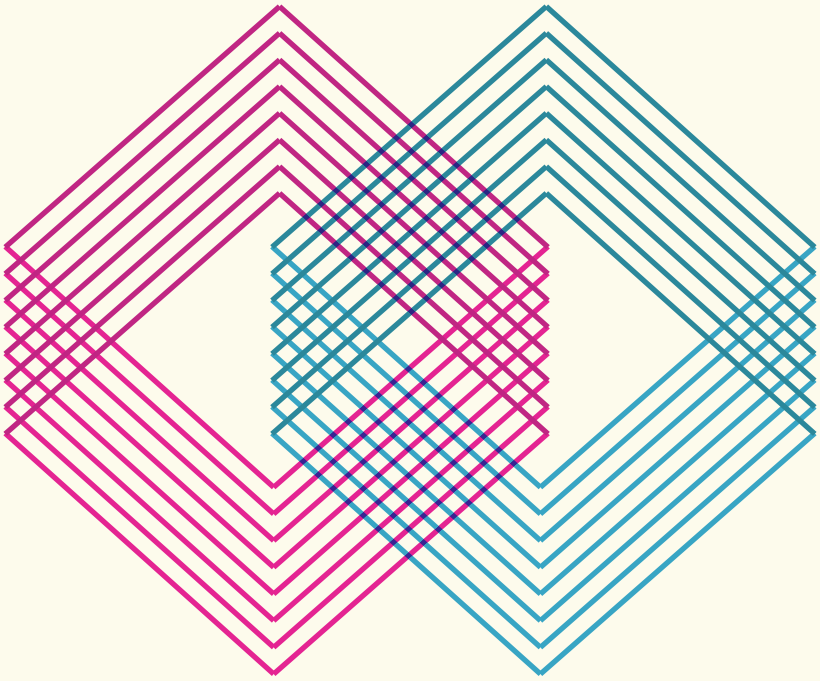
GAME DESIGN BUSINESS MODELS

THE CORRELATION BETWEEN KEY DESIGN ELEMENTS AND REVENUE MECHANICS IN FREE-TO-PLAY VIDEO GAMES



Speciality in Interactive Digitale Media
Master thesis in Information Technology at Aalborg University

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ABSTRACT

This master's thesis in Information Technology, Interactive Digital Media, at Aalborg University, focuses on the use of revenue mechanics in the emerging field of free-to-play games. The free-to-play market are redefining how we perceive video games, both in terms of how we play them, and how the games intend to generate revenue. Free-to-play games are becoming increasingly more present in our everyday lives, as the business model is becoming more dominant on both the PC and mobile market. This evolution has led to many discussions and reflections regarding the current state of the video game market, which have resulted in the following research question:

"What is the optimal correlation between game design and game business models when the purpose is to create an entertaining player experience with a sustainable business model and how are revenue mechanics applied into the design of a game?"

In order to understand the correlation of the two domains of game design and business models, data were collected from six state-of-the-art games, four expert interviews and literature studies regarding the two domains of business models and game design.
The empirical research led to the construction of a Game Design Model and Revenue Mechanics Framework with the purpose of both analysing existing games, and potentially aid developers in creating better free-to-play games by mapping the connection between key design elements and revenue mechanics. In order to contribute further to the development of free-to-play games, the master's thesis presents a set of Guiding Principles concerning the conclusive subjects of the research.

Keywords: Free-to-play, PC platform, Mobile platform, Game balance, Game session length, Player engagement, Retention, Game business models, Video game development, Player life cycle, Digital creation cycle, Case study research, Exclusivity, Core loops, Microtransactions, Virtual goods.

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PREFACE

This master's thesis is the result of a one-and-a-half year research and study of the connections between the domains of game design and business models in video game development.
The master's thesis was developed and written in 2014 as the final project on the master's degree of the Master of Science programme in Information Technology, Interactive Digital Media at Aalborg University.

ABOUT US

The incentive behind the master's thesis is based on our 8th semester study project, where we explored the relationship between game design and business models from which we developed the first iterations of the Game Design Model presented in the master's thesis.

On our 9th semester, each group member participated in the DADIU course of 2013 as respectively; level designer, project manager and game designers. Here we had the privilege of being part of two game productions; The Printer Guy and Saviour of Asgard, and experience the triumphs and downfalls of game development. Both games can be downloaded for free on Google Play store; currently both games are only compatible with Android devices.

DADIU

The National Academy of Digital, Interactive Entertainment is a collaboration between universities and art schools in all of Denmark.
Six teams are formed each consisting of 18-20 people containing a Game Director, Game Designer, Project Manager, Level Designer, Art Director, Programmers, Animator, CG artists and Audio composer, which purpose is to develop a game from pre-production to release.

Through our own experience playing video games, we have experienced how the game industry have kept developing new ways of monetizing in video games. A development that not only have shown new potential ways of creating revenue, but also changed the way we play video games today. Through the console-wave in the 90's, the uprising mobile games-market in 00's and present decade, we have played and enjoyed countless of video games: One of the first successful platformers like Super Mario, first person shooter games like Doom and the wave of mobile app's led by Angry Birds. All these games have had a big influence on our childhood and cultural understanding of digital entertainment.

The members of the master's thesis group have an extensive knowledge of the history of games as well as different opinions on games and games business models.

THE GROUP CONSISTS OF:

Kasper Hurwitz

Favourite games: Half-Life, Counter-Strike, Baldurs Gate 2, World of Warcraft and Heroes of Might and Magic 3.

Currently playing: Heroes of Newerth and Counter-Strike GO.

Kristian Wulff

Favourite games: Command & Conquer Red Alert, Dungeon Keeper, Oddworld: Abe's Oddysee and Warcraft 3.

Currently playing: Dota 2.

Nikolaj Frølund Jensen

Favourite games: Half-life, Tetris, Super Mario and Gone Home.

Currently playing: Broken Age by Double Fine.

Thomas Lykke Larsen

Favourite games: Neverwinter Nights, Heroes of Might and Magic 3, Hearthstone, Age of Empires II.

Currently playing: Wolfenstein: The New Order.

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Chapter 1

INTRODUCTION

The introduction outlines our primary area of concern: a hypothesis on the importance of the integration of game design and business models. This forms a broad research question on practical applications of our thesis, for game creators.

1 INTRODUCTION

This master's thesis explores the correlation between game design and business models in free-to-play video games. The thesis examines how the two domains influence one another and what problems may occur in the production of video games when these two domains are required to collaborate. The thesis proposes to see the two domains as domains that condition each other: a specific business model has an influence on which game design decisions are considered best for the ultimate game product, and specific game design decisions have a similar influence on which business models optimally fit the game product.
How the two domains set up conditions for each other is formally explored through studies in monetization methods and in-game microtransaction features. In order to further contribute to this particular field, the thesis introduces a new game design model for the development of games that has a particular focus on connecting the areas of game design and business models for video games.

Through this thesis, we have developed a method with the ambition to improve praxis, in regards to creating an entertaining game experience, with a sustainable business model.
The purpose of the next section is to present our area of interest through a quick historical overview, of some the most significant changes that have led to the current state of video games and their business models. This section will be further clarified through the presentation of our constructed hypotheses.

1.1 AREA OF CONCERN

The video game market has undergone radical changes since its early days in the 1970s when players would spend all their quarters on arcade machines, playing seminal video game titles, such as Pac-Man or Space Invaders. Most arcade games are designed for players to achieve a high-score and maintain it by improving a set of skills that apply to the mechanics of a specific machine/game.
The business model used in the arcade game industry is known as coin-op or pay per play (Perry, 2009, p. 50).
The arcade hall's of the 70s eventually lost terrain against the more convenient home consoles that allowed players to play their favorite video games privately and domestically.
It was the beginning of a new era when popular home consoles, like the Atari 2600, NES (Nintendo Entertainment system) etc., started to sell physical copies of their games in retail stores - the retail business model. Following the lead of its home console predecessors, Sony released the popular PlayStation in the late 1990s and Microsoft followed suit with their

Figure 1: ***Atari 2600 Wood-4Sw***

release of the Xbox in 2001.

With a combined estimated revenue of $20 billion dollars (Vogel, 2011, p. 390), Sony's PlayStation 2, Nintendo's GameCube and Microsoft's Xbox, were showing the world how the video game industry had become a force to be reckoned with. The constant advancement in technology, in terms of both video games and computers, lead to bigger production value and more advanced video games, also known as triple-A games. These video games would have a high-retail price and production value, e.g. *Call of Duty: Modern Warfare 2*, with an estimated production cost of $50 million dollars (Vogel, 2011, p. 391).

With the expansion and increasing bandwidth of the internet, online digital release platforms began to emerge, such as Valve's Steam. The advancement in bandwidth and release platforms were significant factors for the development of smaller independent companies (Indie developers) and the MMO (massively multiplayer online) games both. MMO games like RuneScape were some of the first games to utilize the free-to-play business model; the model allowed them to reach a large audience without having to deal with distribution and immense sums of money for marketing. The Indie developers saw the same opportunity, which enabled them to develop small-budget games, and to thus challenge the design of the triple-A games, and their methods of finance and development.

The advantages of the free-to-play model were clear, which also helped it to obtain popular appreciation and spread. However, finding ways of earning money on free-to-play games, without harming the player experience, has proven to be a difficult task. Many

Figure 2: ***Screenshot of Steam, Valve's online platform, where other developers can distribute their games and users can purchase digital game copies***

Figure 3: ***Screenshot of Zynga's Farmville***

of the new free-to-play games found that the easiest way to monetize their games came about through restriction of player possibilities. As a result, the free-to-play model has become synonymous with a lesser product, sometimes earning the epitaph, 'free-to-play – pay-to-win'. A commonly seen, critical player response is one that feels exhorted, if not extorted, by a given free-to-play game to spend money that they did not bargain for, simply to keep on playing. The directly criticisizable feature here is how players find themselves unwittingly confronted with 'pay walls' that stop them from playing an otherwise enjoyable game. As such, many of these types of games rely more on the player's willingness to use money rather than a reward-mechanism based on actual problem solving abilities (i.e. skills) in order to be an effective player.

Despite the invasive nature of these 'pay-to-win games', many companies have recycled this type of business model, which has led to a short-termed tendency in the market. A business model is not sustainable if the game is not entertaining, in other word, the user will only pay if the product provides them enough value in regards to the price of the purchase. However, the consequences of the malpractice have begun to reveal themselves. As an example, we may refer to one of Facebook's pioneering free-to-play game companies, Zynga. In 2013, Zynga went from 72 million daily users to 39 million daily users, losing nearly half of their daily users in one year (McWhertor, 2013). This drop indicates a short-termed focus on moneymaking, ignoring player satisfaction, and also a market with a lack of innovative game titles. However, this case is not conclusive evidence, as many other factors may have influenced Zynga's drop.

For obvious reasons, it is nonetheless clearly bad for any game to be labeled as pay-to-win. Knowledge of such critical reception has resulted in another type of free-to-play games wherein players are given a way to work around the money system—this is of course done to avoid resemblance with the ill-received

moneygrubbing games. However, in some cases this attempt unintentionally facilitates a response where the player gets a more challenging and engaging experience from an attempt of avoiding the use of money altogether. This, it follows, is not sustainable business-wise either, in this case due to a lack of revenue rather than disgruntled players.

The above concerns open the question of the manners and circumstances under which it is possible to create a free-to-play game capable of balancing the two domains: game design and business model. How does one successfully navigate the player experience alongside financial considerations?

To increase the overall value of a game, this thesis proposes that there has to be a good balance between the two domains. The domains are interconnected, making the strengths and weaknesses of the domains affect one another and thus the general quality of any given game.

Through active participation in two game productions, we have experienced some of the complexities involved in the development of a game design that laterally manages to create a suitable business model for its design.

The development in payment methods in video games has led us to the following hypothesis:

Through new payment methods, such as microtransactions, business models have a large influence on the gameplay in present video games and the mechanics implemented—this influences the overall player experience of a given game.

Through careful study, we have identified the correlation between the two domains and their related problem: creating a successful game. The two types of cases may each lead to different issues, as explained, but it is just as important to underscore how the malpractices common to the free-to-play business model are, in consequences at least, similar: the success of a game is in the balance. Moreover, study of the two cases is grounds to substantiate our hypothesis: we have been lead to the assumption that it is possible to implement a business revenue model that does not harm the player experience and/or in fact directly improves the overall player experience. The hypothesis is an expression borne of player-reception observation as well as software revenue concerns. We will further qualify it through the application of a theoretical perspective through our study of textual sources, expert interviews, and a case study analysis.
In the following hypothesis, we argue when a games business model should be implemented to create the best possible correlation between the game design and game business model in a game:

By identifying and understanding the interconnection between game design and business models, on a theoretical and practical level, game developers are able to ask questions which will improve their games in regards to both designs and business models employed during the development process.

Together the two hypotheses address aspects whereby game design and business models influence each other. However, the main function of the hypotheses is to address the general need of identifying and understanding the two domains and how they are connected. Our main hypothesis connects as follows:

It is possible to create a better basis for the implementation of monetization features by incorporating a game's business model as part of the beginning of the development phase. This consideration arguably maintains a higher quality of player experience.

The aim of the thesis is to create the foundations needed to understand game development in

regards to the relationship between game design and business model alike; it is based on theory and practical knowledge from academia and experienced professionals from the industry. The thesis contributes to the practical field of game development and to academia also.

1.2 RESEARCH QUESTIONS

The main hypothesis of the thesis suggests a clear rationale for game development that is founded on game design and game business models. The actual research deals with a number of problems associated with such integration. The practical implementation of the theoretically perceived needs for product optimization, these being a balance of user gratification and company revenue, is an area that consist of a variety of problems ranging from communicative issues to implementation issues; the former is concerned with different departments of a given game production cooperating effectively, whereas the latter is concerned with game design in relation to the business model.

A lot has been written about game design and business models, from academics and practitioners both, but the two fields are in most cases found separately. Material wherein the two domains are considered contiguously is rare and often non-academic, which makes it almost impossible to locate prior research of substance. Some of the most profitable sources seem to be web articles on game developer sites like Gamasutra, whereon developers give austere thoughts to the field yet fail to present the sufficient and comprehensive descriptions that today's game development climate needs.

The argument that there is both observable academic need for our thesis and a relevance in value-for-practice is thus a real one. On the basis of the theoretical and methodical work that follows we have developed and deployed a game design model that takes into account the whole interpretation of the subject-field regarding the implementations of business models in video games.

Our assumption is that game design and business models related to a game are connected to one another, and in order to create an optimal product that not only achieves financial success, but also becomes a great player experience, game design and business model domains have to function malleably.

But how can a company reach an optimal connection of domain reciprocity? Furthermore, what is needed to create a development method that helps developers reach this goal of a positive interconnectivity between the game design and business model domains? What kind of written description does an interdisciplinary development team need in order to utilize the ideas proposed?

To guide the thesis through the aims of describing and understanding the connections between the game design and the business model, and to create a formula for practical usage, the through-line for both theoretical and methodic research questions is as follows:

> ***"What is the optimal correlation between game design and game business models when the purpose is to create an entertaining player experience with a sustainable business model and how are revenue mechanics applied into the design of a game?"***

Our ambition is to create a method to help developers incorporate game business models into their video game concepts in the most complimentary way. However, before this can be accomplished a theoretical approach is required.

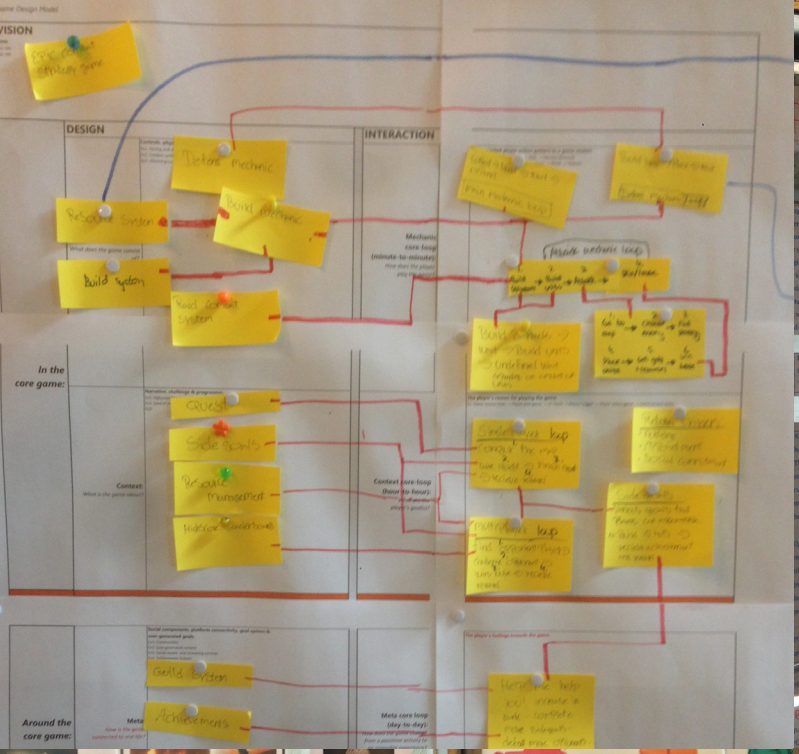
As such, our research question is divided into two parts:

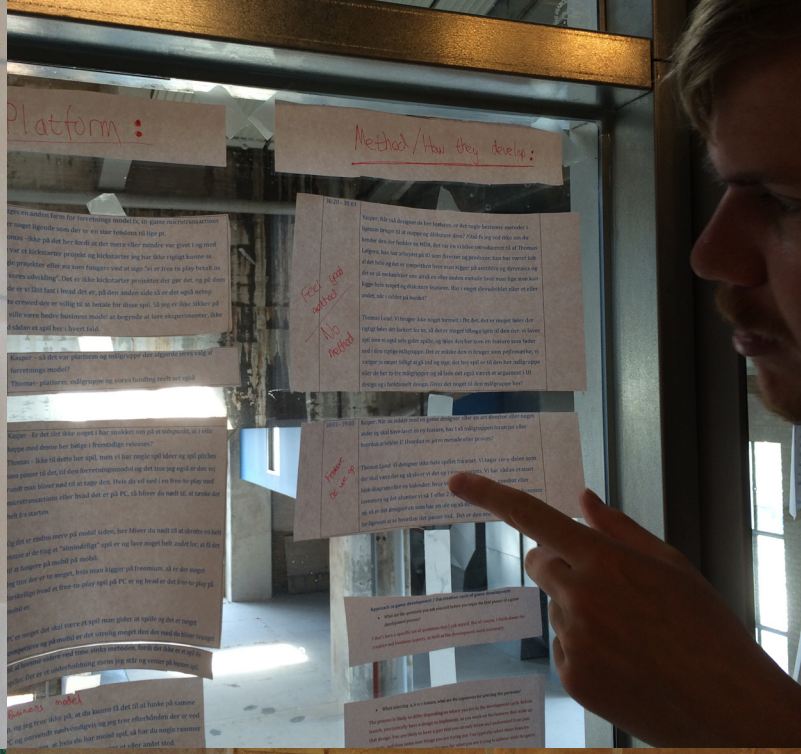
Theoretical: ***"What is the optimal correlation between game design and game business models when the purpose is to create an entertaining player***

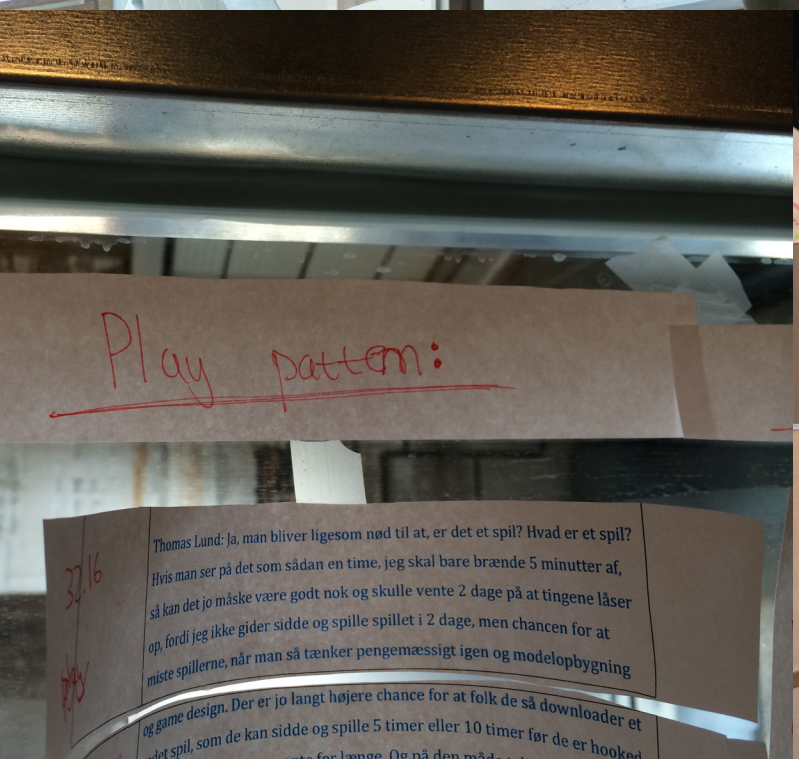
experience with a sustainable business model?"

