningful in the context of the game and most are obtainable by playing	[PLAYER ACHIEVEMENT] [PLAYER MEDAL]	The game contains achievements that are separated into different categories. There are achievements for all different mechanics, such as general skills and for clans. Achievements are meaningful and provide long-term goals to pursue for the player. Medals are achievements that can be won in one round and do not provide long-term goals except for collecting all medals.
The game contains daily, weekly and special events	<ul style="list-style-type: none"> • Daily missions • Weekly missions 	The game contains weekly missions. The game also contains events called challenges, which are point races for certain maps, divided into the difficulties. This challenges spread over a set timeslot, which is mostly around a week.

9.2.10 Social Play and Emotions

Social play and emotions is about the social part of games and how this can stimulate retention. Emotions can also be a reason for playing games and returning to certain games.

Social Play and emotions		
The game stimulates social play	[GUILD CREATE] [GUILD DESTROY] [GUILD JOIN] [GUILD CHANGE LEADER] [GUILD LEAVE] [GUILD KICK]	The game contains clans, which are basically guilds. Clans do not have an active function besides clan-chat. There is a subcategory in achievements for clans, but this does not contain achievements yet. The Co-Op modes stimulate social play, especially on higher difficulties. A good working team goes easier through the higher difficulties than a dysfunctional team. For players who want to do Nightmare maps, good communication and a social play style is necessary.
The game contains clans, guilds or similar systems. The game stimulates e-sports	[PLAYER LADDER POINT] [PLAYER LADDER JOIN] [PLAYER LADDER RESET] [PLAYER LADDER POINT CLEAR]	The game contains clans, which are basically guilds. Clans do not have an active function besides clan-chat. There is a subcategory in achievements for clans, but this does not contain achievements yet.
The game contains rankings or comparison between players	[PLAYER LADDER POINT] [PLAYER LADDER JOIN] [PLAYER LADDER RESET] [PLAYER LADDER POINT CLEAR]	The game contains <i>ranked versus matches</i> whereby players fight in 5v5 for scoreboard points. These ranked matches are only available in a certain timeslot, which can work as an appointment trigger. Players can compare scores on a leaderboard and can see their statistics such as <i>wins this week</i> and <i>Ranked match points</i> .
The game nudges churned players in a correct way	• E-mail activity	No information was acquired.
Playing the game triggers positive emotions in the player	• Chat logs	To research emotions during play, user research is needed. It is also possible to monitor chat logs in the game to get a global view about the emotions players experience during play. It was not possible to monitor chat logs.

TABLE 14 - HEURISTIC EVALUATION – RETENTION IN NON-CASUAL FREE TO PLAY GAMES

10 Conclusions and advice

10.1 Conclusions

In this chapter the conclusions of the research as stated in chapter 9 will be discussed. The conclusions are split into categories as in the heuristic evaluation. It is important to keep in mind that this conclusions are done by only one researcher. To obtain different or more information the research should be done by multiple researchers. To gain a complete view about retention this research can be complemented with user research.

10.1.1 Meta Game

The game does support simple hardware. The game does not require expensive hardware. Middleware hardware fits to a Free-to-Play game so it is easy accessible. This also shows out of the high amount of new registrations in the specified period. Updates are scheduled regularly for the type of game and players can get in contact with the publisher in appropriate ways.

10.1.2 Game Design

The game is built as a Free-to-Play game with a complete free core. This means that the player can play the game completely for free without pay walls. In addition, a skilled free player can win over a paid player, which means that the game is correctly built.

10.1.3 Monetization and Payment

The monetization strategy has been fitted to the western market. The game contains microtransactions and subscriptions to cater people who like to buy in different ways. The publisher also sells packs on the website directly. The game has no payment ceiling and sells both temporary and permanent items. There is no player driven economy so the game could sell soft currency for hard currency, but choses not too. However, soft currency is easy gained in the game. There are no items sold that the player expects to be free.

10.1.4 Balancing

The amount of grind is correct for the kind of game. Players grind soft currency by playing the core loop. Soft currency and items do not change value suddenly. Soft and hard currency items are balanced. The difference between the items is mostly the level on which the player can use the weapon. Premium items are not overpowered compared to the free items. Premium items can be gained by free players through the gamble systems of the game. The gamble system with hard currency is fair and always return an item with the same value as what the player did put in.

10.1.5 Premium Items

Premium items are luxury goods and not essential for playing. The game provides cosmetics in the premium store. Hybrid cosmetics can be gained through the gamble systems by both free and paying players.

10.1.6 Currencies

The player does not earn hard currency through normal play. However, the game does have a second soft currency that can be gained through playing missions. Special items can be bought with this currency. Furthermore, items are sold both temporary and permanent.

10.1.7 Game Design retention

The core loop works well and includes an upgrade part whereby the player can buy new items with the collected soft currency. The game caters different play styles and player types. All four types from the Bartle player types are in some way catered in the game. The game gives timely feedback on the actions of the player in a clear way. The game does not contain a strong story.

10.1.8 Goals

The game communicates the goals clearly. The game has multiple goals such as daily goals, weekly goals and special goals. The game also has achievements and medals that can be collected. The actions and goals fit to the player capabilities because the players can choose themselves what kind of match they want to play. This results in not many losses in the game. The player can choose to do missions as a goal. The missions fit to the style of the game.

10.1.9 Reward Systems

The game contains only fixed reward systems. The game does not have log in rewards and does not have direct appointments. Players can set appointments for themselves but the game does not motivate this directly. The player can obtain achievements and medals and can collect items. The game contains special events and daily and weekly events.

10.1.10 Social play and Emotions

The game caters social play by having clans. Clans do not have an active function besides a special clan chat. Furthermore, the Co-Op modes stimulate social play because the players have to play together. The game also has player versus player rankings in the form of ranked matches. It is unknown if the game nudges churned players. For a clear conclusion on emotions, user research is needed.

10.2 Advice

In this chapter, the advice is split up in the same categories as earlier stated. Hereby the advices will be given per chapter. As a general advice it has to be taken into account that this research is only taking the data-analytic side into consideration. To have a full and clear research about retention, user research has to be done. It is important to not only rely on metrics and data.

10.2.1 Meta Game

The game does not support Windows XP. 25% of all PC's still use Windows XP. It could be profitable to support Windows XP. The FPS metrics were not available at the time of research. It would be advisable to start tracking this metrics to see how many players have problems with low FPS.

10.2.2 Game Design

Challenges that are hosted on the website contain Nightmare challenges. Nightmare challenges need paid tickets to play Nightmare rounds. These challenges are not easy playable by free players. Players can win prizes with the nightmare challenges, which can feel unfair for non-paying players. The company has to monitor the response to these challenges and eventually adjust the challenges or the gaining of the nightmare tickets.

Although a non-paying player can win over a paying player, the company should monitor closely if the level restrictions of the weapons are correct. If a level 1 paying user can win over a higher-level non-paying player, this can be unfair and feel as pay-to-win for non-paying users.