Methodic: ***"How are revenue mechanics applied into the design of a game?"***

From this problem, a number of work questions arose in order to frame and answer the main research question. The work questions are described in the following chapter: Work method and framing of the project.


VISION
DESIGN
INTERACTION
In the core game:
Around the core game:
Quests
Side Quests
Achievements


Platform:
Method/How they develop:


Play pattern:
Thomas Lund: Ja, man bliver ligesom nød til at, er det et spil? Hvad er et spil? Hvis man ser på det som sådan en time, jeg skal bare brænde 5 minutter af, så kan det jo måske være godt nok og skulle vente 2 dage på at tingene låser op, fordi jeg ikke gider sidde og spille spillet i 2 dage, men chancen for at miste spillerne, når man så tænker pengemæssigt igen og modelopbygning og game design. Der er jo langt højere chance for at folk de så downloader et det spil, som de kan sidde og spille 5 timer eller 10 timer før de er hooked

Chapter 2

WORK METHOD AND FRAMING OF THE PROJECT

The work method introduces the reader to the research strategy principles of Robert K. Yin and philosophical reasoning of the Systems view, which are the key elements of the overall methodic frame of the project.

As such, the chapter clarifies the research approach utilized throughout this master's thesis and further relates the methodic approach to its primary scientific connection.

2 WORK METHOD AND FRAMING OF THE PROJECT

Throughout this chapter, we will present our framing of the project and the methodic approach. As different research objectives require different research approaches it is essential to create a very clear and transparent structure of the chosen methodology (Yin, 2009, p. 53) throughout the documentation process. As such, the purpose of this chapter is to clarify the philosophical and methodological approach selected and applied in the thesis. Furthermore, the approach is critically discussed in regards to the mitigation of possible pitfalls and drawbacks associated with the chosen approach.

The chapter is divided into six sections: the first section focuses on a framing the project by explaining the purpose of the project, our scope and limitations and the logic coherence in the project. The second section describes the research process leading to the conclusion of the thesis. The third section describes the philosophical reasoning behind how we, as researchers, perceive reality (Abnor & Bjerke, p. 179). The fourth section describes the chosen research strategy and the methods and tools associated with this. The fifth section explains how the research strategy, methods and tools are instrumental components in ensuring the credibility, reliability and validity of research of the thesis. The chapter ends with critical reflections on the use of case studies for research.

2.1 WORK QUESTIONS

In order to answer the research question we have to identify all the underlying components of the research question and divide them into several problem areas. In order to target each problem area, the areas are each assigned with related but independent research questions. The larger targets are cohesively directed toward answering the relative solubility of the main research question.

By combining and comparing the knowledge gained through answering each of the related research questions, we arrive at a better understanding of the problem area as an expansive target, and therein lie the argumentative grounds for answering the main research question. The work questions are divided into three categories, connected to the two primary problem areas of the research: the first category is the questions connected to the area of game design, the second area is questions to the field of game business models, and the third concerns the questions that connect the two domains. These three categories

WORK QUESTIONS:

- What is a video game?
  - What is an entertaining game?
- What is game design?
- What is a game business model?
  - What is a substainable business model?
  - What is a game revenue model and its game revenue mechanics?
- What is the connection between game design and game business models?
- What is a game creation cycle?

Figure 4: ***The work questions provides an approach to answering the research question and creates focus areas for the research.***

encompass the entirety of our method.

Throughout this section, we will present the selected literature for answering our work question. We have received literature counseling from AUB (Aalborg Universitets Bibliotek), in regards to optimizing key search words, and where to locate relevant and recommended research sources.

2.1.1 WHAT IS A VIDEO GAME?

In oIn order to clarify video game definitions we adhere to the attributes set by the scholars, Jane McGonigal (McGonigal, 2011), Katie Zalen, Eric Zimmerman (Salen & Zimmerman, 2004) and Roger Caillois (Caillois, 1958). Their framing of what constitutes games and how this translates into what a video game is are important for how we, as a thesis group, collectively define video games.

Through her book, "Reality is broken – why games makes us better and how they can change the world". Jane McGonigal, highly appraised American game designer, introduces an interesting view on games, and how they can help solve social problems. McGonigal introduces four traits, which she uses to define games. These traits will help us to reach a definition on what a video game is. Roger Caillois a French sociologist and writer of the book "Man, Play and Games", a work that seeks out to define what play and game is and defines games as something that is a voluntary activity as a source of enjoyment and amusement. Roger Caillois further explores what a game is by framing four types of play, providing further insight into what types of games exist.

Katie Zalen and Eric Zimmerman are the authors on one the most significant books on game design in resent time, "Rules of Play". Their comprehensive work on game design will be used to further support the presented theory, and add to the overall understanding of how we view video games.

2.1.2 WHAT IS AN ENTERTAINING GAME?

This work problem seeks to understand what, exactly, constitutes an entertaining game. This will help us determine, by relative degrees, whether or not applied monetization features in a given game development have compromised the entertaining aspect of a game experience. It also provides a foundation from which we can assess whether a given monetization feature is well functional in a given game development cycle. We are aware of the inconsistency in regards to the terminology, when describing what we will determine as an entertaining experience, e.g. fun, enjoyable or engaging. We have selected Raph Koster (Koster, 2013), as our primary source, as we believe his view can contribute to uncover this work problem. In his book, "A Theory of Fun For Game Design", Koster explores the key elements of fun, and sheds lights on why some games are only fun to play for a couple of minutes and why some are cherished for years or returned to with more frequency.

To gain a more in-depth understanding of what other elements are keys to the creation of an enjoyable game experience, and what makes players immerse themselves and stay in the game, we have included

theory regarding immersion and player engagement. This theory is illuminated through Frans Maÿra's (Mäyrä, 2008) theory regarding three types of immersions; sensory, imaginative and challenged based, and through Henrik Schoenau-Fog's (Schoenau-Fog, 2011) article, The Player Engagement Process – An Exploration of Continuation Desire in Digital Games.

2.1.3 WHAT IS GAME DESIGN?

In this thesis we explore the field of game design through empirical studies, drawing on both a theoretical and methodological basis. We draw upon published theory of game design to develop a theoretical framework, to create a terminology and general understanding of games. The framework is essential to our research question—the field of game design is one of the two primary fields of our research. The theoretical framework draws upon the work of the following game theoreticians, Franz Mäyrä (Mäyrä, 2008), Katie Salen, Eric Zimmerman (Salen & Zimmerman, 2004), Jane McGonigal (McGonigal, 2011), Jesper Juul (Juul, 2013) and Jenova Chen (Chen, 2006).
However, the research of the thesis requires more than a theoretical understanding of games. We need to gain knowledge of how games are created in practice. Therefore, the study also draws upon knowledge obtained through interviews with game design practitioners and our own experiences creating and designing games. Through the knowledge obtained with this dual approach, the study analyzes specific games towards the objective of a layered critical understanding of their game designs, which contributes to the study of the connections between game design and game business models.

2.1.4 WHAT IS A GAME BUSINESS MODEL?

The work problem is divided into two sub-sections.
Firstly, the objective is to understand 'the business model' as a whole and what a sustainable business model is. This is achieved through Alexander Osterwalder and Yves Pigneur's (Osterwalder & Pigneur, 2010) business model canvas.
Secondly, the work problem seeks to understand the individual parts of the business model. This is done by looking at the revenue model and connected revenue mechanics.
To uncover the work problem, we have selected Tim Fields and Brandon Cotton's (Fields & Cotton, 2012) book "The Social Game Design Monetization Methods and Mechanics". Furthermore we will use Oscar Clark's (Clark, 2014) book "Games as a Service" and Will Luton's (Luton, 2013) "Free-2-play: Making Money From Games You Give Away".
The approach provides us with the foundations needed to help us determine the correlation between a game's business model and the design of a video game.

This chapter provides a definition of our project's use of the term: 'game revenue model' and 'revenue mechanics'.

2.1.5 WHAT IS THE CORRELATION BETWEEN GAME DESIGN AND GAME REVENUE MODELS?

This work problem seeks to uncover what the interconnections between the two domains of game design and revenue models consist of. In order to solve this we work on the basis of the answers of the previously stated work problems pertaining to game design and revenue models.
This synthesis of related research issues leads to a theoretical framework. Game design and business models are linked to analyze games—in order to clarify the connections between game design and game business models.

2.1.6 WHAT IS A GAME CREATION CYCLE?

We seek to understand and define the game creation cycle. Therefore, we will explicate what constitutes the different phases of a game development process, both from a business and creative perspective.
This work problem is directly linked to our second

hypothesis that concerns what production phase it is most beneficial to implement a business model, considering here a game creation cycle in its entirety. It is essential to understand and define this work problem in order to acquire the necessary knowledge to profit from this thesis for actual production. We look for optimal knowledge on the basis of our interviews. Qualitative concerns may be addressed as founded on our ability to conduct interviews (data collection), analyze the data and render it presentable.

The framing of the game creation cycle is based upon a combination of scholarly sources and practitioners: Heather Maxwell Chandler (Chandler, 2014), Dan Irish (Irish, 2005), Claus F. Rosenstand and Per K. Lauersen (Rosenstand & Kyed-Lauersen, 2013). Furthermore, we will reflect upon this material on the basis of our personal experiences with developing games.

2.2 PURPOSE OF THE PROJECT

The following is a list that summarizes the overall approach of our project, the purpose of the thesis and its contribution to the field:

1. To identify the connections between game design and business models in a game development process.
2. To develop a model for game developers, both as a standalone tool and in relation to the business models, based on theory and practical knowledge from industry veterans and academics alike.
3. To test, review and revise the model iteratively throughout the project by using it in our state-of-the-art analysis and having it peer reviewed by active game developers.

Through these three steps, the thesis develops a method with the ambition to improve praxis, in regards to creating an entertaining game experience, with a sustainable business model.

IIt is important to note the difference between using a model for an analytical purpose as opposed to praxis. The model presented throughout this thesis, will not be used in a real game production, however it will be used to analyze selected video games.

2.3 SCOPE AND LIMITATION OF RESEARCH

Over the years, researchers from different disciplines have studied games from different perspectives (Mäyra, 2008, p. 2), ranging from sociological, neurological to economical science etc. Therefore, the approaches to studying games are manifold, and come with diverse understandings and perspectives. When approaching such an interdisciplinary research field it is essential to outline the focus and limitations of the study.
This thesis focuses on the two domains of game design and business models in video games.

Business

Due to the fact that the term 'business model' can principally be used to cover every aspect of a business, we have chosen to limit the scope of our research. Hence, we will not be focusing on estimating the degree of success in regards to the financial aspect of the business model in regards to marketing and advertisement.

Game design

The game design domain covers a wide spectrum of elements; to include all of these components would require a different timeframe. Therefore we will not focus on exactly how a feature is technically produced or how the feature ought to be designed aesthetically and narratively by a game developer. This is both in regard to the aesthetics of sound design, visual design and the narrative structure of a game.

Ethics

Much has been criticized concerning the use of real world money in free-to play games. Critics, gamers and developers alike are in a constant debate over how to fairly monetize on free-to-play games. Sometimes the discussion is simply framed: "is a developer evil

or good?" Although interesting, the proportionately nonacademic quality of this general debate dictates its exclusion here. Our focus is strictly on how to optimize a game design and a games revenue model. However, we recognize this debate as an important aspect of the social considerations that go into the development of games. We have researched how the European Fair Trades Commission intends to change how developers need to be more transparent regarding communication of what "free" means.

Technology

This thesis is only concerned with the analysis of PC and Mobile platform games. These two platforms are currently the main areas where free-to-play games are released. Both platforms are also widely known to utilize microtransactions. However, we do recognize that other platforms do utilize these features, such as video game consoles that have a completely different context of use.

2.4 VISUALIZATION OF THE LOGICAL COHERENCE IN THE THESIS

In this part of the introduction, we will try to sum up the projects research question, area of concern, the primary literature to be used in the thesis as well as what we hope to contribute to the field of Game Design. This will be done through the use of Lars Mathiassens model (Mathiassen, 2010). The model will serve as an overview of the thesis and is used to visualize the logical coherence in the thesis. The formal model (Figure 5 on page 15), clarifies the thesis elements and its dependencies and relations to one another.

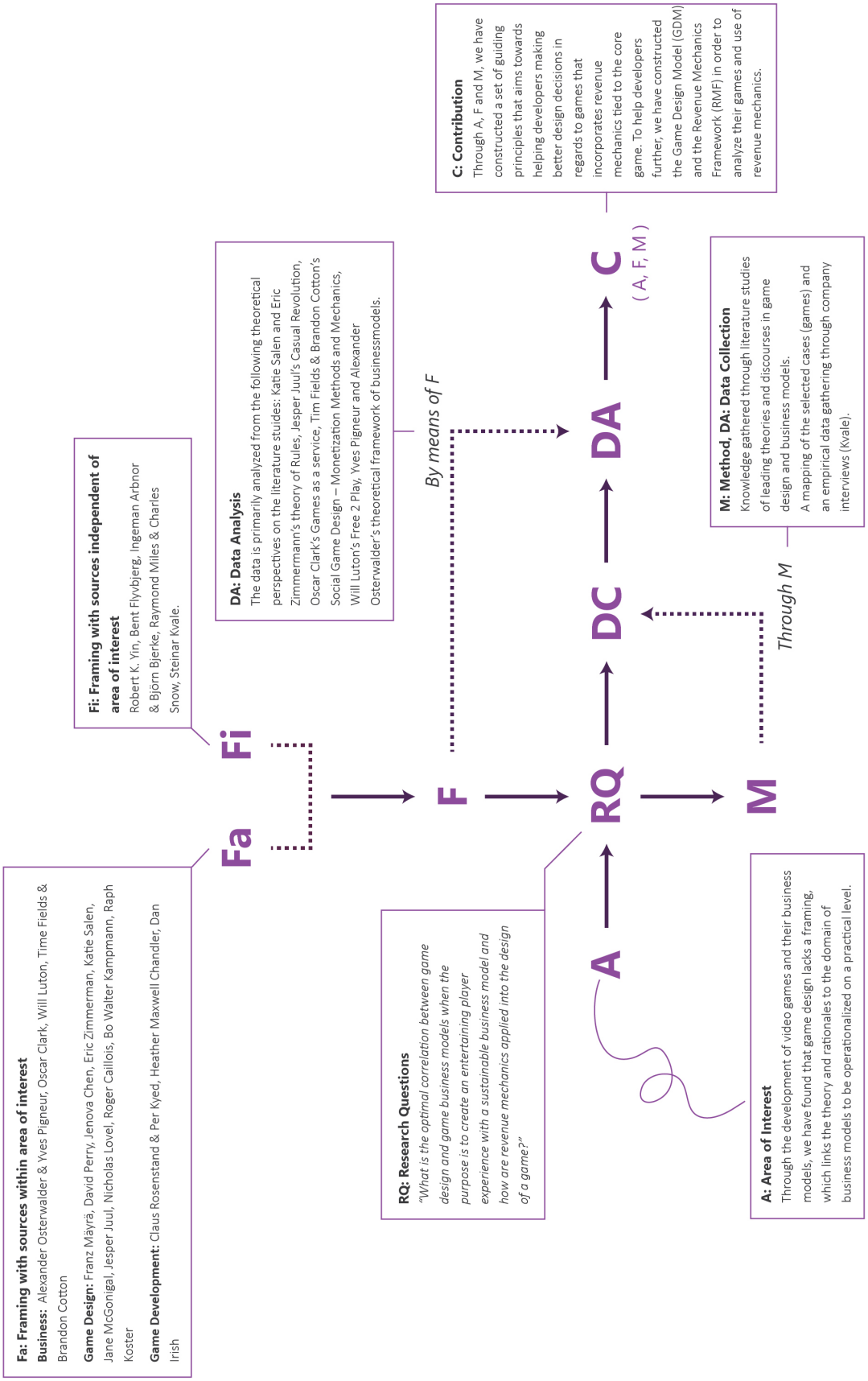


Figure 5: ***The Mathiassen-model of the project visualizing the locgical coherence in the thesis***

2.5 RESEARCH PROCESS

The following is a description of the process of the project and the order of phases we planned in order to reach our research objectives.

'Research process' is broad in scope and includes everything that must be determined before a project can proceed. It provides the structure of what has to be achieved, how to implement said structure and how progress will be verified; it is also the starting point of a project cycle.

Every project has to follow a series of phases, allowing the process to be guided from the moment a problem/task is identified until it is solved. This series of phases constitutes the 'project cycle' and can be described as a way of identifying a hierarchy of project goals and objectives that are linked by causal relationships.

The overall process and methodology of the thesis are guided by the model illustrated in the 'Process Compass' (Figure 6 on page 16), the construction of the model is inspired by a lecture given by Claus F. Rosenstand.

The vertical axis goes from 'theory' to 'in practice' and the horizontal axis from 'analysis' to 'synthesis'. The horizontal axis indicates if we are in the process of analyzing or synthesizing and the vertical axis shows if it is a theoretical or practical approach. The application of the axes of this model divides our game based research into four sections:

4. The process of analyzing theory:
   a. Game design and business model theory.
5. The process of analyzing practice:
   a. An exciting product like state of the art video games or development experiences (qualitative evaluation: e.g., our own experiences, expert interviews etc.).
6. The process of creating a synthesis - designing new theory:
   a. The correlation between game design and a games business model.
7. The process of creating a synthesis - designing new concepts
   a. Construction of a new concepts/methods to be used in practice.

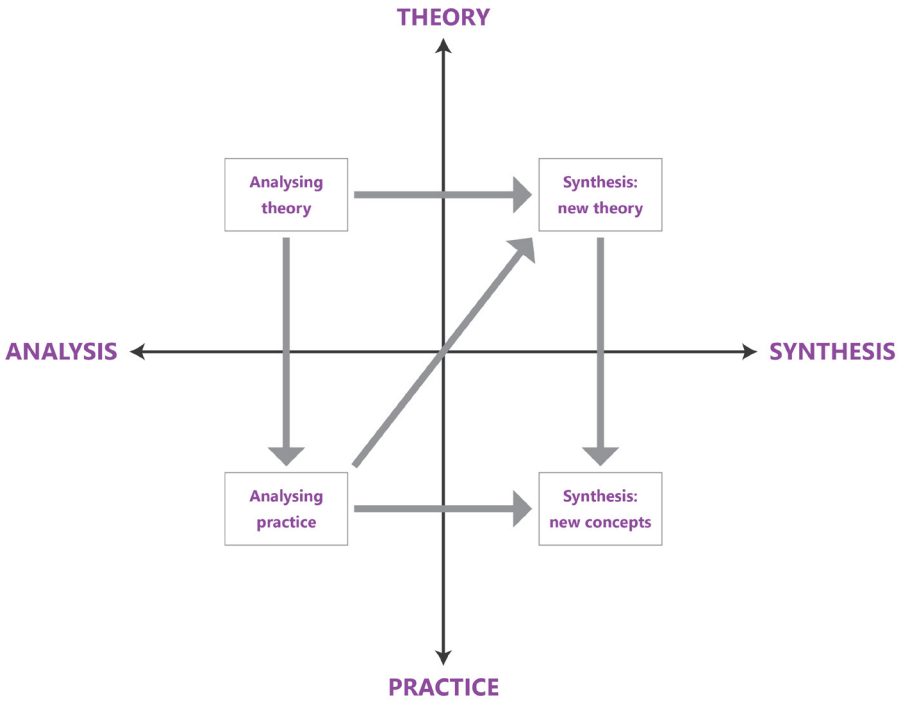


Figure 6: ***The seven phases of our master's thesis represents both our work process and structure of the thesis. The model shows the main movement throughout the project, an iterative process between the different phases.***

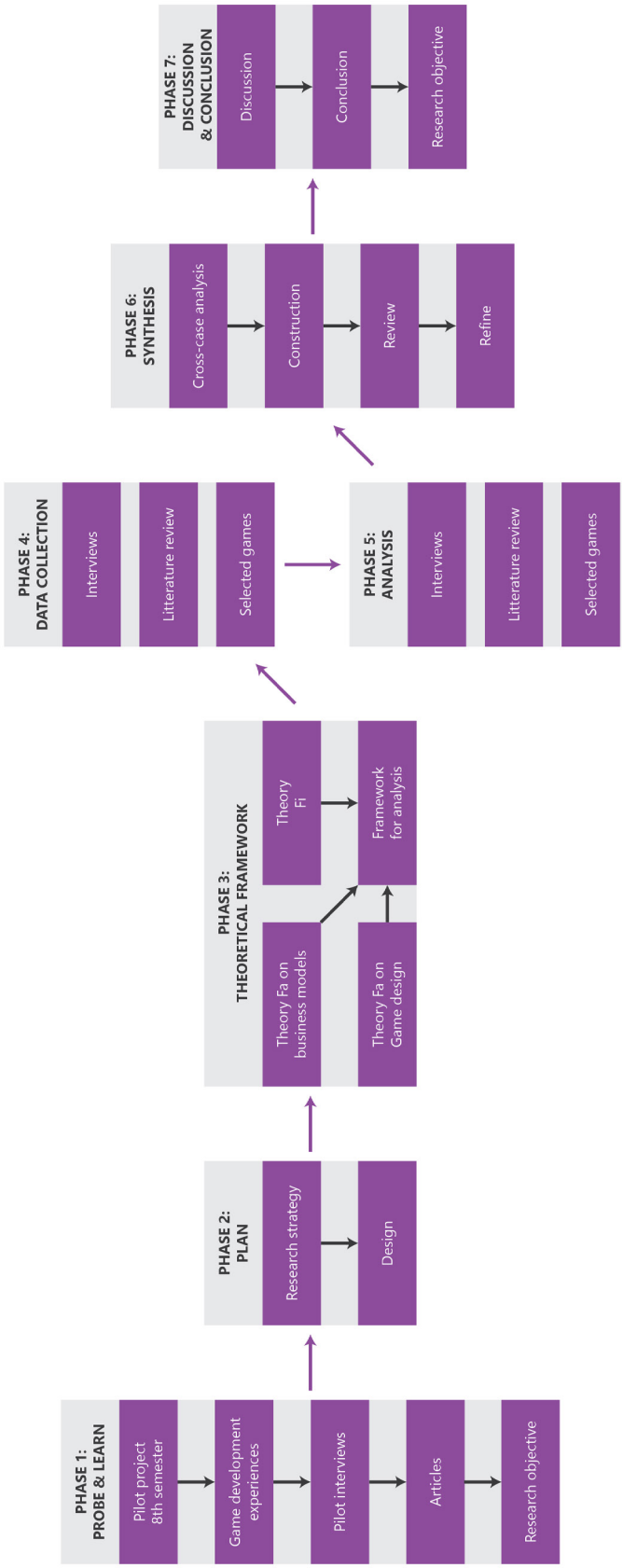


Figure 7: ***The seven phases of our master's thesis represents both our work process and structure, an iterative process between the different phases.***

The natural flow through the model is indicated by the arrows: first a theoretical framework has to be constructed through the analysis of known theory in order to analyze practice. Secondly, new theory is conceptually formed, which may now be practically applied and tested. By combining the analysis of known theory and the analysis of new practices that are actively tested, a new theory is formed. As a final step, the synthesis of the knowledge from new theory and the critical reflections on new practices leads to a new set of concepts/methods—a new design.