10.2.3 Monetization and Payment

Revive tokens have to be accessible for all players for a reasonable price to prevent feelings of pay-to-win. The player base has to be monitored and/or user research has to be done.

The developer could consider selling soft currency for hard currency if they would like too.

10.2.4 Balancing

The publisher has to make sure that the value of items does not fluctuate too much. The publisher should also monitor if the paid and free items stay in balance. This can be done by monitoring the reaction of the players on the (new) items.

10.2.5 Premium Items

The Publisher can start selling hybrid cosmetics with minor stats for hard currency.

10.2.6 Currencies

A game design change that can be considered the giving of small amounts of hard currency during normal play. Gaining and spending hard currency makes it normal for the player to use this currency, and thus making it easier for the player to buy extra hard currency if the player has seen the benefits of using the hard currency.

10.2.7 Game Design retention

The Bartle type Socializer is not very catered in the game yet. The clan system is not more than an extra chat at the moment. If the developer adds social functions to the clan, socializers can be more motivated to spend time in the game helping others or just socializing. Explorers can use the wiki page the publisher provides to discuss and explore.

The game does not change according to how the player acts. If a player purely plays PvE, the player will still get PvP daily missions. It is advisable that the game will react to the different play styles with changing the daily missions according to the player.

The story is not very incorporated into the game and is thus not really seen by the player. It is advisable to make the story more visible and incorporate the story together with interesting and fitting NPCs into the game. The game could include a (short) story mode or could have snippets of the story as a mission line. This can make the game more engaging for certain users.

10.2.8 Goals

The game contains correct goal systems. The missions could be better incorporate the story into the game when needed.

10.2.9 Reward Systems

There is no variable reward system available. A variable reward system could make it more engaging for players to play multiple rounds. The players do gain bullets, but direct variable rewards at for example the boss fight could improve retention over playing the core loop.

Log in rewards should be considered as log in rewards are a known and proven mechanic to boost retention.

Ladder matches could be made more visible to appear as an appointment mechanic. The game has not many mechanics that can serve as an appointment mechanic. It can be considered to add an appointment mechanic, but this has to be fitting to the game and should not feel mechanical.

10.2.10 Social play and Emotions

Clans should be improved with more social mechanics to stimulate social play, such as clan ranking, helping each other, matchmaking and other mechanics.

There was no information gained about nudging churned players. Players should be nudged by for example an email if they churned. What the definition of churn is should be set by the publisher.

User research is needed to research emotions during play. Emotions can be a very strong retention mechanic and is thus important to research.

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12 Attachments

12.1 Checklist v1

Free-to-Play game retention checklist

This checklist is for analysts and developers who want to check their Free-to-Play game on common design choices and retention actions. This checklist can be used during the development of a game, or before any update. To use the checklist the analyst has to control if the question is in the game, if there is a metric in place for this question and what conclusion can be get out of the metric and the question. For this the developer has to make sure that there is some kind of user analysis with metrics in place.

Marianne Spijkstra – Version 0.1 – 17-08-2014

7.2 Free-to-Play	Te antwoorden?	Metric	Antwoord
7.2.1 Business model			
Is the game build as a Free-to-Play game?	X		
Can the game run on low end hardware?	x		
Is the core of the game completely free?	X		
Is it possible to reach the end game without paying?	X		
Is the game easy accessible?	X		
Does the game run on mainstream hardware?	X		
Does the game have no paywalls?	X		
Are payment options passive?	X		
Is the game developed to give the player fun?			
Does the game emotionally connect with the player?			
Does the development contain regular new content?	X		
Is the monetization strategy developed together with the game design?			
7.2.2 Ethical Design			
Do actions that raise short-term revenue not have a negative backlash later, such as churn?			
Is the value of a premium item clear and visible?	X		
Does the game not contain soft paywalls?	X		
Does the game have a customer service in place?			

7.2.3 Monetization			
Is it possible to pay as much as the player wants?	X		
Do the players want to pay for the game or are they forced?	X		
Can whales spend high amounts of money?	X		
Do players feel like they get true value for money?			
Is the balance between grind and reward good?	O		
Does the game provide cosmetic upgrades?	X		
Are premium hybrid cosmetics not pay-to-win?	X		
Do the gamble systems feel fair for the player?	O		
7.2.4 Negative ways to implement Free-to-Play			
Does the game not exploit psychological weaknesses?	X		
Are normal free items not premium priced?	X		
Does the game not have artificial time barriers?	X		
7.2.5 Common mistakes			
Are achievements only obtainable by playing?	X		
Is wealth only obtainable by playing?	X		
7.2.6 Pay-to-win			
Is pay-to-win prevented?	X		
Are all maps free in case of a multiplayer game?	X		
Are paid items and free items similar?	X		
Does a premium account only have small advantages?	X		
Are there no game breaking power ups sold?	X		
Are there no overpowered items in the game for premium currency?	X		
Does all the gameplay add something to the experience?	X		
Is there none of the gameplay skipable?	X		
Is the game a coherent set of mechanics?	X		
Can a skilled free player win over a paid player?	X		
Is the voc smaller than the ttc?	X		
Is the game balanced so that players do not categorise the game as pay-to-win?	X		
7.2.7 Positive ways to implement Free-to-Play			
Does the game give premium currency through normal play?	X		
Does the game provide real premium content?	X		
Is equity preserved?	X		
7.2.8 Payment systems			
Does the game apply the 15 rules?	X		
Do the virtual goods not disrupt the economy?	X		
Can the player buy soft currency with hard currency? (can be dangerous)	x		

Is the variable pricepoint too confusing for the players?			
Does the game contain microsubscriptions?	X		
Does the game contain microtransactions?	X		
Do the virtual goods not break the game?	X		
Is Content Sale in place, but not too restrictive for free players?	X		
Is it possible to buy both permanent and temporary items?	X		
Are premium items real luxury goods?	X		
Does none of the goods disrupt the value balance?	X		
7.3 Retention			
7.3.1 Game design			
Does the game have a story?	X		
Does the game have interesting characters?	X		
Does the player have goals in one play session?	X		
Does the player have goals that spread over multiple play sessions?	X		
Can the player collect?	X		
Can the player get back to the game with a guilt feeling?	X		
Does the player have motivation to go back to the game often, otherwise he will miss something?	X		
Does the game have daily events?	X		
Does the game have weekly events?	X		
Are there social mechanics in place?	X		
Does the game have cooldown timers?	X		
Does the game have a good, polished core loop?	X		
Does the game have upgrades?	X		
Does the game contain grind?	X		
Does the game give a reason to leave, but also come back?	X		
Does the game have appointments?	X		
Does the game have log in rewards?	X		
Does the game punish missed appointments?	X		
Does the game have a leaderboard?	X		
Does the game have clans/guilds?	X		
Does the game have special events?	X		
Does the game have special sales?	X		
Are there nudges for churned players?	X		
7.3.2 Developer			
Does the player trust the developer?			
Is the player committed to the game?			

Does the player sees the game as a quality product?			
Does the game implement new features regularly?	X		
Does the game changes following the player habits?			
7.3.3 Bartle types			
Does the game appeal to all four player types?	X		
7.3.4 Goal systems			
Does the game have multiple reward systems?	X		
Do the reward systems appeal to all four player types?	X		
Does the game have concrete goals?	X		
Do the actions and goals fit to the players capabilities?			
Does the game give timely and clear feedback on the performance of the player?	x		
Does the game remove as much external information as possible?	X		
Does the game have collectables?	X		
Does the game have quests or missions?	X		
Does the game have leaderboard(s)?	X		
Does the game have unlockables?	X		
Does the game contain achievements?	X		
Is the feedback when a player gets an achievement immediate?	X		
7.3.5 Social play			
Does the game stimulate social play?	X		
Does the game cater making friends and bonding?	X		
Does the game have a clan or guild system?	X		
7.3.6 Emotions			
Does the game amuse the player?	X		
Does the game make the player feel content?	X		
Does the game wonder the player?	X		
Does the game make the player excited?	X		
Does the game make the player curious?	X		
Does the game stimulate being a habit?	X		
Does the game have addictive triggers?	X		
Does the game cater all three kinds of dopamine players?	x		

TABEL 15 - CHECKLIST V1

12.2 Checklist v2

Free-to-Play game retention checklist

This checklist is for analysts and developers who want to check their Free-to-Play game on common design choices and retention actions. This checklist can be used during the development of a game, or before any update. To use the checklist the analyst has to control if the question is in the game, if there is a metric in place for this question and what conclusion can be get out of the metric and the question. For this, the developer has to make sure that there is some kind of user analysis with metrics in place.

Marianne Spijkstra – Version 0.2 – 19-08-2014

	7.2 Free-to-Play	Te antwoorden?	Bijbehorende metric		Antwoord	Advies
	7.2.1 Business model					
1	Is the game build as a Free-to-Play game?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The game is build as a Free-to-Play game in the beginning.	
2	Can the game run on low end hardware?	x	[PLAYER BELOW 20FPS INFO] [PLAYER BELOW 10FPS INFO] [PLAYER BELOW 5FPS INFO]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The minimum system requirements for Hazard Ops are: Cpu : Pentium 4 2.0 GHz Memory : 2GB Ram Hard Drive : 10 GB Graphics: 7600GT or better (must support Shader Model 3.0) OS : Vista or Windows 7	As Windows XP still takes up 25% of the OS market it can be helpful to also support Windows XP.
4	Is the core of the game completely free?	X	Paying players on highest level	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	At this date 19.08.2014 there is no player who reached maximum level.	
5	Is it possible to reach the end game without paying?	X	Paying players on highest level	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
6	Is the game easy accessible?	X	New players/ Player install	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	

7	Does the game run on mainstream hardware?	X	[PLAYER BELOW 20FPS INFO] [PLAYER BELOW 10FPS INFO] [PLAYER BELOW 5FPS INFO]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
8	Does the game have paywalls?	X	Conversion rate or drop off on certain level.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	It is possible to play the game until the maximum level without paying.	None
9	Are payment options passive?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Different opinions	
10	Is the game developed to give the player fun?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
11	Does the game emotionally connect with the player?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
12	Does the development contain regular new content?	X	Speed of updates	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Updates are scheduled around every month. Updates contain new maps, mods and items. Every update gives new content to the players.	
13	Is the monetization strategy developed together with the game design?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	The monetization strategy is different by each publisher.	
7.2.2 Ethical Design						
14	Do actions that raise short-term revenue not have a negative backlash later, such as churn?		Peaks in churn and revenue.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
15	Is the value of a premium item clear and visible?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Not always	
16	Does the game not contain soft paywalls?	X	Drop off or conversion on certain level. Or very slow level progression	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No	

17	Does the game have a customer service in place?			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Infernum Productions AG has a customer service. Players can send reports in-game or contact the customer service directly through a ticket system.	
7.2.3 Monetization						
18	Is it possible to pay as much as the player wants?	X	Payment ceiling	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Buying all permanent weapons and costumes costs around €500. Furthermore, the player can buy 30-days grenades, mods for the weapons, perks and other items. The player can also spend money on keys to open the supply drops, which contain special weapons which cannot be bought. They can also buy a VIP subscription which has an extra category for special weapons.	
19	Do the players want to pay for the game or are they forced?	X	Drop off or conversion on certain level	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
20	Can whales spend high amounts of money?	X	Payment ceiling	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, see question 18	
21	Do players feel like they get true value for money?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	User research	
22	Is the balance between grind and reward good?	O	Level progression	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
23	Does the game provide cosmetic upgrades?	X	Item bought	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The item shop contains costumes which have no stats.	
24	Are premium hybrid cosmetics pay-to-win?	X	Stats from items	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	In the item store there are no hybrid costumes. However, premium players can open supply drops with keycard. In this supply drops there can be costumes with stats, but this are mostly	
25	Do the gamble systems feel fair for the player?	O	Gamble systems used by people and how often	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	On the forums it is stated that it feels unfair	

			people use it again and again.			
	7.2.4 Negative ways to implement Free-to-Play					
26	Does the game not exploit psychological weaknesses?	X		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	The game is not aimed at younger children. The game is still in the rating process.	
27	Are normal free items premium priced?	X	Items sold for premium prices	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No	
28	Does the game have artificial time barriers?	X	Energy system etc.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No, the game does not have time barriers.	
	7.2.5 Common mistakes					
29	Are achievements only obtainable by playing?	X	[PLAYER ACHIEVEMENT] And [PLAYER ACHIEVEMENT] bought	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
30	Is wealth only obtainable by playing?	X	[PLAYER INGAME GOLD] [PLAYER GOLD]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
	7.2.6 Pay-to-win					
31	Is pay-to-win prevented?	X	Items stats	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
32	Are all maps free in case of a multiplayer game?	X	Maps free / unlocked / played	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	PvP is	
33	Are paid items and free items similar?	X	Item stats	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Meer onderzoek nodig	
34	Does a premium account only have small advantages?	X	Item stat	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	VIP: 30% XP Bonus, 30% Coin bonus, access to exclusive items, sticky rooms, red name in chat and access to full channels.	