During the process of our data collection and analysis we gain new perspectives as investigators. We believe it is important to utilize this flexibility. In order to create the best possible result, we therefore work in an iterative frame whereby we go back and forth between different phases, refining our theoretical framework used to collect and analyze our data. As such, since we work in an agile and iterative manner, some phases are conducted simultaneously, others chronological.
In the following pages we cover the research process of this thesis. This is described in seven phases:

1. Probe and learn
2. Plan
3. Theoretical framework
4. Data gathering
5. Data gathering and analysis
6. Synthesis
7. Discussion and conclusion

2.5.1 PHASE 1 - PROBE AND LEARN

The main purpose of this phase is to create the foundation for the rest of the project in terms of identifying and defining our area of concern and research objective. The first step in the probe and learn process is to test some of the initial hypotheses of the area of concern at the very beginning of the project.
Having already engaged in a pilot project during our 8th semester, our probe and learn phase was technically initiated before this thesis. This was followed by the acquisition of practical insights that came from developing our own games. Throughout our DADIU semester, developing two games, we were able to further peer review our Game Design Model and 8th semester hypothesis through short interviews with game industry veterans and academic instructors who gave lectures at DADIU (See “About us” for more information about DADIU).
Moreover, well-established and recognized interview sources like Gamasutra and Games Industry International provide valuable insights for the probe and learn segment.

This testing of our hypothesis is completed through critically trustworthy sources, pilot interviews, and articles. Collectively, the probe and learn leads to a better understanding; hence our area of concern and research objective is scoped.

2.5.2 PHASE 2 - PLAN

In this phase we identify our research questions, which lead to decisions regarding our research strategy and design and to a comprehension of its strengths and limitations.

2.5.3 PHASE 3 - THEORETICAL FRAMEWORK

Theory on business models and game design that we have found suitable for the illumination of our area of concern is explained and clarified in this phase. Moreover, it is consolidated into a theoretical framework, which is used to perform our data gathering and analysis.
The construction of a theoretical framework should be present whether a study is to be explanatory, descriptive, or exploratory (Yin, 2009, p. 40). Using theory is a contributing factor in designing the appropriate research design and data collection (Yin, 2009, p. 40). As such, the theoretical framework also becomes the main drive for generalizing statements on the outcome of the study.
Accordingly the main purpose of this phase is to create

a critically feasible/scientifically valid theoretical framework for analyzing our selected games, interviews and literary sources.
As previously described, an iterative approach allows the team to learn more throughout our data collection and analysis. Redefining aspects of the theoretical framework for collection and analyzing our data maintains sagacity.

2.5.4 PHASE 4 - DATA COLLECTION

In this phase we collect our data through selected games, interviews, and literary sources. As previously mentioned, this phase contains a certain amount of analysis, which is one of the characteristics of case study research wherein data gathering and analysis are, more or less, conducted parallel (Yin, 2009).

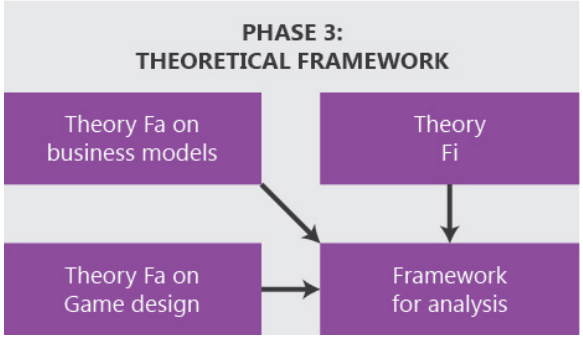


Figure 8: ***An overview over phase 3: Theoretical Framework. Theory Fi: sources indenpendent of our main thery. Theory Fa: sources directly related to our problem statement and area of concern***

2.5.5 PHASE 5 - ANALYSIS

Our respondent's statements and points of views are categorized, analyzed and evaluated (on the basis of self-constructed matrixes). This is done to display a user-friendly overview of our interview data, i.e. our results.
The interviews and study of literary sources serve as ways of identifying areas of interest in relation to our selected games. This identification of consequential interests thus results in a refinement of our theoretical framework for further analysis.

In this phase, our selected games are analyzed on the basis of our theoretical framework. Each game analysis consists of three steps:

1. Business model analysis
2. Game design analysis
3. 'Linkage'

These steps should not be viewed as black and white, i.e. absolute. There are overlaps and iterations between them. Because of given iterations we conduct the data gathering while analyzing, which in turn serves the construction of our synthesis.

2.5.6 PHASE 6 - SYNTHESIS

In this phase the synthesis for our project is described and discussed.
The first step is to conduct the cross-case analysis of all our empirical sources, which will lead to the theoretical and methodical construction (synthesis).
Next, the construction is peer reviewed from industry veterans and academics alike.
Finally, we evaluate and refine our 'constructions' based upon feedback from peer reviews. We then pivot back and arrive at a newly refined construction—reviewed and then again refined—until the overall synthesis of the project is presented as our contribution to the field.

2.5.7 PHASE 7 - DISCUSSION AND CONCLUSION

This is a phase of reflection, where important issues and weaknesses of our constructed practical framework are discussed. Part of this process is critical reflection on other cases. We draw on constructive criticism, from within the group examination, and from our peer reviews. A final discussion attempts to establish how important issues may be solved and how potential solutions could ostensibly be implemented in a further iteration of the framework.
The above describes the process of how we attempt to review our project as a whole, what we have uncovered through analysis and evaluation, and what we have

learned through practice. We strive to determine the degree to which our goals and expectations have been met and try to provide backing for the reasoning behind our conclusions. The conclusion as a whole must be written with scientific validity and is therefore carefully weighed against the principles that we have used methodically throughout the whole project.

2.6 EPISTEMOLOGY

In the following pages we describe our philosophy of science and how we apply this in practice. In order to be able to study the connections between game design and business models and claim methodological validity, we must first explain our epistemic conception of the field of video games, i.e. our approach to the subject of the thesis.
This establishes grounds for a fundamental understanding of our collective perspective on video games and helps us distinguish between the lines of scientific method in relation to our selves as individual subjects. That being said, it is important to point out that we do not omit, or completely disregard our own subjectivities throughout the research. We believe that the preclusion of our own subjectivity for the research of this thesis is not only unfeasible but not useful.

Our subjectivity has an essential influence on our understanding of video games and on our empirical work; we are aware that this may result in misguided predispositions and consequently results of a given study. However, the critical buffer of awareness of subjectivity provides a better basis for the discernment of when our subjectivity is positively contributive and when it is an unfavorable factor. Immanuel Kant stated that there is no such thing as objective reality; we always perceive reality through our own cognitive constructed framework (Kant, 2008, p.199). We explain our epistemic approach through Ingeman Arbnor and Björn Bjerke's methodological System View and define what this approach means for the research and its results. Lastly, this section functions as an explanation of a slightly more general group perspective on video games and related approach, the latter being further explicated in the methodology chapter.

2.6.1 THE SYSTEMS VIEW

In the book Methodology for Creating Business Knowledge, Ingeman Arbnor and Björn Bjerke present three different methodological approaches to create knowledge. Each view has its own empiricism and perspective of how to create knowledge. (Arbnor & Bjerke, 2009, p. 48) Two views that the thesis does not employ are the Analytical View and the Actors View. However, since they are not part of the methodological approach of this thesis, we shall not go into detail with these categories. Nonetheless, a brief difference between the three views can be seen in Figure 9 on page 21. Instead the thesis focuses on explaining The Systems View and its significance for the thesis.

The primary goal of the systems view is to explain or to understand the facts of the perceived reality. (Arbnor & Bjerke, 2009, p. 50) One of the key parts to the systems view, according to Arbnor and Bjerke, is that no parts can be seen in isolation from the other parts. The parts of a specific item of research are interconnected and have to be seen as a system of parts.

This way of perceiving reality is an ideal match for the purpose of this thesis; a thesis where understanding games' monetization methods and explaining said methods are of the highest importance. We cannot simply look at what monetization methods we identify within the games, but have to look at how the monetization methods are implemented in the games through game features and how monetization fits into the game as a whole. The goal is to answer why the monetization methods are included and why they influence the game in a certain way.
One of the key assumptions of the systems view is that the whole differs from the sum of its parts. This can be explained through an illustration as seen in Figure 10 on page 21.

The example indicates how different components, connected to the whole of a certain reality, shape another result or explanation of reality than the components, in isolation, might suggest. In video games, there are easily a multitude of possible components connected to the reality of the game

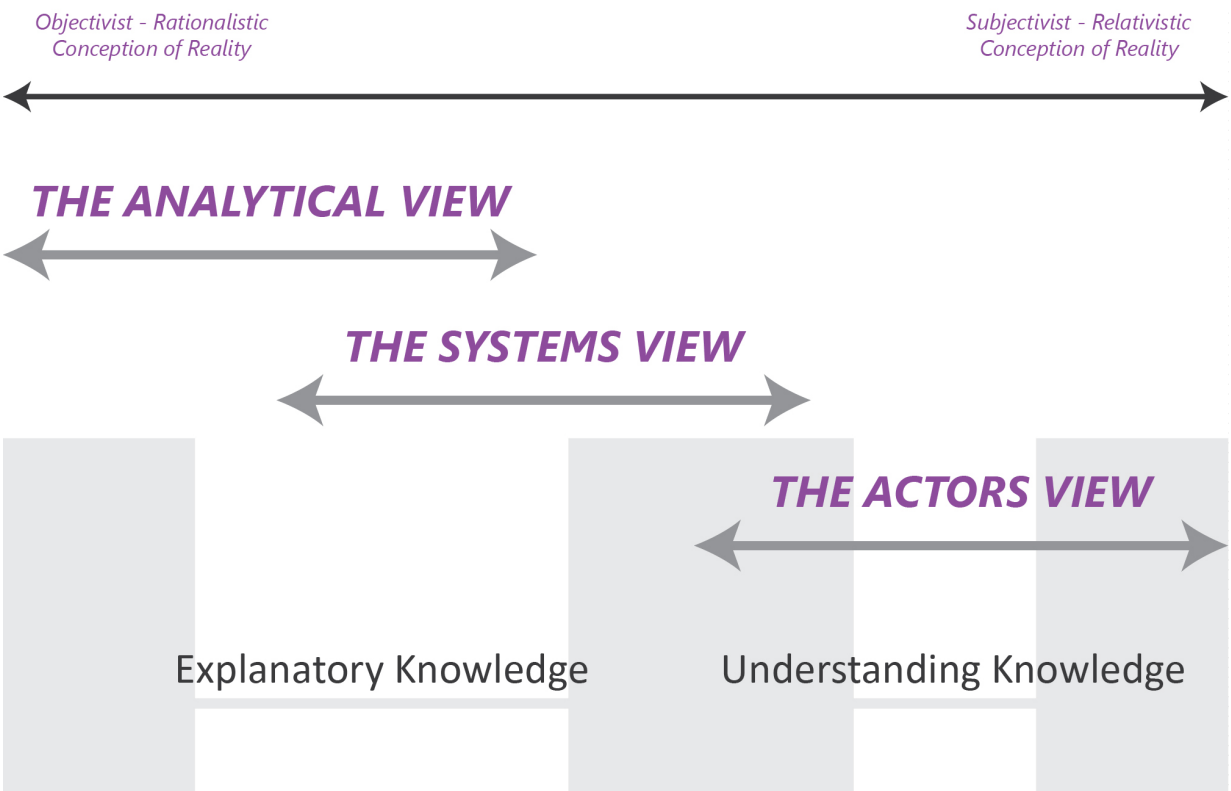


Figure 9: ***The focus of the systems view is to both explain and understand a certain reality through both an objectivistic and subjectivistic conception of reality.***

one is exploring. Monetization methods are often connected to microtransaction features, several other game features, the games' genre and platform, as well as the player-base of the game and the market of the game.

In order to explain why the reality of the specific game is successful or not, and whether the monetization methods of the game is a strength or weakness, we have to look at all the connected components of the game that influence this reality. To summarize: in order to gain knowledge that reflects the reality of a given game, we have to look at each component connected to the specific knowledge that we aim to obtain from the reality of the game in question, and furthermore consider the reality of the game's context.

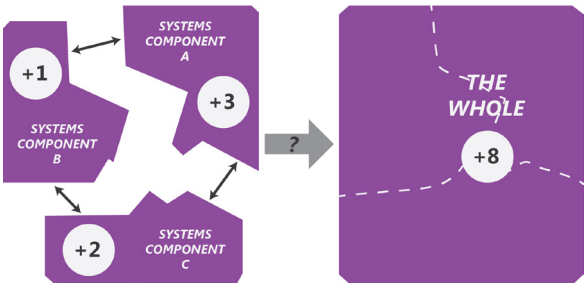


Figure 10: ***The whole differs from the sum of its parts is one of the primary assumptions of the systems view.***

The systems view originates from general system theory, which is an interdisciplinary, multi-perspectival domain that draws on concepts from the fields of computer science, business, economics and sociology (Arbnor & Bjerke, 2009, p. 102). The systems view affiliates itself with the traditional academic perspectives of Structuralism and Holism that, in short, results in the two main assumptions of the systems view: Structuralism is the study of relationships between elements, which when identified, can be usefully explored to gain knowledge, and Holism assumes that knowledge of reality is acquired by looking at the whole of all the acquainted parts, which differs from looking at the sum of parts.

2.6.2 CRITICISM OF THE SYSTEMS VIEW

One of our main concerns of the systems view is that, through its holistic view, it always aims to identify new components to contribute to the whole that might create a new knowledge of reality. More accurately, it might lead the study to a point where differentiation between factors that can be defined as components to the whole and factors that cannot proves difficult: this occurs because of the amount of content that the systems view tries to include. Furthermore, the amount of components might result in the study containing so many contradictory conceptions that it becomes impossible to distill a valid answer to the research question at hand and confirm or demerit its connected hypotheses.

Nonetheless, we argue that the complexity of the systems view is a necessity in order to ascertain proper knowledge of the reality in which our area of concern exists. By simplifying the study, we would impair the validity of the study. Rather than arriving at indefensible conclusions, we admit to doubts regarding peripherals, and sometimes complexities, of making a general case of the interrelated components of our research. One of the ways the study adapts to this decision is to sacrifice generalization in exchange for specificity. We do not wish to generalize on something that is not generalizable according to our findings: specifying elements of study is done instead.

This section has covered the epistemology and ontology behind the study specifically connected to the study's area of concern. The study now presents the methodological approach which is used to obtain the knowledge required to explore the research question at hand and the connected hypotheses.

2.7 THE CASE STUDY AS A RESEARCH STRATEGY

This section describes and reflects upon the chosen research strategy and the associated methods and tools.

2.7.1 A CASE STUDY APPROACH

Based upon our RQ, which we have framed (see 1.3 Work questions), our case consist of two problems: what is game design (A) and what is a games business model (B) and the correlation between the two (A+B). We have chosen a case study approach to research our question in order to provide grounds for a new theory.

Choosing a research method is dependent on the object of interest. According to Yin, three conditions determine which research method is appropriate (Yin, 2009, p. 8):

1. The type of research question posed
2. The extent of control an investigator has over actual behavioral events
3. The degree of focus on contemporary as opposed to historical events

From these three conditions the table in Figure 11 on page 23 was constructed. The table shows how each of the conditions are related to the five major research methods: experiments, surveys, archival analyses, histories, and case studies.

The first condition covers the research question(s), a basic categorization for question types like: who, what, where, how and why questions. According to Yin, posing questions like "how" and "what" leads to either explanatory or exploratory exposition, in either case, a case study method is applicable (Yin, 2009, p. 9). Additionally, the method is readily applied to investigate meaningful characteristics of real-life events, such as organizational and managerial processes (Kohlbacher, 2006, p. 3).

Theoretical: ***"What is the optimal correlation between game design and game business models when the purpose is to create an entertaining player experience with a sustainable business model?"***

Methodic: ***"How are revenue mechanics applied into the design of a game?"***

As described in the in section 1.2, our research

METHOD	1) Form of Research Question	2) Requires Control of Behavioral Events?	3) Focuses on Comtemporary Events?
Experiment	how, why?	yes	yes
Survey	who, what, where, how many, how much?	no	yes
Archival Analysis	who, what, where, how many, how much?	no	yes/no
History	how, why?	no	no
Case Study	how, why?	no	yes

Figure 11: ***Relevant situation for different research methods (Yin, 2009, p. 8)***

question is both theoretical and methodological: its focus is to understand "what" the optimal correlation between game design and game business models is—it is also seeks to answer the question of "how" this is established in a game creation cycle. As this will be answered through e.g. analysis, literature studies and interviews, we as the investigators of the study, will have little to no control of the outcome of the research. Choosing case study as an all-encompassing method, is according to Yin the right solution in such an altering case (Yin, 2009, p. 13).
Because we seek to investigate, the two domains of game design and business models and their causal links, which is done in order to couple the two and achieve the most optimal correlation, the grounds for a case study are indeed sound.

Before we may obtain knowledge about the whole, it is necessary to investigate all the components (Arbnor & Bjerke, 2009, p. 52). Based upon our aforeknown theoretical and practical knowledge we initiate on the basis that there are many components in games important to process in answering our research question. Furthermore, there are many possible sources of evidence (literary sources, interviews, state-of-the-art game analyses) to collect data for our research. This requires that we make use of several methods for the collection of our data and related analyses; the challenge is how we structure a study whereby the results are reliable and valid. As such, choosing a case study approach is the most optimal solution, because the methodology and procedures of case study supports the incorporation of multiple methods and has a strong focus on how to create a reliable and valid study.

2.7.2 WHAT IS A CASE STUDY?

l Case study research, as an approach, has the potential to deal with both simple and complex situations. The case study is often used as a research strategy to study complex social phenomena (Yin, 2009, p. 4). Robert K. Yin defines case study research as an "empirical inquiry" (Yin, 2009, p. 18), where the types of study can be exploratory, explanatory, and descriptive or a combination.
Furthermore, he describes the distinguishing characteristics of the case study as an attempt to examine:

1. A contemporary phenomenon in its real-life context, especially when the boundaries between

phenomenon and context are not clearly evident (Yin, 2009, p. 18).