35	Are there no game breaking power ups sold?	X	Item stats	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	No	
36	Are there no overpowered items in the game for premium currency?	X	Item stats	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No	
37	Does all the gameplay add something to the experience?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
38	Are there parts of the gameplay skipable?	X		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No	
39	Is the game a coherent set of mechanics?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
40	Can a skilled free player win over a paid player?	X	[PLAYER KILL] [PLAYER TEAM KILL] [PLAYER SPECIAL KILL] [PLAYER DIE] [PLAYER REVIVE] etc	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
41	Is the voc smaller than the ttc?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, variable currency	
42	Is the game balanced so that players do not categorise the game as pay-to-win?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	...	
	7.2.7 Positive ways to implement Free-to-Play					
43	Does the game give premium currency through normal play?	X	Gamers who paid and gamers who have premium currency ratio	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No	
44	Does the game provide real premium content?	X		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	no	

45	Is equity preserved?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
	7.2.8 Payment systems					
46	Does the game apply the 15 rules?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
47	Do the virtual goods not disrupt the economy?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
48	Can the player buy soft currency with hard currency? (can be dangerous)	x	Hc to SC conversion ratio	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	no	
49	Is the variable pricepoint to confusing for the players?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Not variable	
50	Does the game contain microsubscriptions?	X	Subscriptions sold	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
51	Does the game contain microtransactions?	X	Items sold	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
52	Do the virtual goods not break the game?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
53	Is Content Sale in place, but not to restrictive for free players?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
54	Is it possible to buy both permanent and temporary items?	X	Item descriptions	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, but not every category	
55	Are premium items real luxury goods?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Costumes are, special weapons	

56	Does non of the goods disrupt the value balance?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
7.3 Retention						
7.3.1 Game design						
57	Does the game have a story?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
58	Does the game have interesting characters?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
59	Does the player has goals in one play session?	X	Quests done DAU	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
60	Does the player has goals that spread over multiple play sessions?	X	Quests done WAU/MAU	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
61	Can the player collect?	X	Collections completed	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Mission badges	
62	Can be player get back to the game with a guilt feeling?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	no	
63	Does the player have motivation to go back to the game often, otherwise he will miss something?	X	Appointments	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No, except ladder matches	
64	Does the game have daily events?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
65	Does the game have weekly events?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
66	Are there social mechanics in place?	X	Guilds	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	

67	Does the game have cooldown timers?	X		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No	
68	Does the game have a good, polished core loop?	X	Rounds played	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
69	Does the game have upgrades?	X	[PLAYER LEVELUP]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Levels, weapon levels	
70	Does the game contain grind?	X	Level progression	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
71	Does the game give a reason to leave, but also come back?	X	Sessions	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No	
71	Does the game have appointments?	X		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No	
72	Does the game have log in rewards?	X	Daily log in rewards	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No	
73	Does the game punish missed appointments?	X		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No	
74	Does the game have a leaderboard?	X	[PLAYER LADDER POINT] [PLAYER LADDER JOIN] [PLAYER LADDER RESET] [PLAYER LADDER POINT CLEAR]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes multiple	
75	Does the game have clans/guils?	X	[GUILD CREATE] [GUILD DESTROY] [GUILD JOIN] [GUILD CHANGE LEADER] [GUILD LEAVE] [GUILD KICK]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
76	Does the game have special events?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	

77	Does the game have special sales?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
78	Are there nudges for churned players?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	No weet ik niet	
7.3.2 Developer						
79	Does the player trust the developer?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
80	Is the player committed to the game?		Retention rate	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
81	Does the player sees the game as a quality product?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
82	Does the game implement new features regularly?	X	Update rate	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
83	Does the game changes following the player habits?			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No	
7.3.3 Bartle types						
84	Does the game appeal to all four player types?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
7.3.4 Goal systems						
85	Does the game have multiple reward systems?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
86	Do the reward systems appeal to all four player types?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
87	Does the game have concrete goals?	X	[PLAYER ACHIEVEMENT] [PLAYER MEDAL] [PLAYER QUEST DONE]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	

88	Do the actions and goals fit to the players capabilities?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	The player can decide themselves what they want to do	
89	Does the game give timely and clear feedback on the performance of the player?	x		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
90	Does the game remove as much external information as possible?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, very small HUD	
91	Does the game have collectables?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	No	
92	Does the game have quests or missions?	X	[PLAYER QUEST ACCEPT] [PLAYER QUEST DONE] [PLAYER QUEST CANCEL]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
93	Does the game have leaderboard(s)?	X	[PLAYER LADDER POINT] [PLAYER LADDER JOIN] [PLAYER LADDER RESET] [PLAYER LADDER POINT CLEAR]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
94	Does the game have unlockables?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, higher difficulties and other weapons	
95	Does the game contain achievements?	X	[PLAYER ACHIEVEMENT] [PLAYER MEDAL]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
96	Is the feedback when a player gets an achievement immediate?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
7.3.5 Social play						
97	Does the game stimulate social play?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Yes and no because no mentoring etc.	

98	Does the game cater making friends and bonding?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
99	Does the game have a clan or guild system?	X	[GUILD CREATE] [GUILD DESTROY] [GUILD JOIN] [GUILD CHANGE LEADER] [GUILD LEAVE] [GUILD KICK]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
7.3.6 Emotions						
100	Does the game amuse the player?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	User Research	
101	Does the game make the player feel content?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	User Research	
102	Does the game wonder the player?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	User Research	
103	Does the game make the player excited?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	User Research	
104	Does the game make the player curious?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	User Research	
105	Does the game stimulate being a habit?		retention	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other		
106	Does the game have addictive triggers?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	User Research	
107	Does the game cater all three kinds of dopamine players?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	User Research	

TABEL 16 - CHECKLIST V2

12.3 Checklist v3

Free-to-Play game retention checklist

This checklist is for analysts and developers who want to check their Free-to-Play game on common design choices and retention actions. This checklist can be used during the development of a game, or before any update. To use the checklist the analyst has to control if the question is in the game, if there is a metric in place for this question and what conclusion can be get out of the metric and the question. For this, the developer has to make sure that there is some kind of user analysis with metrics in place.

Marianne Spijkstra – Version 0.2 – 19-08-2014

	7.2 Free-to-Play	Te antwoorden?	Bijbehorende metric		Antwoord	Advies
	7.2.1 Business model					
1	Is the game build as a Free-to-Play game?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The game is build as a Free-to-Play game in the beginning.	
2	Can the game run on low-end hardware?	x	[PLAYER BELOW 20FPS INFO] [PLAYER BELOW 10FPS INFO] [PLAYER BELOW 5FPS INFO]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The minimum system requirements for Hazard Ops are: Cpu : Pentium 4 2.0 GHz Memory : 2GB Ram Hard Drive : 10 GB Graphics: 7600GT or better (must support Shader Model 3.0) OS : Vista or Windows 7	As Windows XP still takes up 25% of the OS market it can be helpful to also support Windows XP. http://www.netmarkets-hare.com/operating-system-market-share.aspx?qprid=10&qpcustommd=0
4	Is the core of the game completely free?	X	Player who bought nothing on the highest level	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	At this date 19.08.2014 there is no player who reached maximum level.	
5	Is it possible to reach the end game without paying?	X	Paying players on highest level	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
6	Is the game easy accessible?	X	New players/ Player install	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
7	Does the game run on mainstream hardware?	X	[PLAYER BELOW 20FPS INFO]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	See question 2	