As such, it is preferable to use case study as a research strategy, if one seeks to obtain an in-depth understanding of a real-life phenomenon, which also encompasses understanding the important contextual conditions that surround this phenomenon (Yin, 2009, p. 18). For instance, a study of the decision making (Baxter & Jack, 2008, p. 545) in game development.
It enables the researcher to answer "how" and "why" orientated questions and to gather data from a multitude of sources and then contextualize and narrate the data to illuminate the case.
The type of design may be either single or multiple case studies. The procedural characteristics of including multiple sources of evidence provides the researcher the ability to search for and identify more consistent patterns of evidence across units (sources of evidence) in a triangulating fashion. Case study does not imply the use of a specific type of evidence and can be conducted as either using quantitative or qualitative evidence. One of the big misconceptions with case study research is that they are solely the result of ethnographies or participant observation (Yin, 1983, p. 59). Furthermore, it does not imply a specific data collection method but comprises an all-encompassing method. As such, it represents a research strategy or set of guiding principles for performing research that can be adapted to a multiple fields of study for different purposes (Yin, 2009, p. 4).
One of the main attributes that sets case study research apart from other approaches is that the data gathering process and analysis, generally, are performed in parallel (Yin, 2011, p. 30). This is done for the purpose of:

1. Managing the collected data, as the amount gathered is often unmanageable if not analyzed as an ongoing process and rendered into a more functional design.
2. Allowing the researcher to be more iterative in the design, preparation and data collection of the study.

The method puts a big requirement on the documentation process because there is a higher risk for over-interpretation of the data to a degree by which it is rendered invalid. Therefore, it is necessary to clarify when and where the analysis has been conducted, creating a clear chain of evidence (Yin, 2009, p. 122). To achieve this, it is essential to be clear about the goal of the project and how it is planned to be executed.

2.8 IMPLEMENTATION OF CASE STUDY

In the following sections, we will explain from which criteria we have created our research design, and elaborate the methods selected as befitting to ensure the validity and reliability of our data collection and thesis product.

2.8.1 COMPONENTS OF RESEARCH DESIGNS

We have settled on the case study as our research strategy. The next step is to consider how to construct our research design. Yin emphasizes the need for a proper research design, as a way of assuring that the data of your empirical research is consistent with the initial research questions (Yin, 2009, p. 24). Furthermore, this ensures that any conclusions drawn in the thesis emerge from the right foundations. The research design functions as both an overview of our research and an executable game plan that forces us to consider key elements before conducting our research and changes along the way.
When constructing the research design, Yin proposes five components that are important to consider (Yin, 2009, p. 27):

1. A study's questions
2. Its propositions
3. Its unit(s) of analysis
4. The logic linking the data to the propositions
5. The criteria for interpreting the findings

Yin presents these components as a way of specifying

what data that needs to be collected and how to handle it afterwards; therefore the following model can be constructed:

RESEARCH DESIGN COMPONENTS	1) Form of Research Question	2) Requires Control of Behavioral Events?
A study's questions	The thesis's main research question, which determines the type of thesis.	• Construct a theoretical and methodical research question, resulting in a explanatory and descriptive case study. • Probe & learn: (8th semester project, DADIU developing games, pilot interviews, articles). • Counselor meetings. • Work questions (parts) • Defined the area of interest. • Defined the limitations of the thesis. • Defined a roadmap of thesis.
Its propositions	Focuses on bringing attention to all the parts that needs to be covered in order to fulfill the research question, leading to the limitations and scope of the thesis.	• Probe & learn: (8th semester project, DADIU developing games, pilot interviews, articles). • Counselor meetings. • Work questions. • Defined the area of interest. • Defined the limitations of the thesis. • Defined a roadmap of thesis.
Its unit(s) of analysis	Defines the "case" of the study.	Correlation between business models and game design: • People from the games industry. • State the of art video games. • Literature studies.
The logic linking the data to the propositions	Methods that will help process the collected data in a logical way that will strengthen the analysis.	• Pattern matching. • Cross-case synthesis.
The criteria for interpreting the findings	Focuses on assuring the interpretation of the data is proper, that we do not omit any important details, if there are rival explanations on our findings.	• Identifying and addressing any rival explanations will contribute to the quality of the interpretations. • Address the rival explanation as we construct our theoretical framework. • Address them in our discussion chapter, to illuminate any perspectives they might bring to our thesis.

Figure 12: ***Components for the thesis research design***

Figure 12 on page 25 gives an overview of how we have utilized Yin's five components in order to construct our research design. Some of the components have already been explained through the thesis, whereas others are expounded in the respective sections where they appear.

2.8.2 VALIDITY AND RELIABILITY OF THE RESEARCH

In this section, we focus on how to establish the quality of our research. As Yin points out:

> ***"...because a research design is supposed to represent a logical set of statements, you also can judge the quality of any given design according to certain logical tests."*** - (Yin, 2009, p. 40)

Yin lists four tests that add to the quality of a case study research shown in Figure 13 on page 26.

From Figure 13 on page 26 we have constructed the model shown in Figure 14 on page 27, based on Yin's terms and theory. The model shows what methods we utilize in order to obtain validity and reliability throughout this thesis.
In the following sections we explain why the selected strategy is important for our project, and why we have chosen to utilize the method.

TESTS	Case Study Tactic	Phase of Research in Which Tactic Occurs
Construct Validity	• Use multiple sources of evidence • Establish chain of evidence • Have key informants review draft case study report	Data collection Data collection Composition
Internal Validity	• Do pattern matching • Do explanation building • Address rival explanations • Use logic models	Data analysis Data analysis Data analysis Data analysis
External Valididy	• Use theory in single-case studies • Use replication logic in multiple-case studies	Research design Research design
Reliability	• Use case study protocol • Develop case study database	Data collection Data collection

Figure 13: ***The four test Yin states will add to the quality of the case study research***

TESTS	Case Study Tactic	Phase of Research in Which Tactic Occurs	Action Taken by Investigator
Construct Validity	Triangulation – use of multiple sources of evidence.	Data collection	Expert Interviews, Literature studies, state of the art game analysis.
	Establish a chain of evidence.	Data collection Data analysis	Thorough research design, that allows the reader to see how the conclusions were derived from the gathered material and how the gathered material relates to the conclusions.
	Have key personnel review our theoretical framework for analysis.	Theoretical framework	Peer reviewed our theoretical framework for analysis.
	Have key personnel review our construction (contribution).	Synthesis	• Rune Vendler, Game Director at Haptico • Jonas De Freitas, Business Performance Director on Candy Crush Saga, King
Internal Validity	Pattern matching cross-case synthesis.	Data analysis	Internal review of results by all the evaluators.
	Address rival explanations.	Data analysis	Addressed in the theory and discussion chapter and throughout the thesis.
External Valididy	Application of replication logic.	Research design	The data gathered were focused on the same criteria, ex – same questions were asked for all interviews. Furthermore, we tested our theory on different cases, ex – selected video games.
Reliability	Have key informants review draft case study.	Data collection	Done through counseling.
	Construction of a case study database.	Data collection	Creation of a shared folder on Dropbox, functions as the thesis group's database. All interviews were recorded and transcribed. Recordings and transcriptions can be located in the included data storage device.

Figure 14: ***Case Study Tactics for Four Design Tests (Yin, 2009, p. 81)***

2.8.2.1 Constructing validity

> ***"Construct validity: identifying correct operational measures for the concepts being studied"*** - (Yin, 2009, p. 40)

Constructing validity is relevant for any salient thesis. Moreover, validity backing helps strengthen our data collection and analysis, and provides a better basis for our framework and synthesis. Yin refers to the three tactics for the construction of validity:

1. Use multiple sources of evidence
2. Establish chain of evidence
3. Have key informants review draft case study report

In order to create valid conclusions and results we have conducted expert interviews, not only to gain a deeper insight to the field of game development, but also to see if the respondents share the same view on different subjects.
When required to approach multiple sources, critical afterthoughts on validity have given us the opportunity to better investigate our area of interest, and make use of perspectives from a variety of people who works in the same industry (Yin, 2009, p. 115). Reflecting critically on contexts and how they effect different perspectives and answers lead to research validity. If one or more opinions converge on a given set of ideas for a given subject, validity of any derived results are arguably provided. This is the material we choose to present throughout the thesis.

The expert interviews play an important part in the creation of our theoretical framework, and the development of our Game Design Model. To supplement the development of our framework and the GDM, we have conducted the critical study of related theory. This has provided us with additional sources to strengthen the validity of the results.

Having a variety of expert interviews and literature that complement each other is important for our data collection and analysis. However, the correct usage of any of our gathered material is equally important to consider.

To further construct validity framework for the thesis, we have thus tried to provide the reader with ample evidence about our interviews and other sources, allowing any information to be examined and authenticated. This means that anyone who reads the thesis may follow a chain of evidence and logic to see how we have reached the presented results (Yin, 2009, p. 122). To make this possible, Yin proposes to correctly and sufficiently use citations, and present the time and place of the conducted interviews (Yin, 2009, p. 123). This kind of documentation is common practice among universities, and is also something we consider a given, but nonetheless important to be aware of.

2.8.2.2 Internal validity

> ***"Internal validity ... seeking to establish a causal relationship, whereby certain conditions are believed to lead to other conditions, as distinguished from spurious relationships"*** - (Yin, 2009, p. 40)

Internal validity is important to the thesis for several reasons. We are dealing with a partially explanatory and exploratory case study that seeks to establish the causal relationship between game design and game business models. To establish this relationship, our analysis attempts to consider every aspect of our data material. This helps prevent inferences, and it assures that we did not dismiss considerations that might have big impact on our findings; having done so might have reduced the validity of the thesis. We have approached this in the analysis phase by matching patterns in the empirical data with our hypotheses (Yin, 2009, p. 43). Conclusions of substance are more complete if/when the hypotheses, on a given subject, match patterns in the gathered material.
In conducting several expert interviews, we have matched the interviews with each other to see where opinions coincide. This has been done through a matrix, which consists of the different topics and the names of each respondent. On this basis we have been able to form a cross-case synthesis that strengthens our

findings. Through our analysis, we have also addressed so-called rival explanations in our empirical data (Yin, 2009, p. 139). Due to the different backgrounds and perspectives of individual respondents, answers might contradict one another. If the contradicting opinions burden key elements in the construction of our theoretical framework, we pursue these perspectives towards confirmation or negation through expanded research.

2.8.2.3 External validity

> ***"The third test deals with the problem of knowing whether a study's findings are generalizable beyond the immediate case study."*** - (Yin, 2009, p. 43)

External validity is correspondingly important for our thesis because we seek to construct frameworks that can be used by anyone who wants to develop games that utilizes microtransactions. Therefore, the framework must be applicable to more than one situation (Yin, 2009, p. 43). To assure this the framework has been tested; it has been brought to analyze various video games. The video games have been selected from the following two criteria: The video games must contain microtransactions, and be of two different genres.

Furthermore, we pose the same questions to all of our respondents, which ensures that our results are not an outcome of questions that have been modified to favor certain answers.

2.8.2.4 Reliability

> ***"The goal of reliability is to minimize the errors and biases in a study."***
> - (Yin, 2009, p. 45)

Reliability is important to obtain for this thesis, as it determines whether the study can be conscientiously repeated. Providing a model adds to the overall quality of the thesis (Yin, 2009, p.45). Therefore, we have made the case study protocol available for the reader, as it will help cover a large level of detail: a description of the surrounding circumstances prior to the data collection and case study project (Yin, 2009, p.45). This grants the reader an overview that can help retrace steps, which are vital if one is to repeat a similar case study. Also, if the study were to be repeated, we have created a shared folder by using the file sharing service Dropbox. The folder is divided into several subsections, covering the different chapters of the thesis, to sections containing our data collection, bibliography etc. All the key elements of the development of our master's thesis are accessible from this folder, were such is required.

2.8.3 FROM CASE STUDY TO NEW THEORY

As the thesis presents several hypotheses through section 1.1 (Area of concern), it is relevant to define the requirements that allow us to construct new theory based upon our selected cases. These requirements must be meet in accordance to the case study method (Yin, 2009, p. 38), as they define the operationalizing frame that we, as the conductors of this study, must adapt to.

This means that we treat our selected cases as experimental structures, where theory is tested on several cases, which allows to us to compare/contrast the empirical results against each other (Yin, 2009, p. 38). In our case study research, the focus is to identify several cases that support the applied theory, as such following the proposition of an analytic generalization. Yin defines analytic generalization as comparing empirical results with previously developed theory (Yin, 2009, p. 38.)

2.9 PREJUDICES AGAINST THE CASE STUDY METHOD

In the following section the most common concerns and misunderstandings about case studies are clarified in order to obtain greater understanding of what case studies implies. Moreover, we, as investigators, believe it is important to be aware of the potential drawbacks

and risks associated with a specificity of method. We strive to gain the necessary knowledge to potentially avoid and/or accommodate such risks.

As investigators we have previous experiences with using case studies as our research strategy during our 8th semester project. Thus a reflection upon the different concerns and misunderstandings is provided, when appropriate.

When looking at the use of case studies, several investigators (Yin, 2009, p. 14) (Flyvbjerg, 2006, p. 219) view it as a less desirable form of inquiry compared to example experiments or surveys, although the case study is a distinctive form of empirical inquiry. Yin (2009, p. 14 - 16) poses four main concerns regarding case studies:

1. Lack of rigor – the case study investigator has been sloppy and has not followed systematic procedures, or has allowed equivocal evidence or biased views to influence the direction of the findings and conclusions.
2. Little basis for scientific generalization.
3. Conducting case study research takes too long, and they result in massive, unreadable documents.
4. Unable to establish causal relationships.

Lack of rigor is one of the biggest concerns of case study research in its ability to threaten aspects of research credibility and quality. On numerous occasions (Yin, 2009, p. 14) the investigators might have been either unable to follow systematic procedures or have allowed equivocal evidence or biased views to affect the results of the research. Yin (2009, p. 14) argues that such lack of rigor is less likely to be present when using other forms of research methods. Published methodological documents that can provide investigators specific procedures to follow are far more available in comparison to other research methods and in contrast to the case study research.

Previous experience in conducting formal projects allows us to recognize this concern about lack of rigor. As Yin (2009, p. 14) states, such experience is generally applicable to all methods of use in studies. As far as this case study proceeded, we experienced nothing extraordinary in regards to the requirements of maintaining/upholding rigor of the study, with the meticulous methodology implemented.

The second concern regards the matter that case study research provides little basis for scientific generalization (Yin, 2009, p. 15). This concern stems from the commonly posted question; “How can you generalize from a single case?”. To answer this, it is important to keep in mind that Yin argues that case studies must not be seen as samples, but rather experiments, where an analytic generalization can be applied. As such, the goal of case study research is to expand and generalize theories (analytic generalization) rather than to enumerate frequencies, as it is when making statistical generalization (Yin, 2009, p. 15). However, as well as with laboratory experiments, a theory is not proved on the behalf of one single experiment, but through numerous iterations, each with a slightly different point of origin. Therefore Yin (2009, p. 15) propose that the humanist investigator may utilize a multiple case study approach in order to accommodate some of these drawbacks.

In our experience, it was only when we started to collect data from multiple cases and conduct cross-case analyses that we were able to generalize theories (analytic generalization). A single case study design would have shortcomings due to the lack of such a multifaceted procedure.

Compared to the primary research questions of the thesis, we believe that the second concern can be summarized in regards to the validity and reliability of the thesis.

The third concern is that case studies are too time consuming and swamp researchers with an overload of collectively unreadable documents. However, this misconception stems from the parallels drawn between case studies and participant-observations or ethnography. These data collection methods requires the conductors to spend a longer period of time in the field of research, whereas a case study is more flexible in the sense that the study in theory can be performed merely through the use of telephone and/or the internet (Yin, 2009, p. 15). This flexibility has been of great importance in our case study, as many of our respondents have a tight schedule, but through email

and video calls, it has been possible to collect our data. Furthermore, it allowed us to widen our geographical reach.
However, this approach might not be valid for every case study, as the topic of research will set the limits of what is possible to achieve.
Furthermore, it can be questioned whether collecting data only through telephone and/or the internet, has provided us with the best possible results. As such, we are aware of the loss of tacit knowledge, which can lead to an increase of misinterpretations, when utilizing these two specific data gathering methods (Nonaka and Von Krogh, 2009, p. 642).

The massive overload of unreadable documents might not be directly linked to the case study method.
However, because of the in-depth nature of researching the data, it is, in our experience, very important to be meticulous in following methodological procedures of documenting a case study. As we experienced throughout our 8th semester project, we would quickly lose track of all the data from our multiple sources, when the documentation procedures were not followed. Throughout this project, we have accommodated these potential issues by creating a pipeline (Annex 8 and 9) from which we have set the documentation procedures for this project : thoroughly documentation version numbers, Dropbox folder structure, chain of evidence, meetings, team document reviews and so forth.

TACIT KNOWLEDGE

Knowledge tied to the senses, tactile experiences, movement skills, intuition, unarticualted mental models, or implicit rules of thumb is "tacit" (Nonaka and Von Krogh, 2009, p. 636).

Figure 15: ***Shows a part of how we documented our expert interviews into matrixes. Each matrix had a categorization topic and with a sub-set of categorizations.***

Figure 16: ***Every respondent were specifically color-coded to be easily recognized and time-stamped.***

The fourth and last concern has emerged with the increased focus on establishing causal relationships, as the case study do not have direct way of addressing these links, due to its non-experimental nature (Yin, 2009, p. 16). To accommodate this issue, Yin proposes to utilize the case study as way of complementing such experiments, as the case study offers a sufficient method in answering "how" and "why" questions.

In the paper, "The Five Misunderstandings About Case-Study", Bent Flyvbjerg also addresses some of the concerns regarding the case study method. The five misunderstandings are not exactly the same, but they are of similar nature in comparison to Yin's four. Flyvberg (Flyvbjerg, 2006, p. 219) poses the following five points as the most common misunderstandings of case research:

1. General, theoretical (context-independent) knowledge is more valuable than concrete, practical (context-dependent) knowledge.
2. One cannot generalize on the basis of an individual case; therefore, the case study cannot contribute to scientific development.
3. The case study is most useful for generating hypotheses; that is, in the first stage of a total research process, whereas other methods are more suitable for hypotheses testing and theory building.
4. The case study contains a bias toward verification, that is, a tendency to confirm the researcher's preconceived notions. It is often difficult to

summarize and develop general propositions and theories on the basis of specific case studies.

5. It is often difficult to summarize and develop general propositions and theories on the basis of specific case studies.

In the first point, Flyvbjerg (Flyvbjerg, 2006, p. 223) argues that if you want to develop your own skills as an investigator to a high level, then concrete, context-dependent experience is highly useful. Flyvbjerg (Flyvbjerg, 2006, p. 223) further establishes the usefulness of case studies by referring to Harvard University which has realized the potential and practical value of conducting both teaching and research in relation to case knowledge as being central to human learning.

Furthermore, Flyvbjerg (Flyvbjerg, 2006, p. 223) explains that there cannot exist predictive theory in social science. In other words, a 'true' theoretical construct is impossible. This is primarily based upon the fact that proofs in social sciences are difficult to come by because of the lack of "hard" theory (Flyvbjerg, 2006, p. 224). As mentioned, case study research is well suited to produce context-dependent knowledge. Therefore, Flyvbjerg (Flyvbjerg, 2006, p. 224) revises the first misunderstanding as follows:

> ***"Predictive theories and universals cannot be found in the study of human affairs. Concrete, context-dependent knowledge is, therefore, more valuable than the vain search for predictive theories and universals."***

Like with Yin's (Yin, 2009, p. 15) second concern, Flyvbjerg (Flyvbjerg, 2006, p. 224) also addresses the issue that one cannot generalize on the base of a single case, in his second point. Both describe how it is possible to gain valuable knowledge and generalize from a single case. Because of its in-depth nature, case study research can be used to perform the generalization test, 'falsification'. Falsification is a way of testing the validity of scientific propositions, which in its essence means that if one observation does not agree or shows an opposite result when compared to the rest of the observations, the proposition must be revised or rejected. Flyvbjerg addresses this method as way of identifying "black swans", in relation to the example stated by Karl Popper; "all swans are white" (Popper, 2002, p. 82).

> ***"What appears to be "white" often turns out on closer examination to be "black""***
> - (Flyvbjerg, 2006, p. 228).

As previously mentioned the purpose of the case study research is not to focus on frequencies and thereby generalize about populations, but to make theoretical propositions (Yin, 2009, p. 15). Furthermore, in regards to the relationship between large samples and case studies, W. I. B. Beveridge has been quoted as saying (Flyvbjerg, 2006, p. 236):

> ***"More discoveries have arisen from intense observation than from statistics applied to large groups"***

In regards to the above quote, Flyvbjerg (Flyvbjerg, 2006, p. 226) notes that this does not necessarily mean that the case study method should be selected for handling larger sample studies, or these studies are without value.

Flyvbjerg (Flyvbjerg, 2006, p. 226) raises another remark that concerns formal generalization, being viewed as a primary source for scientific progress, which in his opinion is wrong. Flyvbjerg points to the researcher's ability to carry out scientific work, as an important factor for obtaining knowledge. Generalization is just one way doing this, and just because some knowledge cannot be generalized, it does not mean it cannot contribute to the overall knowledge accumulation of the research study.