			[PLAYER BELOW 10FPS INFO] [PLAYER BELOW 5FPS INFO]			
8	Does the game have paywalls?	X	Conversion rate or drop off on certain level.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	It is possible to play the game until the maximum level without paying.	None
9	Are payment options passive?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Different opinions	
10	Is the game developed to give the player fun?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
11	Does the game emotionally connect with the player?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
12	Does the development contain regular new content?	X	Speed of updates	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Updates are scheduled around every month. Updates contain new maps, mods and items. Every update gives new content to the players.	
13	Is the monetization strategy developed together with the game design?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	The monetization strategy is different by each publisher.	
7.2.2 Ethical Design						
14	Do actions that raise short-term revenue not have a negative backlash later, such as churn?		Peaks in churn and revenue.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
15	Is the value of a premium item clear and visible?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Not always	
16	Does the game not contain soft paywalls?	X	Drop off or conversion on certain level. Or very slow level progression	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No	
17	Does the game have a customer service in place?			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Infernum Productions AG has a customer service. Players can send	

				<input type="checkbox"/> Other	reports in-game or contact the customer service directly through a ticket system.	
	7.2.3 Monetization					
18	Is it possible to pay as much as the player wants?	X	Payment ceiling	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Buying all permanent weapons and costumes costs around €500. Furthermore, the player can buy 30-days grenades, mods for the weapons, perks and other items. The player can also spend money on keys to open the supply drops, which contain special weapons which cannot be bought. They can also buy a VIP subscription which has an extra category for special weapons.	
19	Do the players want to pay for the game or are they forced?	X	Drop off or conversion on certain level	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
20	Can whales spend high amounts of money?	X	Payment ceiling	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, see question 18	
21	Do players feel like they get true value for money?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	User research	
22	Is the balance between grind and reward good?	O	Level progression	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
23	Does the game provide cosmetic upgrades?	X	Item bought	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The item shop contains costumes which have no stats.	
24	Are premium hybrid cosmetics pay-to-win?	X	Stats from items	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	In the item store there are no hybrid costumes. However, premium players can open supply drops with keycard. In this supply drops there can be costumes with stats, but this are mostly	

25	Do the gamble systems feel fair for the player?	O	Gamble systems used by people and how often people use it again and again.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	On the forums it is stated that it feels unfair	
7.2.4 Negative ways to implement Free-to-Play						
26	Does the game not exploit psychological weaknesses?	X		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	The game is not aimed at younger children. The game is still in the rating process. For a more in depth analysis, user research is necessary.	
27	Are normal free items premium priced?	X	Items sold for premium prices	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No, hints or tricks are not sold. There is one item which is on the barrier. With Revive Tokens the player can resurrect his own character and those from other players. This item is for both HC as SC sold and can also be gained by normal play.	
28	Does the game have artificial time barriers?	X	Energy system etc.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No, the game does not have time barriers.	
7.2.5 Common mistakes						
29	Are achievements only obtainable by playing?	X	[PLAYER ACHIEVEMENT] And [PLAYER ACHIEVEMENT] bought	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Achievements are only obtainable by playing.	
30	Is wealth only obtainable by playing?	X	[PLAYER INGAME GOLD] [PLAYER GOLD]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	It is not possible to buy SC for HC.	
7.2.6 Pay-to-win						
31	Is pay-to-win prevented?	X	Items stats	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		

32	Are all maps free in case of a multiplayer game?	X	Maps free / unlocked / played	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	The multiplayer PvP maps are all accessible to all players. In the PvE channel the most difficult mode Nightmare is only accessible with Nightmare Tickets. This can be bought for HC or can be won in the shooting range.	
33	Are paid items and free items similar?	X	Item stats	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Meer onderzoek nodig	
34	Does a premium account only have small advantages?	X	Item stat	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	VIP: 30% XP Bonus, 30% Coin bonus, access to exclusive items, sticky rooms, red name in chat and access to full channels.	
35	Are there no game breaking power ups sold?	X	Item stats	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	No, all power ups give extras which are not game breaking. However, this should be monitored strongly.	
36	Are there no overpowered items in the game for premium currency?	X	Item stats	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No	
37	Does all the gameplay add something to the experience?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
38	Are there parts of the gameplay skipable?	X		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No	
39	Is the game a coherent set of mechanics?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
40	Can a skilled free player win over a paid player?		[PLAYER KILL] [PLAYER TEAM KILL] [PLAYER SPECIAL KILL] [PLAYER DIE] [PLAYER REVIVE] etc	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
41	Is the voc smaller than the ttc?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, variable currency	

42	Is the game balanced so that players do not categorise the game as pay-to-win?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	...	
7.2.7 Positive ways to implement Free-to-Play						
43	Does the game give premium currency through normal play?	X	Gamers who paid and gamers who have premium currency ratio	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	The game does not give premium currency for normal play. However, premium items can be obtained through missions and the shooting range. Missions also give another kind of currency, the quest currency. Players can buy different weapons in that store.	
44	Does the game provide real premium content?	X		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No, the player cannot buy extra gameplay, characters or other premium content.	
45	Is equity preserved?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
7.2.8 Payment systems						
46	Does the game apply the 15 rules?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
47	Do the virtual goods not disrupt the economy?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
48	Can the player buy soft currency with hard currency? (can be dangerous)	x	Hc to SC conversion ratio	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	See question 30	
49	Is the variable pricepoint to confusing for the players?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Not variable	
50	Does the game contain microsubscriptions?	X	Subscriptions sold	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
51	Does the game contain microtransactions?	X	Items sold	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	

52	Do the virtual goods not break the game?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
53	Is Content Sale in place, but not to restrictive for free players?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
54	Is it possible to buy both permanent and temporary items?	X	Item descriptions	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	It is possible to buy items for a temporary time and permanent, but not every item. Weapons are permanent buys, but mods and tech are only temporary.	
55	Are premium items real luxury goods?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Costumes are luxury goods. Also VIP weapons weapons are special because a VIP voucher has to be bought and the weapons are also only for HC.	
56	Does non of the goods disrupt the value balance?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
7.3 Retention						
7.3.1 Game design						
57	Does the game have a story?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The game has a backstory, which is not very clear in the game itself.	
58	Does the game have interesting characters?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The player does not meet many NPC's, only in cut scenes in certain PvE missions.	
59	Does the player has goals in one play session?	X	Quests done DAU	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The player has up to seven daily missions.	
60	Does the player has goals that spread over multiple play sessions?	X	Quests done WAU/MAU	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The player can have a weekly challenge. Some normal goals also can take multiple days to be completed.	
61	Can the player collect?	X	Collections completed	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The player can collect bronze, silver and golden medals. The player can also collect achievements. Furthermore there is a gear set to	

					be collected from the shooting range. This gear is difficult to get.	
62	Can be player get back to the game with a guilt feeling?	X		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	The game does not motivate guilt. To see if players feel this motivation there should be done user research.	
63	Does the player have motivation to go back to the game often, otherwise he will miss something?	X	Appointments	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	If a player is competitive a motivation could be the ladder matches, which are ranked matches that only occur on certain times.	
64	Does the game have daily events?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The game contains daily missions.	
65	Does the game have weekly events?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The game contains weekly missions. The game also contains events called challenges, which are point races for certain maps, divided into the difficulties. This challenges spread over a set timeslot, which is mostly around a week.	
66	Are there social mechanics in place?	X	Guilds	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The game contains guilds and friend lists.	
67	Does the game have cooldown timers?	X		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	The game does not contain cool down timers.	
68	Does the game have a good, polished core loop?	X	Rounds played	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
69	Does the game have upgrades?	X	[PLAYER LEVELUP]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Levels, weapon levels	
70	Does the game contain grind?	X	Level progression	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	To gain currency the player needs to play the core loop over and over. The player can make the choice that they play through the missions instead of playing random maps.	
71	Does the game give a reason to leave, but also come back?	X	Sessions	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	No	