In his third point, Flyvbjerg points to another criticized aspect of the case study, which claims that case studies are better for reviewing hypotheses than creating them. However, this misunderstanding derives from the previously discussed misunderstanding that one is not able to generalize on the basis of single cases (Flyvbjerg, 2006, p. 227).

Flyvbjerg's fourth point is concerned about how certain method contains certain bias towards the verification of the preconceived notions that a subjective investigator has. However, Flyvbjerg presents this bias phenomenon as a fundamentally human characteristic, and therefore argues that it is not particularly related to case study research. Though the case study research allows investigators to be more subjective when processing data, this is a general danger for other research methods as well (Flyvbjerg, 2006, p. 234). However, because the case study allows more subjectivity, it has been conceived as a less rigorous.
Flyvbjerg (Flyvbjerg, 2006, p. 235) points out that many researchers have shown that the critique is dismissible, and the case study can contain equally as much rigor as other methods.

The fifth misconception of case studies is that they are, in general, difficult to summarize, which is considered a drawback, when comparing it to other research methods. This is more specifically aimed towards the process of a case and not the outcome (Flyvbjerg, 2006, p. 241). When a case study increases in difficulty, and therefore it incapability to be summarized, it is often due the nature of the subject of research, and less particularly related to the case study as a research method (Flyvbjerg, 2006, p. 241). Flyvbjerg (Flyvbjerg, 2006, p. 241) claims that in most cases, it is not desirable to summarize and generalize a case study, as he believes that they should be read as narratives in their entirety.

The focus of the four concerns (Yin, 2009, p. 14) and the five misunderstandings (Flyvbjerg, 2006, p. 249) of case study research can be summed up as the ability to generalize, aspects of reliability, validity and usability. This study remains aware about the main concerns and possible pitfalls of conducting case study. Therefore, in relation to this thesis and its use of the case study approach, the main concern is how we—as the researchers—intend to make the study valid and reliable.

2.10 SUMMARY

The above presented methodological approach will serve as the foundation for how we intend to gather, process, and utilize our empirical data. Through this chapter, we have presented the following:

- What work questions guiding the thesis, and purpose as well as scope and limitations.
- The process of how we intend to reach our research objectives and the different phases that constitutes this process: The overall process is iterative throughout the master's thesis in the following seven phases: Probe and Learn, Plan, Theoretical Framework, Data Collection, Analysis, Synthesis, Discussion and Conclusion.
- The scientific philosophy we intend to apply in order to create knowledge. System view: The whole differs from the sum of its parts, is one of the primary assumptions of the systems view.
- The selected research method and strategy we have utilized in order to answer our research question in the best possible manner: Case study research as our research strategy.
- How to assure the quality of our research: Multiple sources of evidence, four evaluators, review and revise, cross-case tabulation and peer-review.
- How to create new theory based on a case study research: It is important to create a theoretical framework for analysis, on already existing and established theory. These will be used to analyze praxis, in order to create new theory.
- Critique of the case study method: One of the greatest concerns in conducting case study research is that procedures are not followed thoroughly, in regards to validity, reliability and usability.

These points are all vital parts for understanding how we have reached our results, and what measures that have been taken to assure that academic standards have been meet.

Chapter 3

THEORY

The theoretical chapter introduces the underlying foundation of the theoretical frame, which is constructed to explore the domains of game design and business models in video game development.

From the theoretical framing, the thesis presents two frameworks; the Game Design Model and Revenue Mechanics Framework which purpose is to enlighten the correlation between the two domains and have pragmatic value for game developers.

3 THEORY

3.1 WHAT IS A VIDEO GAME?

The purpose of this section is to obtain a perspective that will help strengthening the analysis of our games (units of analysis). This will be done by including Jane McGonigal and Roger Caillois, in order to describe some of the most significant components that can help define what a game is.

3.1.1 DEFINING TRAITS AND TYPES OF PLAY

Jane McGonigal describes that in order for a player to freely participate in a game, four main principles (elements) must be designed: goals, rules, feedback and acceptance. These elements are what defines games, McGonigal claims that e.g. narrative, graphics, interactivity and other elements that are normally associated with video games, are merely an effort to enhance the four defining traits. Figure 17 illustrates the four core elements of a game.

GOALS	The goal of a game can be to kill the monkey that keeps throwing barrels at you and save the princess (Donkey Kong and Mario type of goal)
RULES	The rules in said game is, do not get hit by a barrel or you die, jump over them instead.
FEEDBACK	The feedback can be both visually and auditively, to give the player a knowledge of when they are doing it right and when they are doing it wrong
ACCEPTANCE	The acceptance of the above first three elements are required in order for the player to accept the game.

Figure 17: ***The Four traits needed for a video game***

In the following, we will describe the four traits that defines a game.

Figure 18: ***Title screen for the indie game Gone Home, released on PC in 2014.***

Goals of a game are outcomes that players work to achieve, this can be an overall goal in a game or sub goals like side quests in role playing games that keeps the length of the game going, as well as focuses the players attention and is a way of orienting the game (McGonigal, 2010, p. 374 of 7154 EBook). Goals are essential for the making of a game, without a goal there is no sense of purpose for the player. A goal is something that players want to get to, since achievement of the goal creates value for the player (Kampmann, 2013, p. 41).

In the science of video games, one tends to focus on rules of the game, rules are what makes games unique, it is how these rules are systematized that makes for an interesting and meaningful play (Zimmermann, Salen, 2004, p. 33). Without rules games would cease to be games, and become play rather than a game. Rules are what places limitation for how the player is to achieve the goal of the game, they regulate the flow of how the game is to be played.

However, Caillois states that the laws of ordinary life in society is, when playing a game, replaced by a fixed sense of place and time. In addition, strive under the guiding rules (Caillois, 1961, p. 9) that are

AGON	ALEA	MIMICRY	ILINX
Games of competition	Games of chance	Games of roleplaying	Games of perception
VIDEO GAME EXSAMPLE:	**VIDEO GAME EXSAMPLE:**	**VIDEO GAME EXSAMPLE:**	**VIDEO GAME EXSAMPLE:**
Dota 2	*Hearthstone*	*Neverwinter Nights*	*Kinect Sports*

Figure 19: ***The four types of play by Roger Caillois, and with examples from video games***

unexceptional under the game that is played, and must be accepted by players, in order to play the game correctly. Yet, many modern video games, like Gone Home , do not imply a strict set of rules like a game of FIFA soccer does. Gone Home is very much a game about exploration and is a defining concept of letting players improvise with play, yet still set within a play space and time.

> ***"Many games do not imply a role. No fixed or rigid rules exist...and the chief attraction lies within playing a role, of acting as if one were someone or something else, a machine for example"***
> - (Caillois, 1961, p. 8)

It is only the rules themselves that surround the character (or machine) that a player role-plays as, which create the fictional story of that character or the world of the characters (Caillois, 1961, p. 6). As long as the player accepts the rules of the game, they have the ability to play the game. This can be further backed up by Caillois's statement of what play and rules are;
"Above all, play is parallel, independent activity, opposed to the acts and decisions of ordinary life by special characteristics appropriate to play" (Caillois, 1961, p. 63)

Play is something that players willfully and freely, by their own desire for pleasure participate in, but what are games then? Roger Caillois further explores what a game is by framing four types of play, Caillois made the four definitions of play, and what type of game can become of said play, under the pretense of the amount of games that exist (Caillois, 1961, p. 12).

The four classifications of games will help in order to categorize video games, not just by genre, but also what type of game is played and to select the thesis units of analysis. This will give us a better understanding of how the game and what the type of audience the games are aiming for.

Looking at a classic approach to defining games, Eric Zimmermann and Katie Salen, argues that only by playing something can a game instantiate, and only by accepting, the rules of a game can play instantiate (Zimmerman, Salen, 2004, p. 83).

Jane McGonigal states that a specific rule set designed by the game designer should foster and allow the player to think creatively and strategically in the way they play. Of course, it is dependent on what type of play the game should be designed for, that ultimately creates rules that make most sense. Say that a game is meant to be a shooter where players compete against each other, like Counter-Strike (Agon), it would not make sense that the rules of the game, does not allow players to shoot each other.

Jane McGonigal defines feedback as a system or multiple systems that tells the player how close they are to achieving a goal (McGonigal, 2010, p. 374 of 7154 EBook). A way to know how far players are towards achieving goals, is progress bars that for example show how much experience is needed before the players in game character increases in level. Feedback is crucial in video games, since they serve as a promise for the

Figure 20: ***Battlefield 4, here a player has been promoted and there earned a new rank.***

player that all goals in the game are achievable, not knowing how far or how close the player is towards the goals creates unmotivated players. It should be noted that feedback is many things in games, what McGonigal describes is the most essential feedback given to the player to feel a sense of progression. Feedback can be communicated through many channels, for instance audio (Collins, 2013, p. 44). In a game of Battlefield 4, audio feedback can illustrate the impact of bullets hitting the player, or the audio that plays when players reach a higher ranking, as visualized in Figure 20.

The last definition of what is required in order for gameplay to exist within the game is player acceptance. If a game is not voluntary, or if the participant is forced to undertake a certain action during the activity, the act of playing would cease to exist, and the mystery of play would stop. The participant has to devote himself or herself to the act of playing a game voluntarily (Caillois, 1961, p. 6), it has to be for his or her own pleasure that they seek from playing the game. A participant must also be able to say, "Stop" when the game he or she is playing, for them, ceases to be a free voluntary and pleasure seeking activity. It should be noted that some video games, requires that the player think ethically about their decisions (Sicart, 2013, p. 7), yet this also requires a game design that treats the player as a moral being. In games like The Walking Dead, players are constantly met with decisions that are not pleasurable, like choosing which character should survive.

Roger Caillois goes further and defines play as a space wherein the play space is isolated from all other elemental factors (Caillois, 1961, p. 6)

> ***"In effect, play is essentially a separate occupation, carefully isolated from the rest of life, and is engaged in with precise limits of time and place"***
> - (Caillois, 1961, p. 6)

Think of a game of soccer, the rules of said game is relatively simple; two teams must compete against each other to score the biggest amount of points in the opposing team's goal. Yet, what happens when the

Figure 21: ***Games like FIFA are mediations of real life soccer and feature the same set of rules for which the player plays***

ball is kicked out of the playfield, the large grassy area, does the game continue from where the ball is now or does it stop? No, if the ball is out of bounds the game stops and there might be appointed penalties in some cases.

In order for play to exist, a set of agreed upon boundaries must be established (Caillois, 1961, p. 6), before the free act of play can begin. Therefore, if the ball is out of the agreed boundaries, it must be taken back to the playfield and the act of playing the game of soccer can begin once more.
Players need to have a knowingness (McGonigal, 2010, p. 374 of 7154 EBook) that establishes common ground and that the hard fun is a safe activity.

3.1.2 SUMMARY

The section attempted to give the reader an overview of what a game is, by introducing Jane McGonigals four defining traits. Furthermore, a game can be either one or a combination of Roger Caillois' four types of play. As such, our definition of a game is as follows: "A game must contain all of the four defining traits; goals, rules, feedback and acceptance, and either one or more of the four types play; Agon, Alea, Mimicry or Ilinx." The next section will give the reader an understanding and definition of what entertaining a video games is, as well as how video games engages players to continue playing.

3.2 WHAT IS AN ENTERTAINING GAME?

Through this section, we seek to uncover the most important parts that constitutes an entertaining video game. As described in our work question (section 2.1), this will mainly be done through the literature of Raph Koster. We believe Koster's use of the term 'fun' suits the purpose of describing and defining what we believe an entertaining video game is. Furthermore, we will include theory regarding the terms 'immersion' and 'player engagement', in order to cover additional aspects that are important when discussing how the game design facilitates entertainment.

3.2.1 FUN

Games offer safe boundaries, in which we can improve our skills, without suffering any real-life consequences, which consists with the previously mentioned theory regarding what games are. Danish Ludoologish, Jesper Juul, points out the importance of losing in video games, as it helps us reflect on our behavior and makes us consider new tactics and strategies for succeeding in the game.

Failing in video games is important, as it delivers a motivation to the player, to improve upon the skills needed for being successful in a game (Juul, 2013, p. 9). Furthermore, it assures that the player does not get bored of the game, however, too much failing can also make the player abandon the game.

Raph Koster, a veteran game designer in creative writing from the University of Alabama, is recognized throughout the world as one the top thinkers on game design, and has been awarded the title of Online Game Legend at the Game Developers Conference Online.

Like Juul, Koster also addresses the issue of failing in video games, when discussing the fun in games. Koster explains that games that are too hard bores him, and quits them because they make him feel inadequate. Likewise, games that are too easy also bores him, so he quits them as well. In relation to this, we will briefly mention the well-known theory of Flow, by Mihaly Csikszentmihalyi. The theory addresses the requirements for achieving the optimal experience, when engaging in different activities. Flow is achieved through challenges that are neither too hard nor too easy. However, Koster clearly states that flow is not fun, as he argues that it is possible to achieve flow in things that are not fun. Furthermore, Koster explains that flow is more likely to happen when exercising mastery as opposed to having 'fun' in games.
To understand how Koster perceives 'fun', it is essential to understand how he views games.

First of all, Koster acknowledges the academic definitions on what games are, as he refers to Roger Callois, Johan Huizinga and Jesper Juul, but points to

COG•NI•TION

Formal process of knowing, understanding and learning something

their diversity and how they fail to explain what fun is. Koster refers to games as patterns that are easily consumed for the brain, and includes cognitive theory to explain this. As newborns, the world is full of new impressions that our brain wants to gather and process. When we grow up, our brain gathers these impressions faster and faster, leaving out the unnecessary information. This is a term Koster refers to as "chunking". Chunking is something we do all the time, when our brain has to process information. The brain chunks up parts of the information, allowing us to digest the information more efficiently. However, chunking information also makes it harder for us to recall details, as it requires a lot more thinking power. Also, when we come across incomprehensible patterns, we will often refer to these patterns as noise, ugly or formless, these patterns are something we resent and they frustrate us. According to Koster, the noise or these patterns we do not understand, is not "broken" patterns but merely patterns that we have not figured out yet, as he states, it is almost impossible to find things that are patternless.
Patterns that seems unpleasant to us at first glance may become pleasant to us when we later start to see a pattern. When patterns seems unpleasant to us, it is most of the time caused by our chunked up patterns that has an iconic way of perceiving information, which makes it hard for us to see past that understanding. In this way, the human brain has natural resistance against patterns that deviates from our chunked up patterns.
With this in mind, Koster elaborates further on his perspective on games.

"Games are puzzles to solve, just like everything else we encounter in life. They are on the same order as learning to drive

a car, play the mandolin, or multiply seven times seven. We learn the underlying patterns, grok them fully, and file them away so that they can be rerun as needed. The only real difference between games and reality is that the stakes are lower with games." - (Koster, 2013, p. 34)

As the above citation emphasizes, video games are patterns that we can learn, and maybe utilize in another context. Koster also equates the significance of video games with real life activities, as he further explains that they functions as valuable ways of learning. When we stimulate the brain by learning, we have fun, and video games that fails to do so are boring. In relations to this, Koster points out that if a video game is limited in its design, not providing enough choices or alternative routes, players are likely to abandon the game faster. Video games must offer difficult mathematical problems and variables that make the game less predictable, to facilitate longevity.
In evolutionary terms, learning is necessary for the survival of our species, and therefore we receive rewarding feelings from our brain, whenever we learn or master a task. The same goes for video games.

"In other words, with games, learning is the drug." - (Koster, 2013, p. 40)

However, video games will only remain interesting, as long as the pattern have not yet been fully mastered. Therefore, the fate of games is that they will eventually get boring, as they only have so much to offer. However, it also means that the challenge of the game has to adjust to the player's skill level simultaneous with the progression in the game. Koster therefore defines a good game as:

"One that teaches everything it has to offer before the player stops playing."
- (Koster, 2013, p. 46)

In this sense, Koster equates fun with learning, and defines games as teachers. Games have the ability to learn us something about a given situation or

GROKKING

"It's a profound understanding beyond intuition or empathy (though those are required steps on the way)."
- (Koster, 2013, p. 28)

feeling, and by doing so, they prepare us to face these challenges in real life. Koster elaborates further by stating that he sees fun as the feedback the brain delivers when we are absorbing patterns for learning purposes.

Furthermore, Koster constructs a list of elements that are key to having fun in a game:

- Preparation - Making a series of choices before taking on a given challenge that changes the player's chance of success.
- A sense of space – For example, the map in Dota 2, where the players battle each other.
- A solid core mechanic – For example, moving a piece in chess.
- A range of challenges – Enemy creatures in Diablo 3 (content, that operates within the rules of a game).
- A range of abilities required to solve the encounter – Jumping, moving and fighting in The Legend of Zelda: Skywards Sword.
- Skill required in using the abilities – For example, managing resources (health points and ammo) in Counter-Strike: Global Offensive, when encountering an enemy.

These elements might not be as presented in every game that are 'fun', for instance a game like Gone Home has a large emphasis on exploration. As such, if a game includes the above-mentioned elements, it is not necessarily guaranteed to be fun. However, the elements serves as a basis to a fun game, but many other elements must be considered if the player is to get a fun experience. For instance, the game must also

facilitate the right components in order to address the different player types. Players have different preferences, as presented in Richard Bartles article "Hearts, Clubs, Diamonds, Spades: Players who suit MUDs", where Bartle classifies different players in multiplayer online games. Bartle divides the player types into four main categories: Achievers, Explorers, Socializers and Killers (Bartle, 1996). Each of the player types seeks out different components of a game, in this sense; it is complicated to offer a fun experience solely on Koster's above-mentioned elements.

Furthermore, Koster presents a list of questions that has a more practical orientated focus. The list functions as way for game designers to assess whether a system within a game lacks a fun aspect:

- Do you have to prepare before taking on the challenge?
- Can you prepare in different ways and still succeed?
- Does the environment in which the challenge takes place affect the challenge?
- Are there solid rules defined for the challenge you undertake?
- Can the core mechanic support multiple types of challenges?
- Can the player bring multiple abilities to bear on the challenge?
- At high levels of difficulty, does the player have to bring multiple abilities to bear on the challenge?
- Is there skill involved in using an ability? (If not, is this a fundamental "move" in the game, like moving one checker piece?)
- Are there multiple success states to overcoming the challenge? (In other words, success should not have a single guaranteed result.)
- Do advanced players get no benefit from tackling easy challenges?
- Does failing at the challenge at the very least make you have to try again?

If a game fails to answer yes to any of these questions, Koster claims that the game needs to reassess its systems.

3.2.2 IMMERSION AND PLAYER ENGAGEMENT

We believe Koster provides a reasonable basis to cover the meaning of the word "fun", and that the above listed questions creates a useful framework, to assess fun in games. However, in regards to getting a more in-depth answer, not only to our work question, but also to our main research question, we believe that other aspects must be covered. Thus, we have included theory regarding 'Player engagement' and 'Immersion', as we see both terms as valuable elements, to discuss the use of revenue mechanics in video games.

3.2.2.1 Immersion

In his book, "An Introduction to Game Studies, Games and Culture", Frans Mäyrä presents three types of immersion: sensory, challenge-based and imaginative. The three types of immersion represents the different gameplay experiences players have when playing video games.
Immersion is the feeling of being present in a virtual world, and acting like it is real. Throughout this thesis, we will be utilizing the following citation as our definition of immersion:

> ***"The sensation of being surrounded by a completely other reality... that takes over all of our attention, our whole conceptual apparatus"*** - (Mäyrä & Ermi, 2005, p. 4).

Sensory immersion

Sensory immersion regards the audiovisual experience the player receives when playing a given video game. The sounds within a video game be it environmental or background music, plays an important role in making the player immerse into its universe and overpowering the surrounding inputs from the real world.

Challenge-based immersion

Challenge-based immersion regards the experience a player receives when faced with a challenge that matches up to his abilities. This type of immersion has a lot in common with the previously mentioned flow theory that regards the most optimal experience.