				<input type="checkbox"/> Other		
71	Does the game have appointments?	X		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No	
72	Does the game have log in rewards?	X	Daily log in rewards	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	The game does not have log in rewards.	Log in rewards are recommended.
73	Does the game punish missed appointments?	X		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No, the game has no appointments.	
74	Does the game have a leaderboard?	X	[PLAYER LADDER POINT] [PLAYER LADDER JOIN] [PLAYER LADDER RESET] [PLAYER LADDER POINT CLEAR]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, for ladder matches.	
75	Does the game have clans/guilds?	X	[GUILD CREATE] [GUILD DESTROY] [GUILD JOIN] [GUILD CHANGE LEADER] [GUILD LEAVE] [GUILD KICK]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes the game has clans.	
76	Does the game have special events?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, point challenges that are hosted on the website.	
77	Does the game have special sales?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
78	Are there nudges for churned players?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Navragen	
7.3.2 Developer						
79	Does the player trust the developer?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	User research	

80	Is the player committed to the game?		Retention rate	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	User research + Retention	
81	Does the player sees the game as a quality product?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
82	Does the game implement new features regularly?	X	Update rate	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, see question 12	
83	Does the game changes following the player habits?			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No, the game does not react to habits. A player who plays mostly PvE can still get only PvP daily missions.	Cater the missions to the preferences of the player.
7.3.3 Bartle types						
84	Does the game appeal to all four player types?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
7.3.4 Goal systems						
85	Does the game have multiple reward systems?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
86	Do the reward systems appeal to all four player types?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
87	Does the game have concrete goals?	X	[PLAYER ACHIEVEMENT] [PLAYER MEDAL] [PLAYER QUEST DONE]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
88	Do the actions and goals fit to the players capabilities?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	The player can decide themselves what they want to do	
89	Does the game give timely and clear feedback on the performance of the player?	x		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, when the player gets an achievement they get directly a message from this. After the battle they get another message. The medals are only shown in the top for	Also list the medals. Show how the points where got.

					a moment and are not listed. The game also shows the points and specialities such as headshots directly during play.	
90	Does the game remove as much external information as possible?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, during playing the player only sees a small HUD.	
91	Does the game have collectables?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Yes, see question	
92	Does the game have quests or missions?	X	[PLAYER QUEST ACCEPT] [PLAYER QUEST DONE] [PLAYER QUEST CANCEL]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
93	Does the game have leaderboard(s)?	X	[PLAYER LADDER POINT] [PLAYER LADDER JOIN] [PLAYER LADDER RESET] [PLAYER LADDER POINT CLEAR]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
94	Does the game have unlockables?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, higher difficulties and other weapons	
95	Does the game contain achievements?	X	[PLAYER ACHIEVEMENT] [PLAYER MEDAL]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
96	Is the feedback when a player gets an achievement immediate?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
7.3.5 Social play						
97	Does the game stimulate social play?	X		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Yes and no because no mentoring etc.	
98	Does the game cater making friends and bonding?	X		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
99	Does the game have a clan or guild system?	X	[GUILD CREATE] [GUILD DESTROY] [GUILD JOIN] [GUILD CHANGE LEADER] [GUILD LEAVE] [GUILD KICK]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	

	7.3.6 Emotions					
100	Does the game amuse the player?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Additional user research is needed to answer this question.	
101	Does the game make the player feel content?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Additional user research is needed to answer this question.	
102	Does the game wonder the player?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Additional user research is needed to answer this question.	
103	Does the game make the player excited?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Additional user research is needed to answer this question.	
104	Does the game make the player curious?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Additional user research is needed to answer this question.	
105	Does the game stimulate being a habit?		retention	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other		
106	Does the game have addictive triggers?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Additional user research is needed to answer this question.	
107	Does the game cater all three kinds of dopamine players?			<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Additional user research is needed to answer this question.	

TABEL 17 - CHECKLIST V3

12.4 Checklist v4

Free-to-Play game retention checklist

This checklist is for analysts and developers who want to check their Free-to-Play game on common design choices and retention actions. This checklist can be used during the development of a game, or before any update. To use the checklist the analyst has to control if the question is in the game, if there is a metric in place for this question and what conclusion can be get out of the metric and the question. For this, the developer has to make sure that there is some kind of user analysis with metrics in place.

Marianne Spijkstra – Version 0.3 – 21-08-2014

	7.2 Free-to-Play	Bijbehorende metric		Antwoord	Advies
	7.2.1 Business model				
1	Is the game build as a Free-to-Play game?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The game is build as a Free-to-Play game in the beginning.	
2	Can the game run on low-end and mainstream hardware?	[PLAYER BELOW 20FPS INFO] [PLAYER BELOW 10FPS INFO] [PLAYER BELOW 5FPS INFO]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The minimum system requirements for Hazard Ops are: Cpu : Pentium 4 2.0 GHz Memory : 2GB Ram Hard Drive : 10 GB Graphics: 7600GT or better (must support Shader Model 3.0) OS : Vista or Windows 7	As Windows XP still takes up 25% of the OS market it can be helpful to also support Windows XP. http://www.netmarketshare.com/operating-system-market-share.aspx?qprid=10&qpcustomd=0
4	Is the core of the game completely free?	Player who bought nothing on the highest level	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	At this date 19.08.2014 there is no player who reached maximum level.	
5	Is it possible to reach the end game without paying?	Paying players on highest level	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
6	Is the game easy accessible?	New players/ Player install Downloads – amount of steps needed to access game	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	

8	Does the game have paywalls or soft paywalls?	Conversion rate or drop off on certain level. Or very slow level progression	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	It is possible to play the game until the maximum level without paying.	None
9	Are payment options passive?	Amount of advertisements	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Different opinions	
10	Is the game developed to give the player fun?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
11	Does the game emotionally connect with the player?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	See 100 101 etc User research is needed.	
12	Does the development contain regular new content?	Speed of updates	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Updates are scheduled around every month. Updates contain new maps, mods and items. Every update gives new content to the players.	
13	Is the monetization strategy developed together with the game design?	Monetization strategies	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	The monetization strategy is different by each publisher.	
7.2.2 Ethical Design					
14	Do actions that raise short-term revenue not have a negative backlash later, such as churn?	Peaks in churn and revenue.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
15	Is the value of a premium item clear and visible? Do players feel like they get true value for money?	Stats	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Not always – User research	
17	Does the game have a customer service in place?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Infernum Productions AG has a customer service. Players can send reports in-game or contact the customer service directly through a ticket system.	
7.2.3 Monetization					
18	Is it possible to pay as much as the player wants? Can	Payment ceiling	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Buying all permanent weapons and costumes costs around €500. Furthermore, the player can buy 30-	

	whales spend high amounts of money?			days grenades, mods for the weapons, perks and other items. The player can also spend money on keys to open the supply drops, which contain special weapons which cannot be bought. They can also buy a VIP subscription which has an extra category for special weapons.	
19	Do the players want to pay for the game or are they forced?	Drop off or conversion on certain level	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Question 8	
22	Is the balance between grind and reward good?	Level progression	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
23	Does the game provide cosmetic upgrades?	Item bought	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The item shop contains costumes which have no stats.	
24	Are premium hybrid cosmetics pay-to-win?	Stats from items	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	In the item store there are no hybrid costumes. However, premium players can open supply drops with keycard. In this supply drops there can be costumes with stats, but this are mostly	
25	Do the gamble systems feel fair for the player?	Gamble systems used by people and how often people use it again and again.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	On the forums it is stated that it feels unfair	
	7.2.4 Negative ways to implement Free-to-Play				
26	Does the game not exploit psychological weaknesses?	Guilt, early payers	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	The game is not aimed at younger children. The game is still in the rating process. For a more in depth analysis, user research is necessary.	
27	Are normal free items premium priced?	Items sold for premium prices	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No, hints or tricks are not sold. One item is on the barrier. With Revive Tokens the player can resurrect his own character and those from other	

				players. This item is for both HC as SC sold and can also be gained by normal play.	
28	Does the game have artificial time barriers?	Energy system etc.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No, the game does not have time barriers.	
7.2.5 Common mistakes					
29	Are achievements only obtainable by playing?	[PLAYER ACHIEVEMENT] And [PLAYER ACHIEVEMENT] Bought	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Achievements are only obtainable by playing.	
30	Is wealth only obtainable by playing? Can the player buy soft currency with hard currency? (can be dangerous)	[PLAYER INGAME GOLD] [PLAYER GOLD] Hc to SC conversion ratio	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	It is not possible to buy SC for HC.	
7.2.6 Pay-to-win					
31	Is pay-to-win prevented? Is the game balanced so that players do not categorise the game as pay-to-win?	Items stats and user research	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
32	Are all maps free in case of a multiplayer game?	Maps free / unlocked / played	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	The multiplayer PvP maps are all accessible to all players. In the PvE channel the most difficult mode Nightmare is only accessible with Nightmare Tickets. This can be bought for HC or can be won in the shooting range.	
33	Are paid items and free items similar?	Item stats	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Meer onderzoek nodig	
34	Does a premium account only have small advantages?	Item stat	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	VIP: 30% XP Bonus, 30% Coin bonus, access to exclusive items, sticky	

				rooms, red name in chat and access to full channels.	
35	Are there no game breaking power ups sold?	Item stats	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	No, all power ups give extras which are not game breaking. However, this should be monitored strongly. 31	
36	Are there no overpowered items in the game for premium currency?	Item stats	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No	
37	Does all the gameplay add something to the experience?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
38	Are there parts of the gameplay skipable?	Skip mechanics	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No	
39	Is the game a coherent set of mechanics?	Maps played	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
40	Can a skilled free player win over a paid player?	[PLAYER KILL] [PLAYER TEAM KILL] [PLAYER SPECIAL KILL] [PLAYER DIE] [PLAYER REVIVE] Etc Paying vs free players.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
41	Is the voc smaller than the ttc?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, variable currency	
	7.2.7 Positive ways to implement Free-to-Play				
43	Does the game give premium currency through normal play?	Gamers who paid and gamers who have premium currency ratio	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	The game does not give premium currency for normal play. However, premium items can be obtained through missions and the shooting range. Missions also give another kind of currency, the quest currency. Players can buy different weapons in that store.	

44	Does the game provide real premium content?	New content behind paywall that is optional.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No, the player cannot buy extra gameplay, characters or other premium content.	
45	Is equity preserved?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
7.2.8 Payment systems					
46	Does the game apply the 15 rules?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
47	Do the virtual goods not disrupt the economy? Do the virtual goods not break the game?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	31	
49	Is the variable price point to confusing for the players?	HC to SC ratio	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Not variable	
50	Does the game contain micro subscriptions?	Subscriptions sold	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
51	Does the game contain microtransactions?	Items sold	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
53	Is Content Sale in place, but not too restrictive for free players?	Similarities in free and paid items.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
54	Is it possible to buy both permanent and temporary items?	Item descriptions	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	It is possible to buy items for a temporary time and permanent, but not every item. Weapons are permanent buys, but mods and tech are only temporary.	
55	Are premium items real luxury goods?	Premium items which are more special.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Costumes are luxury goods. Also VIP weapons weapons are special because a VIP voucher has to be bought and the weapons are also only for HC. 15	
7.3 Retention					
7.3.1 Game design					

57	Does the game have a story?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The game has a backstory, which is not very clear in the game itself.	Implement the story more into the game in missions or cutscenes.
58	Does the game have interesting characters?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The player does not meet many NPC's, only in cut scenes in certain PvE missions. The players own character does not have much customization to make it interesting.	
59	Does the player has goals in one play session?	Quests done DAU dailies	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The player has up to seven daily missions. Furthermore, the player has the event missions that stay longer.	
60	Does the player has goals that spread over multiple play sessions?	Quests done WAU/MAU	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The player can have a weekly challenge. Some normal goals also can take multiple days to be completed.	
61	Can the player collect?	Collections completed	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The player can collect bronze, silver and golden medals. The player can also collect achievements. Furthermore there is a gear set to be collected from the shooting range. This gear is difficult to get.	
62	Can be player get back to the game with a guilt feeling?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	The game does not motivate guilt. To see if players feel this motivation there should be done user research.	
63	Does the player have motivation to go back to the game often, otherwise he will miss something?	Appointments	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	If a player is competitive a motivation could be the ladder matches, which are ranked matches that only occur on certain times.	
64	Does the game have daily events?	Daily missions	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The game contains daily missions.	
65	Does the game have weekly events?	Weekly missions	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The game contains weekly missions. The game also contains events called challenges, which are point races for certain maps, divided into the difficulties. This challenges spread over a set timeslot, which is mostly around a week.	