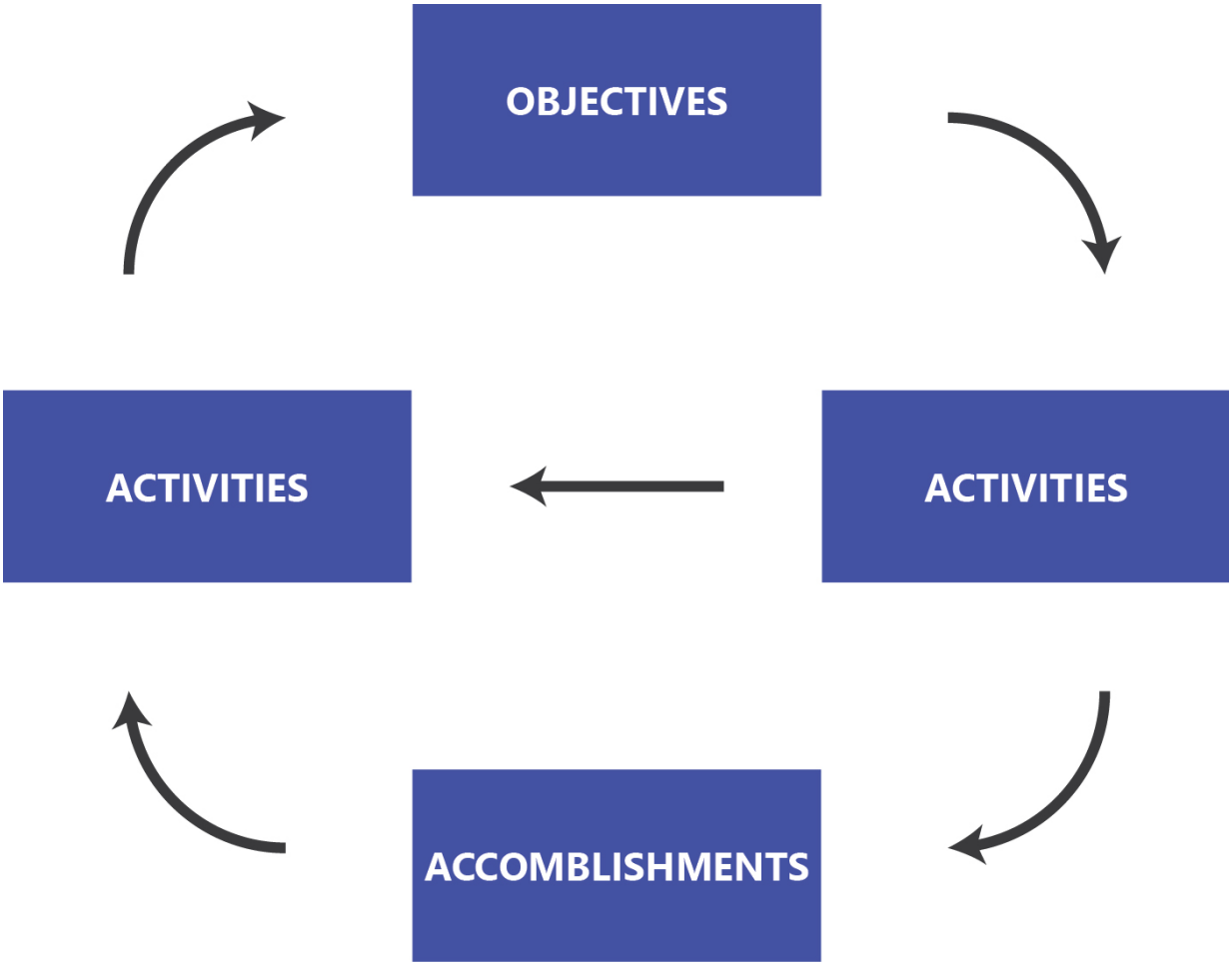


Figure 22: ***The player engagement process (PEP)***

However, Mäyrä argues that it is more appropriate to talk about a challenge-based immersion, as most video games are designed with challenges that keeps deviating from an already successful strategy or skillset, and therefore deliberately chooses to remove the player from flow. As such, challenged-based immersion covers the ongoing challenge the player experiences when faced with challenges that regards either motor- or mental skills.

Imaginative immersion

Imaginative immersion regards the narrative of the world and characters in the video game. This kind of immersion absorbs the player into the stories of a given video game, and makes the player identify and empathise with the different characters, embracing the universe that surrounds the game.

In relation to Mäyrä's three types of immersion, the following section will address the player engagement in video games, and the desire to keep playing them.

3.2.2.2 Player Engagement

The article from Henrik Schoenau-Fog presents a framework that seeks to illustrate the cycle players goes through, when processing in a video game. Schoenau-Fog explains that the player engagement aspect can be related to many different concepts, in relations to playing games, and draws lines to namely flow, fun and immersion. As such, Schoenau-Fog specifies that the focus of the article is to identify the components associated with the desire to continue playing.

The components, presented in Figure 22, consist of four parts: Objective, Activities, Accomplishments and Affect. Through the following section, we will explain each of the components, and their relations to the

model.

Objectives

The cycle consists of four components, and begins with the objectives. These can either be extrinsic or intrinsic. The extrinsic objectives are goals that is put up by the game, for example "rescue the princess". Intrinsic objectives are goal that the player has made up on his own, personal goals, for example, "I want to explore the whole map". (Schoenau-Fog, 2011, p. 7)

Activities

The next component is activities, which relates to how the player wants to achieve the objectives. Schoenau-Fog presents a wide range of activities that can be performed in order to reach the objectives, and states that more activities can be utilized to do so. The activities consists of: solving, sensing, interfacing, exploration, experimentation, creation, destruction, experiencing the story, experiencing the characters and socializing. (Schoenau-Fog, 2011, p. 8)

Accomplishments

The next step in the cycle regards what happens when the activities is accomplished, and whether the player decides to move on or not. Accomplishments can either be achievements, progression or completion. Achievements regards the desire players have to achieve:

- New gear
- Items
- Boosters
- Points
- New abilities

They will keep playing as long as the video game offers new achievements or something to strive for. (Schoenau-Fog, 2011, p. 10).

Progression regards the player wanting to keep playing because there is clear indication of progression in the game. This can be in the form of new and better weapons, harder challenges, points, score, levels, stats, experience points, Xbox Gamerscore and/or Steam achievement points. Furthermore, progression also relates to players who wants to master the video game, improving their skills and abilities to perform even better.

Completion regards players that wants to complete every aspect of a video game, every task, quest, raid, mission, or simply completing a single task e.g. defeating the end boss. The players will return to the video game as long as the game is not a 100% completed.

Affect

The last component, Affect, is the outcome the players feels from either performing an activity or the accomplishment of something, or both. There can be three types of emotions, positive affect, negative affect or absorption. (Schoenau-Fog, 2011, p. 11)

The positive affect covers a wide range of positive emotions that the player experiences when playing, for example:

- Enjoyment
- Fulfillment
- Surprise

The negative affect is the emotion the player feel when getting disengaged to the video game (Schoenau-Fog, 2011, p. 11). This can for example be caused by the video game being too:

- Simple
- Frustrating,
- Dissatisfying

Absorption relates to the concepts of flow, immersion and presence (Schoenau-Fog, 2011, p. 12). Absorption is the emotion that players experience when they become fully immersed in the game. This can for instance be caused by:

- Story
- Characters
- Universe

Depending on what type of affect the player

experiences, the cycle will either start over with new objectives or end here.

As mentioned in the beginning of this section, player engagement is relatable to many different concepts, when addressing the experience of playing games. Player engagement in regards to getting the user to continue playing a given game was Schoenau-Fog's approach. On this basis, we will briefly address the viewpoints of Tim Fields and Brandon Cotton in their book, "Social Game Design, Monetization Methods and Mechanics" regarding 'engagement'. As their approach is slightly different, these points must be assessed with some consideration, however we believe they raise some interesting points that are relevant to discuss for later chapters in this thesis.
Fields and Cotton refers to player engagement, as way of measuring the amount of time the player uses on each game session in regards to social video games (Fields & Cotton, 2012, p. 70). As such, they view engagement as tool for estimating how likely the game is to earn money on its users.

> ***"As a rule of thumb, the longer players remain engaged, the more likely they are to spend money."***
> - (Fields & Cotton, 2012, p. 70)

Furthermore, Cotton and Fields presents the term 'engagement currency', which refers to e.g. gold or coins, which the players receives for completing tasks in the game. As it appears from the name, engagement currency is a way to reward the player for "just playing the game", in order to prolong the player's engagement.
Cotton and Fields also suggests that leaderboards and high score mechanics, as a potent way of keeping players engaged in a game (Fields & Cotton, 2012, p. 133). Leaderboards and high score mechanics will encourage players to compete against other players, or to beat their own high score, and as such creating an engagement loop fueled by the player's desire to improve in skills.

Throughout the sections, starting from what a video game is to player engagement, we have given a theoretical overview of different opinions on the field of video games. Here we have explored what video games are, what defines them, why players continue to come back to them and how to theoretically define a fun and engaging game. The next section will describe the components that go into designing a game.

3.3 GAME DESIGN

The section explores the creation of games from a design perspective by describing the important components in order to create rules and achieve meaningful play for the players. The section introduces the workings of a game and what is essential to create the rules of video games. Furthermore, the section explores the player's interaction with the game and how this interaction creates a repeatable pattern known as the core loop. The goal of the section is to give an understanding of how games are structured, to create a base to identify, how different components of a game influences the rules – and more importantly how those rules emphasizes a certain type of play, which serves as an additional component in the analysis of the chosen games in the thesis' analysis chapter.

3.3.1 CREATING RULES

The game design of a game plays a huge part in what makes a game fun. Essentially, it is through game design that games achieve to make 'play' to 'meaningful play' for the players. It establishes the frame in which the game is made through mechanics and systems that together create the rules of the game. The rules decide how the player should play and interact within the game. The rules of a game are universal and can be considered as limitations as to what the players can and cannot do. In this way, the rules of a video game is no different than the instruction manual to classic board games like 'Chess' and 'Tick tack toe'. The rules dictate (with Chess as an example):

- The game setup (Both the black and the white player starts with 16 pieces on the board in specific positions)

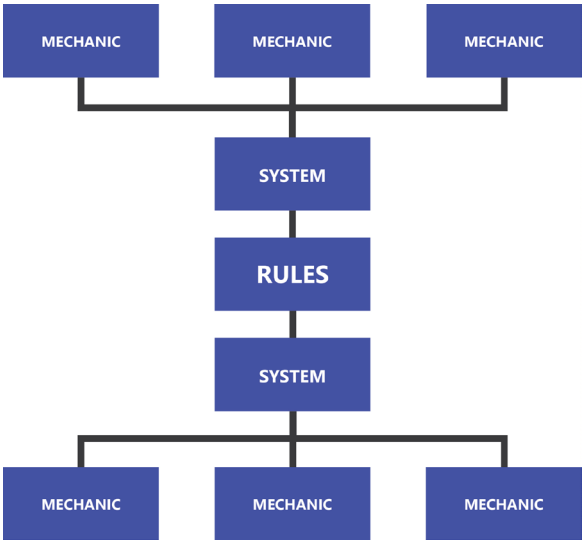


Figure 23: ***Shows the connection between mechanics, systems and rules and how the three game elements works on three different levels.***

- The player's options (the specific movements of every piece on the board and the rule of capturing the opposing player's board pieces. The pawn piece can only move one square horizontally or one square diagonally if it can capture an opponent's piece etc.)
- The win- and lose conditions (make the opposing player checkmate)

And finally:

- The sequence of play (The players takes turns after each other, where one player moves one of his pieces to a legal square, then the opposing player does the same until one of the players are checkmate - which means he cannot move his king to a square where his king is threatened by an opponent's board piece.

Figure 24: ***The white player's King is checkmate and the black player wins the game.***

"... Game design is about designing rules so that the actual strategies used by the players are enjoyable to execute"
- (Juul, 2005, p. 91)

3.3.2 THE THREE LEVELS OF RULES

There are many different rules in games and the rules of two games might be entirely different. Therefore a categorization of rules is necessary. Rules appear on different levels, whether they are the underlying code for a video game to function, the instructions represented to the player or the way the players behave and interact in connection to the game. Rules can be divided into three levels; the constitutive, operational and the implicit rules (Salen & Zimmerman, 2004, p. 130):

The constitutive rules of a game are the mathematical logic below the surface of the game that typically is not represented to the player. In video games the constitutive rules are implemented as the code programmed to make the game work internally. The constitutive rules are also the mechanics and systems within a game as previously described.

The operational rules are the games' rules as presented to the player and what people usually think of, when talking about game rules, such as the rules presented in a rulebook. These rules are related to the player's interaction with the game and what the player perceives when playing the game. (Salen & Zimmerman, 2004, p. 147)

The implicit rules are the unwritten rules concerning a gaming experience and outside the actual action of playing a game that is typically based on cultural or context reasons: A certain behavior when playing a game and interacting with other players on the

platform used for playing the game etc.
In this research project we focus on the operational and the implicit rules of our research objects.

3.3.2.1 Changing the rules

Since the style of play is dependent on the rules of a game, we argue that changing the rules of a game has a big influence on the play style of the game: If we changed the movement of the pawn in Chess so that it instead could move like a knight, the game emphasize a completely new style of play, diminishing the original hierarchy of the board pieces and opening up for even more advanced strategies than the original Chess game (which already has some very advanced tactics). Not only can these rule changes heavily influence the play style, but also which players may find the game enjoyable. In video games, certain rules might be changed through updates (also known as patches) that changes the rules of the game and therefore emphasizes another style of play.

These are some of the most important qualities of the rules as they dictate the very style of play within the game. In video games, these rules are upheld by a multitude of game systems.

3.3.2.2 Game mechanics

Game mechanics are the way for games to respond to the player's actions and advancing the state of the game. In traditional games, such as board games and card games, the game mechanics are often realized by the players themselves: In a game of chess, a pawn has just moved into a square with one of the opposing player's pieces in it; the opposing player's is, according to the games rules, dead and is removed by the players from the game board.

In video games, the mechanics are technically implemented within the code of the game, thus the result of player actions is automatically processed and thereby advancing the game state. Even simple games can consist of many game mechanics and in order to achieve a meaningful gameplay, many of them are connected, creating systems within the game. A

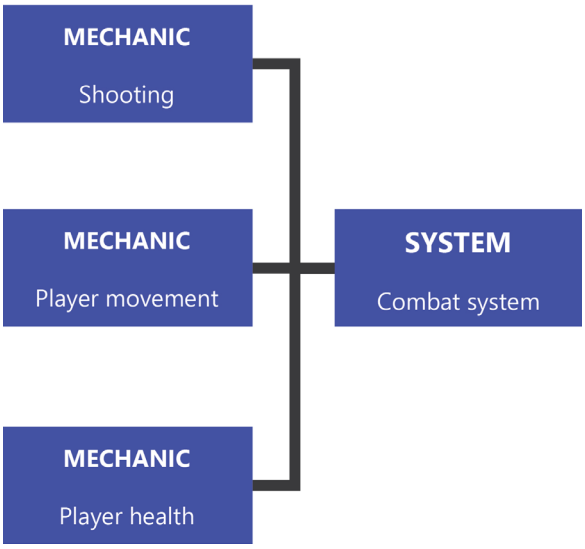


Figure 25: ***Shows how the different mechanics of a combat system is connected***

common system within games is a combat system. A simplified way of describing a combat system is that it contains an 'attack' game mechanic that drains the opponent's resource pool, when the opposing player is hit by the attack.
The rules of the game states that when a player's resource pool is empty, he loses and the player with a remaining resource pool, wins. The players have the ability to block each other's attacks, reducing or negating the attack or to avoid the attack by moving out of the area in which the attack hits. In this simplified example of a combat system, we identify four game mechanics; the attack-, the block, the movement-, and the value-based resource pool mechanic. Through this example it becomes clear, how fast the elements of game design becomes complex and how much depth there is to designing games.

3.3.2.3 Systems in Games

Systems are in many ways what determine the relations between mechanics or other systems within a game. Systems are therefore what creates the structure of a game instead of the game mechanics being isolated elements with different properties. Salen and Zimmerman define systems as "a set of parts that interrelate to form a whole." (Salen & Zimmerman, 2004, p. 152) The interaction between game elements

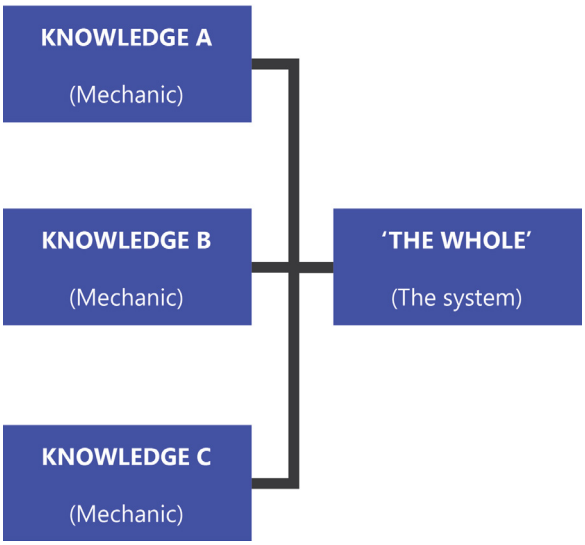


Figure 26: ***In order to create knowledge concerning a system, we need to explore each mechanic connected to the system in order to fully understand the system.***

can be how game objects and player avatars are affected by physics at different points throughout a game, as in the Portal series (Valve), where the player has to takes advantage of in-game gravity in order to progress in the game.

A game system can also be how the game measures how much health a player loses when hit by different projectiles; here the whole combat system is structured through a series of mechanics as mentioned in a previous example in this section. Furthermore, it can be when the game gives the player information about his or her opponent; e.g. "Fog of war" or the players own advancement path; e.g. new abilities, items and area access.

In order to understand the systems of a game, it is important to understand which mechanics are connected to each system; as previously covered in the thesis's methodology chapter of 'the systems view'.

Game systems are therefore an element of games that covers a lot of different aspects that define a game, but can be divided into four categories, that is defined through how complex the systems are:

- Fixed systems: Systems that does not change at any point in the game, and the relation between the related elements.
- Periodic systems: Systems that endlessly repeat the same pattern of interaction between the related elements.
- Chaotic systems: Systems whose relation between elements changes randomly throughout a game and the outcome cannot be predicted.
- Complex systems: Systems that is neither as predictable as periodic systems nor as unpredictable as chaotic systems. Complex systems often consist of dynamic relations between a lot of elements where several factors has an impact on the outcome of the system. - (Salen & Zimmerman, 2004, p. 155)

According to Salen & Zimmerman meaningful play emerges from complex systems and therefore plays a key role to define the game design of the game, which is why most of the systems identified and analyzed later on in the thesis are complex systems.

3.3.5 SEQUENCE OF PLAY – THE THREE CORE LOOPS

We have previously described the sequence of play in chess as a rule of the game. The sequence of play is what makes the game move forward and for the game to progress. When we describe the sequence of play we talk about the game from the start until the game is over. However, in video games we see many games not having a definite ending; the games can continue for an infinite amount of time without the player neither fitting the win- or lose condition of the game. Instead the term core loop is used to describe the player's interactions within a game. Core loop are repeatable patterns within the game, which the player keeps repeating in the majority of the game (Clark, 2014, p. 45).

Core loop is a common term used to describe the gameplay of games, however there is no clarification of the term; some use it in the same sense as sequence of play, others use it to describe the specific actions within the game that keeps repeating. Oscar Clark,

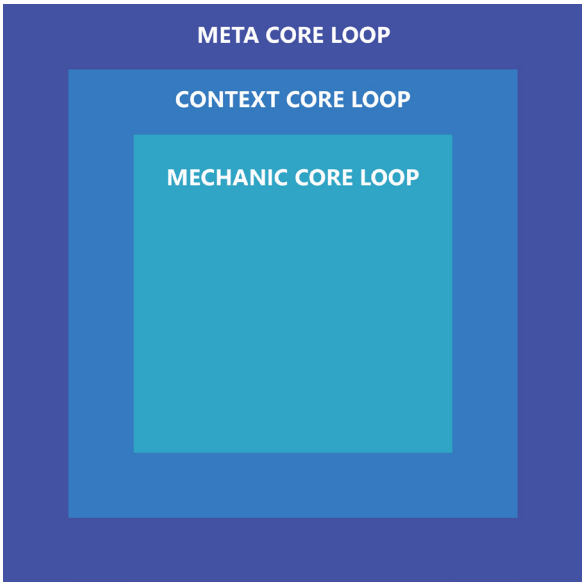


Figure 27: ***The three levels of core loops in relation to one another.***

known game designer and frequent contributor to debates regarding free-to-play games, describes three different types of core loops:

- The mechanical core loops
- The context core loops
- The meta core loops

The thesis uses Clark's definition of the three core loops as a way to differentiate between the sequence of play and the core loops of a game, where the sequence of play consists of multiple core loops.

3.3.5.1 The mechanical core loop

The core mechanics of a game is essential to the core loop; in a first person shooter, the core mechanics are the shooting mechanic and the movement actions of the player. The two core mechanics is the baseline of the mechanical core loop; this is the core loop that the player will repeat the majority of the time; moving the avatar and pointing the scope at opponents, followed up by the shooting mechanic to deal damage to them and repeating this loop until the opponent is defeated.

Another example would be planting crops in farm games like Hayday and Farmville, where the player plants seeds in order to gain the resources needed to progress in the game. Clark uses an analogy for the mechanical core loop as the bones of the game (Clark, 2014, p. 55). The mechanic core loop has to fit the goal of the game and the player playing the game. In connection to the bones, Clark describes the importance of the balance between success and failure as the muscles of a game that has to continuously push and pull forward to keep the game active and the player feeling the game as a dynamic experience (Clark, 2014, p. 47).

Motivational factors

In order for the player to keep repeating these core loops, there needs to be a reason. This reason is more often than not a feeling; the sensation of winning, which is tightly connected to overcoming challenges and progressing in the game. Players will be stimulated to play by the use of rewards. The thesis previously

Figure 28: ***The mechanic core loop of farming games like Hayday and Farmville***

mention how the player can have goals through intrinsic and extrinsic rewards. Intrinsic is when playing is reward enough in itself which is one of the most important goals of a game; the player needs to feel he is being rewarded through just playing the game. Extrinsic rewards are rewards within a game; rewards in the form of items or game mechanics improving the player and makes him feel a sense of progression within the game that he has earned. Clark describes the rewards as the game's nervous system (Clark, 2014, p.50); the way the game gives feedback to the player for repeating the core loops of the game.

3.3.5.2 The context core loop

However, repeating the mechanic core loop and getting rewards from it is rarely enough to keep players involved; they want a larger purpose to repeating these patterns. By being able to see how their actions within the game affect the game world, they can gain a sense of change within the game without the mechanic core loop changing. This context core loop can be through a compelling story, which the player has been involved in or by beating high scores within the game. Clark describes the context core loop as the circulatory system of the game that keeps the game alive by bringing oxygen to the body of the game (Clark, 2014, p. 51). The key element of context core loops is to give player a meaningful reason to repeat the mechanic core loop.

3.3.5.3 The meta core loop

Around the body of the game, Clark describes the psychology of the game; the context outside the game that can influence the player experience. The goal of the meta core loop is to create a deep player engagement, and to evolve the game from being a pastime activity to a valuable experience. The meta core loop itself can be several things; it can be a certain behavior around the game or the context of which the player plays the game. Where does the player play the game? Do players identify themselves with certain aspects of the game, a faction or specific character?

An example is how certain games are known to attract certain player types; within the MOBA -genre, games like Dota 2 and League of Legends are known as games, where the players have a rather harsh tone against each other and appeals to hardcore players. This meta core loop connects the game to the rest of the world and not as an isolated experience, but a part of the player's everyday lives as they come to identify themselves with elements within the game. The meta core loop is tightly connected to the implicit rules of a game; where the players invest more effort into the game than the game itself gives the player.

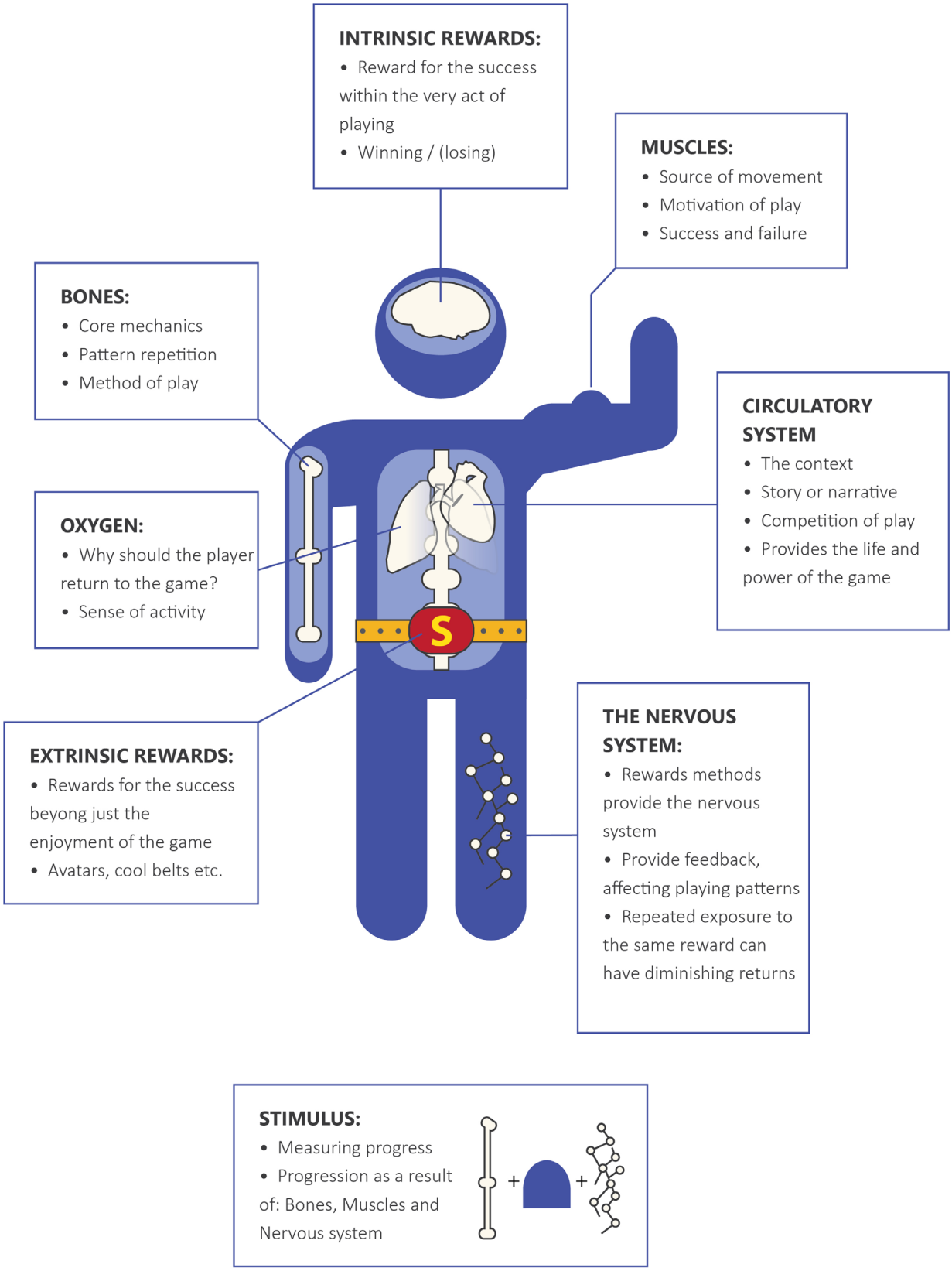
By combining Clark's definitions of the mechanic, context, meta core loop with Salen and Zimmermans definitions of the different rules of games, we have constructed the following model for analysis to connect the relations between the core loops of a game with the different consisting levels within a game:

We have chosen to combine Clark's definitions of the mechanic, context and meta core loops with Salen and Zimmerman's definition of rules in games, because both theoretical sources specifically focus on three levels of game design, which we believe allows them to exist in cohesion.

Figure 29: ***Shows the different core loops of games and their relation to their affiliated game elements (Rules in this case).***

TYPE OF CORE LOOP	AFFILIATED GAME ELEMENTS	EXAMPLE
Mechanic core loop	• The contitutive rules • The operational rules	• A combat system • Player movement actions
Context core loop	• The operational rules	• A narrative • Highscores • A dynamic game world
Meta core loop	• The implicit rules	• Player-generated content • Socializing and creating communities • Behaviour connected to the game

Figure 30: ***The model below have been constructed in order to vizualize Oscar Clark's analogies of the elements that forms a game.***



THE GAME PRODUCTION HANDBOOK
THIRD EDITION
THE GLORIOUS RETURN OF WOLFENSTEIN
EDGE
THE FUTURE OF INTERACTIVE ENTERTAINMENT
EDGE-ONLINE.COM
WATCH_DOGS
REALITY CHECK
EXCLUSIVE: WHY UBISOFT POSTPONED NEXT
BEYOND
GAME DESIGN
Nine Steps Toward Creating Better Videogames
Chris Bateman, Editor
Katie Salen | Eric Zimmerman
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Game Design Fundamentals
NO MAN'S SKY: THE INSIDE STORY
EDGE
THE FUTURE OF INTERACTIVE ENTERTAINMENT
EDGE-ONLINE.COM
ALIEN
SOLITAIRE
THE SCI-FI MASTERPIECE FINALLY GETS THE GAME IT DESERVES
VALVE'S STEAM BOX
#263
REVIEWS
Game Mechanics
Advanced Game
Ernest Adams
Joris Dormans
New Riders

This section has sought to describe the structure of games from a design perspective by exploring the structure of games and what constitutes the rules of games and the patterns that players repeat throughout the game.

Next we will focus on business models in videogames, and explore as a whole what constitutes business models.

3.4 BUSINESS MODELS

In the following section we will unfold the different perspectives on what constitutes a business model and its definition. As explained in our work method, our focus is aimed towards the games business model. However, it is necessary to cover the business model as a whole, in order to define what the parts of the whole consist of (a games business model). We have divided the following section into three parts:

- The first part will cover what we mean when we refer to a business model, and provide the reader with a context, in which we will present the different views of the definition.
- In the second part, we will make a presentation of the BMC (Business Model Canvas), as it is a tool we have utilized throughout this project to analyze and understand our units of analysis. Furthermore, the presentation will explain the individual parts of the BMC, and what constitutes a business model, in relations to our project.
- In the third part, we will present some of the critique the BMC has met, and elaborate on this in relation to the thesis project.

3.4.1 WHAT IS A GAME BUSINESS MODEL?

Though the term 'business model' originally stems from the 1950's, it is not until recent times that the term was fully utilized in relations to e-business (Osterwalder, Pigneur & Tucci, 2005, p. 4). From the evolution of the internet, the companies gained a new platform from which they could access information, coordinate, and communicate with employees more cost-efficient and a lot easier. This provided the companies with new possibilities, in terms of business design choices.

Through the internet, it was made possible to display a wide variety of products to an even bigger customer segment. The technology made it possible for companies to deal with several industry sectors at once. For instance: Software, online, hardware and music (iTunes). The advancement in technology made it a lot more complicated to create a unified term of what a business model consists of. As such, the word business model has become a cliché in today's world, as it has been used to describe everything from how a business makes money, explaining new products, to how a company is performing on the market etc. This has also created divergence in they way the term has been used by academics.

> ***"In the literature, the expression stands for various things, such as parts of a business model (e.g. auction model), types of business models (e.g. direct-to-customer model), concrete real world instances of business models (e.g. the Dell model) or concepts (elements and relationships of a model)."***
> - (Osterwalder et al., 2005, p. 8)

This lack of consistency among authors, is often caused by the fact that they address separate parts of a business model, as "the business model". In the article "Clarifying business models: Origins, present, and future of the concept". Osterwalder et al. unfolds the variety of the different definition of the term, in order to reach a terminology that will clarify the domain of business models:

> ***"A business model is a conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific firm. It is a description of the value a company offers to one or several segments of customers***

and of the architecture of the firm and its network of partners for creating marketing, and delivering this value and relationship capital, to generate profitable and sustainable revenue streams."
- (Osterwalder et al., 2005, p. 17-18)

The above definition will serve as our understanding of the term, whenever we refer to a "business model" throughout the thesis. To gain a deeper insight of the rationale behind the definition by Osterwalder et al., we will expand upon the respective parts, also known as building blocks, of the BMC (Business Model Canvas). The BMC is presented in the book "Business Model Generation", which is the outcome of the previously mentioned article of Osterwalder et al., and research into the field of business.

3.4.2 THE BUSINESS MODEL CANVAS

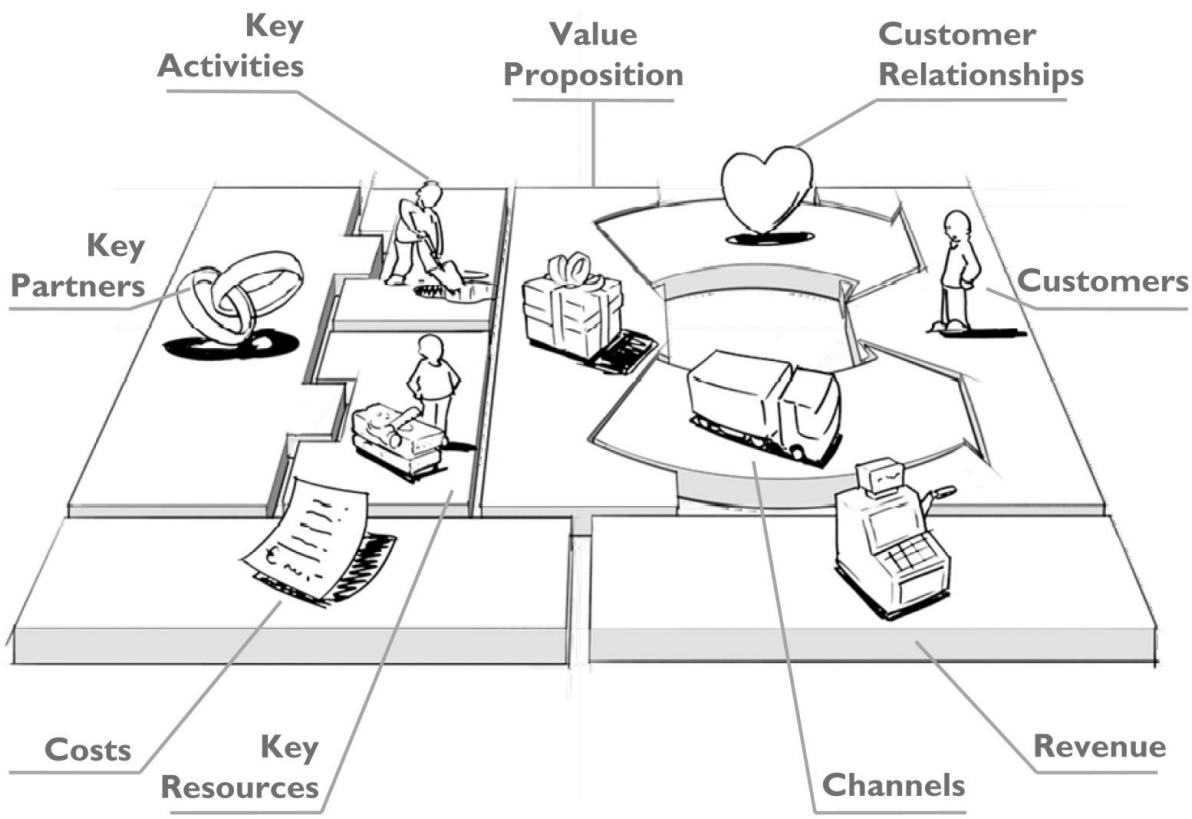
The BMC is developed to provide the reader with a better way of understanding of what a business model is, to understand the causality of the different parts and how to redesign and display the business model of a given company. The BMC also encourages discussions, as it provides an efficient way of evaluating the individual parts of a business model. This makes up for a powerful tool, but more important, it generates a shared language between those who wishes to improve, plan, discuss or describe a business plan.

As it was mentioned earlier in the above section, there has been an inconsistency when addressing the term business model and the parts. The BMC is based upon the research of the most prominent literature on the subject. As a result, Osterwalder and Pigneur has come up with "the nine building blocks", which will be explained in the following section.

3.4.3 THE NINE BUILDING BLOCKS

In the following section, we will explain the nine building blocks and the rationale from which the BMC builds upon. The BMC consists of the following nine

Figure 31: ***The nine building blocks of the BMC as Osterwalder & Pigneur depicts the model.***



building blocks:

6. Customer Segments
7. Value Propositions
8. Channels
9. Customer Relationships
10. Revenue Streams
11. Key Resources
12. Key Activities
13. Key Partnership
14. Cost Structure

These blocks stems from the following four areas of business: customers, offer, infrastructure, and financial viability, and can be divided further into a 'left' and a 'right' section. The division of the BMC is designed through the inspiration of the human brain, as the left part of the brain is concerned with logic, and the right part with emotion.
This is illustrated through the BMC by having the blocks that are concerned with "efficiency" placed at the left part of the BMC, and the blocks concerned with "value" at the right part.

3.4.3.1 Customer Segments:

"The Customer Segments Building Block defines the different groups of people or organizations an enterprise aims to reach and serve"

- (Osterwalder & Pigneur, 2010, p. 20)

The customer segment constitutes, to whom the company is targeting their product(s). The identification of a company's customer segment is important, as it can be used to create a more targeted product, which generates more satisfied customers.
To help identify the different customer segments, Osterwalder & Pigneur have created the following list of perspectives to consider when framing a customer segment:

- Their needs require and justify a distinct offer
- They are reached through different distribution channels
- They require different types of relationships
- They have substantially different profitability
- They are willing to pay for different aspects of the offer

In regards to video games, the customer segment is the types of players the developers are trying to address their game towards. This could e.g. be the competitive player segment in Dota 2, or the social player segment in Hay Day.

When the customer segments are identified it is possible to determine what type of customer segment is at hand. Osterwalder & Pigneur presents the following examples for types of customer segments:

- Mass Market
  a. A large group with similar needs and problems.
- Niche Market
  a. A specific group with specific needs and problems.
- Segmented
  a. This segment have different needs and problems, but cater to the same kind of product.
- Diversified
  a. A group with different needs and problems and caters to unrelated products.
- Multi-sided platforms (or multi-sided markets)
  a. Two or more independent segments.

Defining your customers segment is important since it is the foundation of many other decisions regarding for example channels and value proposition.

3.4.3.2 Value Propositions:

"The Value Propositions Building Block describes the bundle of products and services that create value for a specific Customer Segment"

- (Osterwalder & Pigneur, 2010, p. 22)

This block is concerned with the value that the

Channel Types			Channel Phases				
Own	Direct	*Sales force*	**1. Awareness** How do we raise awareness about our company's products and services?	**2. Evaluation** How do we help customers evaluate our organization's Value Proposition?	**3. Purchase** How do we allow customers to purchase specific products and services?	**4. Delivery** How do we deliver a Value Proposition to customers?	**5. After sales** How do we provide post-purchase customer support?
		Web sales					
	Indirect	*Own stores*					
Partner		*Partner stores*					
		Wholesaler					

Figure 32: ***The five channel phases***

company is delivering to its customer segment. This can be in the form of a product, service or offers. This covers a wide variety of values both qualitative and quantitative, targeted to the specific customer segment. It is basically the "solution" that the company is selling to the customer's "problem". Osterwalder and Pigneur present the following common value propositions:

- Newness
- Performance
- Customization
- "Getting the job done"
- Design
- Brand/status
- Price
- Cost reduction
- Risk reduction
- Accessibility
- Convenience/usability

The value proposition in video games can be a wide range of things, e.g. that a game is free-to-play, or that it keeps providing new content, like the continuously stream of hero skins, announcer packs etc. in Dota 2.

3.4.3.3 Channels:

"The Channels Building Block describes how a company communicates with and reaches its Customer Segments to deliver a Value Proposition"

- (Osterwalder & Pigneur, 2010, p. 26)

The choice of channels depends largely on your customer segments and value proposition. You have to make sure that the channel you choose is in alignment with creation of value in relation to what and where you deliver the product. Osterwalder and Pigneur presents five phases in which the channels must be considered:

It is necessary to have channels that can cover each of the five phases, however it is also possible to have a single channel that can cover all of the five phases.

A good example of a channel that encompasses all of the five channel phases is Steam as mentioned in the introduction. Originally developed to digitally distribute Valve only games, Steam has now become a platform for companies to publish, sell and promote their video games.

3.4.3.4 Customer Relationships:

"The Customer Relationships Building Block describes the types of relationships a company establishes with specific Customer Segments"

- (Osterwalder & Pigneur, 2010, p. 28)

In this block, it is determined which kind of relationship a company wishes to offer their customers. These relationships have been categorized as following by Osterwalder:

- Personal assistance
- Dedicated personal assistance

- Self-service
- Automated services
- Communities
- Co-creation(user input for development, user generated content)

The selection of relationship does not exclude others, as different categories can co-exist.

The customer relationship in video games often occurs in the form of patches and bug fixing, as it assures that the users experience a minimum of errors within the video game. This kind of relationship is expected in almost every game. Furthermore, the customer relationship can also be a vital part for video games that facilitates co-creation, which can increase the overall value of the game. This requires some sort of platform where the company can interact with the users. Another purpose of creating such platforms can be with the intention of gathering user feedback, bug reports or suggestions. These kind of platforms are in many cases the foundation for the communities that arise around a given video game, where players can share experiences, discuss the universe and history of a game, creating both attention and value for the video game.

3.4.3.5 Revenue Streams:

"The Revenue Streams Building Block represents the cash a company generates from each Customer Segment"

- (Osterwalder & Pigneur, 2010, p. 30)

The revenue streams can be one of two different types (Osterwalder & Pigneur, 2010, p. 30):

1. One-time customer payments
2. Recurring revenues resulting from ongoing payments

How you choose to generate revenue will often depend on what the customer is willing to pay for, how they want to pay and how they have been paying before. Some of the different types of generating revenue can be asset sale, subscription fees, advertising etc. As with all of the other blocks, the choice also depends greatly on the choices made regarding revenue mechanics, seen revenue model section for further exploration of subject.

In regards to our thesis, this block is key for viewing the different parts that generates revenue for a video game, and thereby the in-game revenue mechanics. In-game revenue mechanics comes in many different shapes and sizes, and can often be tied to an in-game currency that can be replenished with different real-life payment methods. The in-game currency makes it possible for players to purchase features that for example can give the player a functional advantage or vanity items for personal expression.