66	Are there social mechanics in place?	Guilds	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The game contains guilds and friend lists. See more at question	
67	Does the game have cool down timers?	Gaps in playtime and many sessions.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	The game does not contain cool down timers.	
68	Does the game have a good, polished core loop?	Rounds played	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, every match is a run in the core loop. A player will play matches repeatedly. After the match they get experience and coins which can be used to upgrade.	
69	Does the game have upgrades?	[PLAYER LEVELUP]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	The player gains experience in the game and will level up. With higher levels the player can buy different kinds of weapons.	
70	Does the game contain grind?	Level progression	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	To gain currency the player needs to play the core loop repeatedly. The player can make the choice that they play through the missions instead of playing random maps.	
71	Does the game give a reason to leave, but also come back?	Sessions	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	The game has no appointments.	
71	Does the game have appointments?	Appointments and sessions	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No 63	
72	Does the game have log in rewards?	Daily log in rewards	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	The game does not have log in rewards.	Log in rewards are recommended.
73	Does the game punish missed appointments?	Appointments	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No, the game has no appointments. 63	

74	Does the game have a leaderboard?	[PLAYER LADDER POINT] [PLAYER LADDER JOIN] [PLAYER LADDER RESET] [PLAYER LADDER POINT CLEAR]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, for ladder matches.	
75	Does the game have clans/guils?	[GUILD CREATE] [GUILD DESTROY] [GUILD JOIN] [GUILD CHANGE LEADER] [GUILD LEAVE] [GUILD KICK]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes the game has clans. 66	
76	Does the game have special events?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, point challenges that are hosted on the website. 6465	
77	Does the game have special sales?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
78	Are there nudges for churned players?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Navragen	
7.3.2 Developer					
79	Does the player trust the developer?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Additional user research is needed to answer this question.	
80	Is the player committed to the game?	Retention rate	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	User research + Retention	
81	Does the player sees the game as a quality product?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Additional user research is needed to answer this question.	
82	Does the game implement new features regularly?	Update rate	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, see question 12	

83	Does the game changes following the player habits?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other	No, the game does not react to habits. A player who plays mostly PvE can still get only PvP daily missions.	Cater the missions to the preferences of the player.
	7.3.3 Bartle types				
84	Does the game appeal to all four player types?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
	7.3.4 Goal systems				
85	Does the game have multiple reward systems?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
86	Do the reward systems appeal to all four player types?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other		
87	Does the game have concrete goals?	[PLAYER ACHIEVEMENT] [PLAYER MEDAL] [PLAYER QUEST DONE]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes 5960	
88	Do the actions and goals fit to the players capabilities?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	The player can decide themselves what they want to do	
89	Does the game give timely and clear feedback on the performance of the player?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, when the player gets an achievement they get directly a message from this. After the battle they get another message. The medals are only shown in the top for a moment and are not listed. The game also shows the points and specialities such as headshots directly during play.	Also list the medals. Show how the points where got.
90	Does the game remove as much external information as possible?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, during playing the player only sees a small HUD.	

91	Does the game have collectables?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Yes, see question 61	
92	Does the game have quests or missions?	[PLAYER QUEST ACCEPT] [PLAYER QUEST DONE] [PLAYER QUEST CANCEL]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
93	Does the game have leaderboard(s)?	[PLAYER LADDER POINT] [PLAYER LADDER JOIN] [PLAYER LADDER RESET] [PLAYER LADDER POINT CLEAR]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes 74	
94	Does the game have unlockables?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes, higher difficulties and other weapons 69	
95	Does the game contain achievements?	[PLAYER ACHIEVEMENT] [PLAYER MEDAL]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
96	Is the feedback when a player gets an achievement immediate?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	
	7.3.5 Social play				
97	Does the game stimulate social play?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Yes and no because no mentoring etc.	
98	Does the game cater making friends and bonding?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes	

99	Does the game have a clan or guild system?	[GUILD CREATE] [GUILD DESTROY] [GUILD JOIN] [GUILD CHANGE LEADER] [GUILD LEAVE] [GUILD KICK]	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other	Yes 66	
	7.3.6 Emotions				
100	Does the game amuse the player?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Additional user research is needed to answer this question.	
101	Does the game make the player feel content?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Additional user research is needed to answer this question.	
102	Does the game wonder the player?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Additional user research is needed to answer this question.	
103	Does the game make the player excited?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Additional user research is needed to answer this question.	
104	Does the game make the player curious?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Additional user research is needed to answer this question.	
105	Does the game stimulate being a habit?	retention	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other		
106	Does the game have addictive triggers?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Additional user research is needed to answer this question.	
107	Does the game cater all three kinds of dopamine players?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other	Additional user research is needed to answer this question.	

TABEL 18 - CHECKLIST V4

12.5 Checklist v5

Free-to-Play retention checklist

<i>Question</i>		<i>Answer</i>
Game Design		
There is a story implemented in the game	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game has interesting characters	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The core loop works flawlessly	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game appeals to all four player types	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game follows the players habits	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game gives clear and timely feedback to the player	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The player can upgrade	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The core of the game is completely free	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is the game considered a quality product	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Reward systems		
The game has multiple reward systems	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game has log in rewards	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The player has appointments to come back to the game	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game punishes missed appointments	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The player can collect items and complete collections	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The balance between grind and reward are correct	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Events		
The game has daily events	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game has weekly events	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game has special events	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game has special sales	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game nudges churned players	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Goals		
The game has concrete goals	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The player has goals in one play session	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The player has goals spread over multiple play sessions	<input type="checkbox"/> Yes <input type="checkbox"/> No	

The actions and goals fit to the players capabilities	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game contains missions or quests	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game contains achievements	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Social		
The game stimulates social play	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game has leaderboards	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game has clans/guilds	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Emotion		
The game gives the player fun	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game wonders the player	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game excites the player	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game makes the player curious	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game makes the player feel content	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game caters all three dopamine players	<input type="checkbox"/> Yes <input type="checkbox"/> No	

TABEL 19 - CHECKLIST V5 RETENTION

<i>Question</i>		<i>Answer</i>
Basics		
The game is built as Free-to-Play	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The core of the game is completely free	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game runs on low and main stream hardware	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game gets regularly new content	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game has customer service in place	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Game design		
The game does not contain paywalls	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Achievements are only obtainable my playing	<input type="checkbox"/> Yes <input type="checkbox"/> No	
All gameplay adds to the experience	<input type="checkbox"/> Yes <input type="checkbox"/> No	
A skilled free player can win over a paid player	<input type="checkbox"/> Yes <input type="checkbox"/> No	
It is possible to reach endgame without paying	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Monetization		
Payment options are passive	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game has no payment ceiling	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The balance between grind and reward is correct	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The gamble systems are fair	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game does not exploit	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Multiplayer maps are available for all	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Wealth is only obtainable by playing	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Micro subscriptions are implemented	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Equity is preserved	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Microtransactions are implemented	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Short term raise of revenue does not have backlash	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Premium items		
The value of premium items are clear	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game has (hybrid) cosmetic upgrades	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Normally free items are not premium priced	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Free and paid items are similar	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Premium items do not break the game	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game provided real premium content	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Hc is given through normal play	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Can items be bought permanent and temporary?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The game is easy accessible	<input type="checkbox"/> Yes <input type="checkbox"/> No	
The monetization strategy is developed together with the game design	<input type="checkbox"/> Yes <input type="checkbox"/> No	

TABEL 20 - CHECKLIST V5 FREE-TO-PLAY

FIGURE 4 - CHECKLIST V6