3.4.3.6 Key Resources:

"The Key Resources Building Block describes the most important assets required to make a business model work"

- (Osterwalder & Pigneur, 2010, p. 34)

Key resources can cover many aspects of a certain business model, ranging from the resource that is necessary in order to create the value proposition, to the channel that is required in order to reach your customer segment. Key resources can either be:

- Physical
- Intellectual
- Human
- Financial

The resources can be something that the company already has acquired, but also resources that needs to be leased or obtained from key partners.
In regards to video games, the human resources needed to make a business model work could for instance be the development team, to design and produce the video game. The physical resources needed could be computers and servers for both developing and making the video game available for players. Intellectual resources can regard acquiring an IP (Intellectual Property) for your video game, in order

to assure any copyright inflictions. Financial resources could be the need for funding in order to gain enough capital to pay employees and developing the video game, through e.g. publishers.

3.4.3.7 Key Activities:

> ***"The Key Activities Building Block describes the most important things a company must do to make its business model work"***
> - (Osterwalder & Pigneur, 2010, p. 36)

This block is concerned with the key activities that a company must carry out, in order to make the business model function. The key activities, like key resources, can cover many aspects of a business model, as the type of business model the company utilizes determines this. The key activities can deal with:

- Production
- Problem solving
- Platform/network

In terms of video games, a company might have key activities that regards data mining, customer contact or designing new content for a specific product.

3.4.3.8 Key Partnership

> ***"The Key Partnerships Building Block describes the network of suppliers and partners that make the business model work"***
> - (Osterwalder & Pigneur, 2010, p. 38)

For most companies it is unusual to handle all aspects of a business themselves, and therefore a more profitable solution, to form key partnerships. This can either be with the focus of: Optimization and economy of scale, Reduction of risk and uncertainty or Acquisition of particular resources and activities. For instance, it is common for most internet business to have partnerships with credit card companies to handle payment services. This is seen with many video games, for instance in the Candy Crush Saga, it is possible to purchase gold bars with VISA, Master Card, American Express, Discover, JCB, Paypal and through your mobile bill. These partnerships are vital for King, in order to make it convenient for the users to make purchases in their video game.

3.4.3.9 Cost Structure:

> ***"The Cost Structure describes all costs incurred to operate a business model"***
> - (Osterwalder & Pigneur, 2010, p. 40)

The last building block concerns the main costs of running the company. In terms of video games, this could for instance include paying salaries, maintenance or marketing. These are overall things that are related to the key- activities, resources and partnerships.

3.4.4 CRITIQUE OF THE BMC

As one of the purposes of the BMC is to simplify business models, in order to make them comprehensible and easier to work with, there will be a certain loss of detail. It is therefore arguable that the BMC does not give the full picture, and fails to deliver certain aspects of a business model that can have influenced decisions in the development of a video game. For instance, a company's business strategy is a vital part of the process that is required to obtain a desired goal. The business strategy must be planned out carefully, as it determines how the company will act in regards to resources, competition etc.

Furthermore, the BMC does not consider the corporate structure, who is the responsible part (i.e. employee, business partner) and the best way to manage the staff. A company must be able to evaluate its performance in order to react on possible threats or crises, and at the same time be able to assess when things are going in the right direction. This is done through key performance indicators (KPI) and critical success factors (CSF), which allows the company to set up goals necessary for achieving their main goals and at the same time having a way to measure the performance of the company.

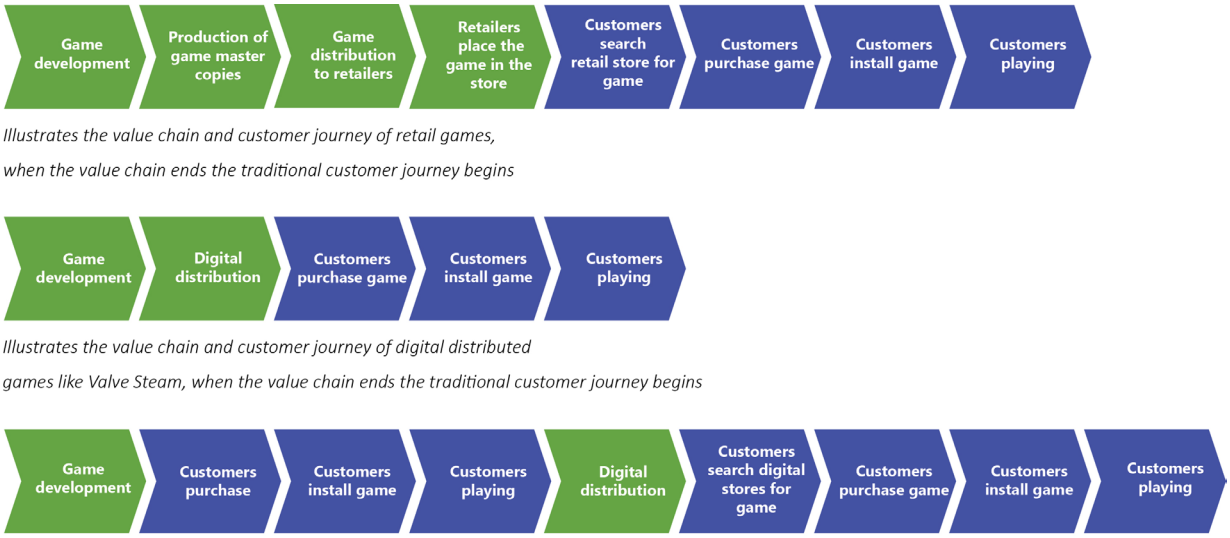
These are all aspects that can be vital when trying to understand a certain company as a whole.
In this way, we acknowledge that there are many things to consider, in order to obtain a holistic understanding of a company and its business model. However, with the focus of this master's thesis in mind that obtaining such understanding of our objects of analysis, is not within the scope of this project.
Furthermore, as we are trying to establish the optimal correlation between the two domains of business models and game design, we are mainly focused on understanding the individual parts of the two and their causality. This focus would not benefit from including e.g. the strategy of the company, as it deals with the strategic planning of reaching long-term goals, which is more a concern of the process that a company considers to undergo. Therefore, we see the BMC as a viable tool for visualizing and understanding the complicated nature of business models in our selected video games. The BMC provides us with a way of viewing the separate parts of a business model and how these parts relates to one and another.

3.5 THE DEVELOPMENT OF GAME BUSINESS MODELS

The purpose of this section is to give a quick overview of how the development of game business models affects the chain of distribution and subsequently the way games are developed.
The cultural changes from the arcade halls, to retail box versions and now digital only games have presented computer game companies with different challenges both in terms of distribution but also in development. As such, this has led to new ways of distributing games, and alternatives for funding them. As a notable case, we find Kickstarter, a crowdfunding platform where backers can support yet-undeveloped projects for future development.
The three models in Figure 33 each illustrate different distribution models for video games:

The first distribution model in Figure 33 illustrates the traditional retail distribution—a model that is very costly and is usually reserved for AAA titles. The second in the middle shows distribution through digital only services, drastically shortening and cheapening

Figure 33: ***The chains of distribution***



distribution since there is no physical retail supplier wedged between game developers and the customers. The third displays crowdfunding distribution, a process whereby funders get early access that allows them to test and play the game before it is released to the general public. This is also viable way for the developers to receive feedback, and accommodate user suggestions and wishes. This model is quickly becoming the primary business and development model for independent developers. Thomas Lund, CEO of Full Control is currently developing a game using the Kickstarter platform, where they have reached their 350,000-dollar goal:

> ***"... It [kickstarter] is in parts a business decision because it is a business model about sale, but it is also a way to kickstart the project...early access would give us longer time to develop [Jagged Alliance Flashback] and thereby make for a better game when we eventually launch it on steam"***
> - Thomas Lund, CEO Full Control (Lund, 2014, Annex 2)

Digital only distribution led to many new titles, from independent developers, which gained notable success both in the form of reviews and financial success. Being independent has become a much more interesting opportunity for developers because it allows them to work on their own more personal games. Games like Bastion and Limbo are prime examples of games that not only merited high acclaim from gamers and game journalists, but also achieved commercial success beyond what people originally anticipated.

3.6 WHAT IS A GAME REVENUE MODEL AND ITS REVENUE MECHANICS?

As section, 3.4 reviewed what constitutes the whole of a business model, this section will explore the deeper levels of what constitutes a Game Revenue Model and its revenue mechanics. The monetization strategies and the ways of which this can be accomplished are numerous, and therefore the purpose of this section is to describe the different ways to monetize users. Furthermore, the section argues for theoretical overlaps in relation to what constitutes a game revenue model and its revenue mechanics and combine them into a framework for analysis.
The section is divided into four parts:

1. First we will describe what we define as a revenue model and go into detail with the common revenue models within the gaming industry in order to gain a better understanding of how the models differs.
2. In the second part, we will define what we believe to be the revenue mechanics of a revenue model and delve into the most common revenue mechanics today with an emphasis on in-game microtransaction mechanics.
3. In the third part, our revenue and mechanic framework for analysis will be described.
4. The last part will cover our a critique of this monetization in games.

3.6.1 WHAT CONSTITUTES A GAME REVENUE MODEL?

Before describing and discussing what constitutes a game revenue model, it is necessary to describe a broad definition of what we mean with the term 'monetization' in relation to this thesis.
Tim Fields and Brandon Cotton, former game designers and business developers at Microsoft and Ubisoft (Fields & Cotton, 2012), have contributed on the topic of monetization in relation to video games. Fields and Cotton provide the following definition, which is used in this thesis as our understanding of such:

> ***"At its heart, we´re looking at games as a business that is designed to provide entertainment to customers in exchange for revenue"***
> - (Fields & Cotton, 2012, p. 21)

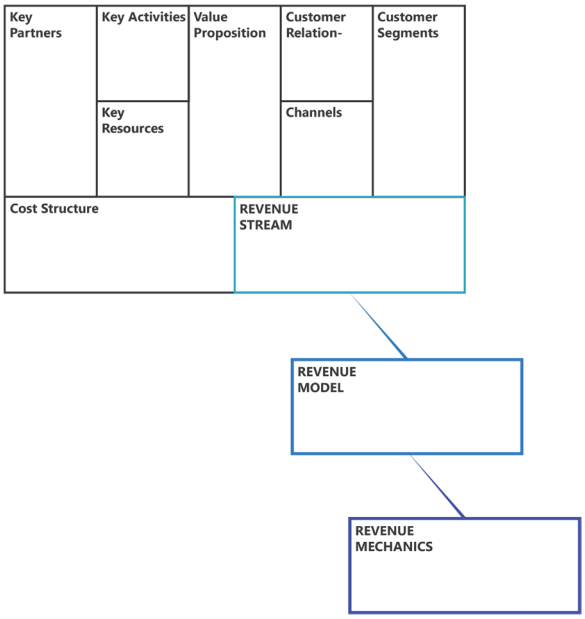


Figure 34: ***Illustrates how the revenue model and its connected revenue mechanics are a smaller part of the whole business model***

From a business perspective, this describes the core relationship between the business aspect and the value propositions of a video game. It gives us a very pragmatic way of viewing that a video game in its essence is designed to provide entertainment in order for the business to be sustainable. As such the term monetization in relation to video games is, at its core, the method, which the product intend or generate revenue (Fields & Cotton, 2012, p. 21). Fields and Cotton describes four major types of monetization in video games (Fields & Cotton, 2012, p. 21):

1. Retail purchases
2. In-game microtransactions
3. Digital downloads
4. Subscription models

Heather Maxwell Chandler uses the revenue model to define the highest level of how a game intend to generate revenue (Chandler, 2014, p. 136).

> ***"The revenue model refers to how your game is going to make money, and ultimately a profit"***
> - Heather Maxwell Chandler (Chandler, 2014, p. 136)

Chandler gives the premium and the freemium model as examples of a revenue model (Chandler, 2014, p. 136).

Fields and Cotton describes the premium, subscription and freemium model with the term "monetization strategy" (Fields & Cotton, 2012, p. 151). The wording and what Field and Cotton mean when using the term' monetization strategy' shares strong similarities to Chandlers definition of a revenue model.

Based upon these definitions by Chandler and Tim & Fields we define a game revenue model as the element that defines how a given video game intends or generate its revenue.

In other words, the elements of which we believe the game revenue models contains are the revenue model itself and its connected revenue mechanics.

This is because we see the revenue model as a small part of the whole business model.

But where the business model operates with expressing and outlining the business logic on main areas like product, customer interface, infrastructure management and the financial aspect of the entire business (Osterwalder et.al., 2005). We see a game revenue model as only being focused upon the elements of the revenue model that define what revenue mechanics are present or not present with the in-game domain of a video game.

3.6.1.1 Revenue models available today

We have briefly previously listed the major types of monetization in video games. As such will take a more in depth look of the different revenue models available for video games today.
The following list is some of the monetization options we will describe in this section (Fields & Cotton, 2012, p. 151):

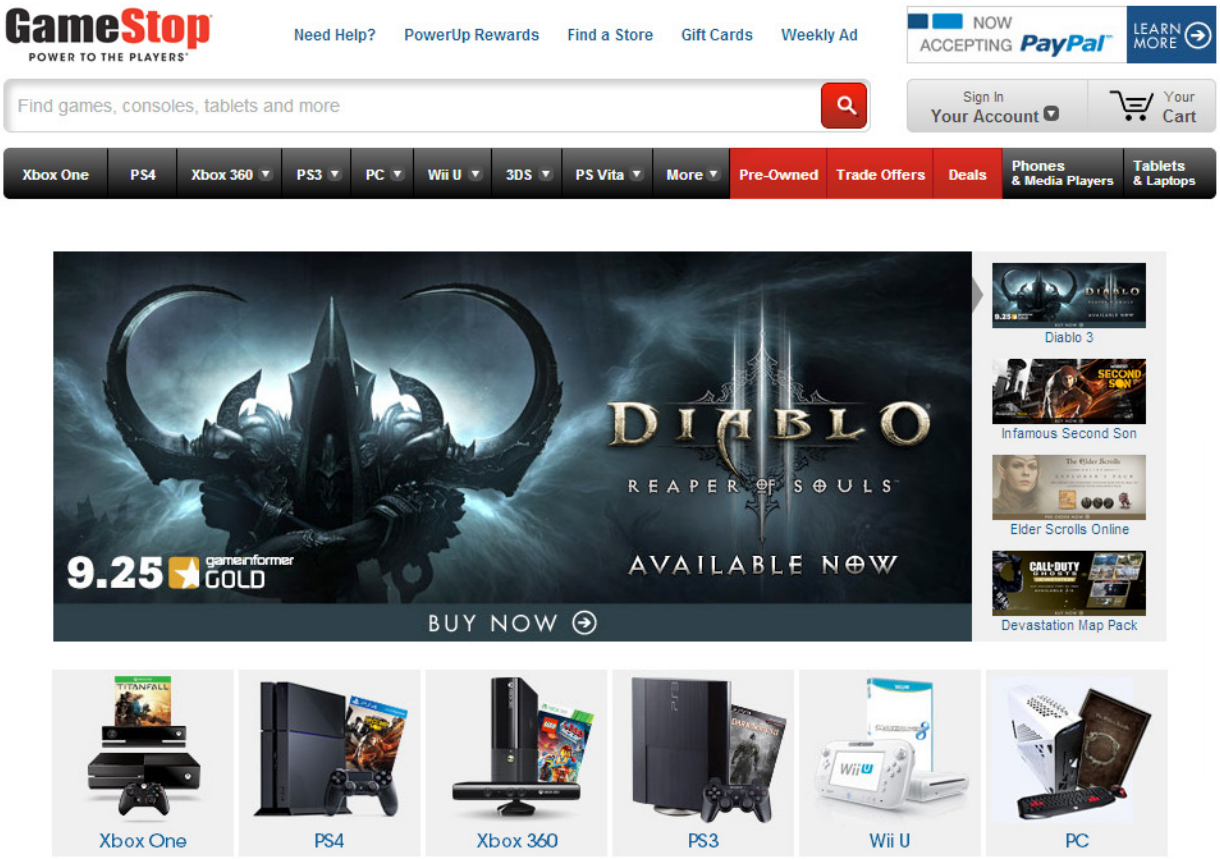


Figure 35: ***Screenshot from GameStop's website***

- Premium
- Subscription
- Freemium
- Combinations

3.6.1.2 Premium

The premium model today comes in the form of a physical box copy, sold in retail stores and digital download on the many available platforms today, like Valve's Steam, Apple Itunes app Store, Google PlayStore or a combination of the two.
The premium model generates its revenue stream through onetime payment by the users in order to get access to the content of the video game. In this model, the user usually discovers the product through traditional marketing and PR or through word of mouth from their friends (Fields & Cotton, 2012, p. 151).

A few big game developing and publishing companies like EA and Blizzard have developed their own digital release platform. On the digital platforms, the users can download the games directly to any of their devices when they want. This is one of the major differences between the traditional premium model versus the digital one in terms of value propositions to the user and developer. The user get ease of access and it is significantly easier for the developer to release their games on a multitude of platforms.

Furthermore by choosing a digital release platform it is easier to address technical and logistic problems (Fields & Cotton, 2012, p. 153) associated in regards to patches (software updates). In fact, one of the first successful digital platforms, Steam, was initially created to allow Valve to accommodate these issues associated with updating their popular e-sport video game Counter-Strike (Fields & Cotton, 2012, p. 153).

3.6.1.3 Subscription

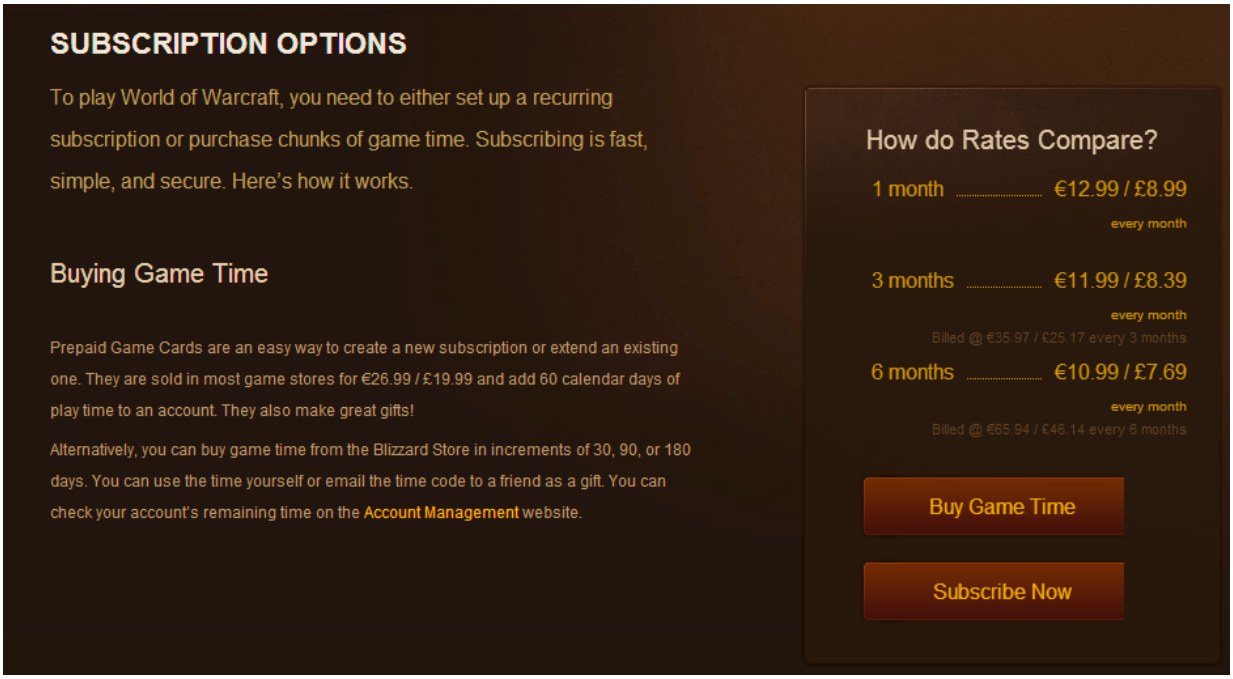
The subscription model of video games provides the

users with continuous access to game content (the service) by charging a fee for the amount of time the users want to spend within the game (Osterwalder & Pigneur, 2010, p. 31). The subscription model have been applied in many other services such as online internet service providers (ISP's) like SkyBoardband from United Kingdom or other online services such as Spotify's premium membership subscription option.

The subscription model in video games are most commonly combined with the premium model. A MMORPG (massive multiplayer online role playing games) such as World of Warcraft by Blizzard use this combination of premium following a monthly subscription fee. It allowed Blizzard to create fresh content for the users after the box release. This resulted in the lifetime of users being very high, up to many months or even many years (Fields & Cotton, 2012, p. 156). As such it allows Blizzard to obtain an ongoing revenue from their monthly payments.

But charging and providing the service of new high quality content doesn't come without a cost. By using a subscription model like Blizzard do with World of Warcraft, it creates a very high demand on providing a quality customer service, which can be very costly in expenditures (Fields & Cotton, 2012, p. 156). When applying such a monetization strategy, customer retention becomes equally to or more important than customer acquisition (Fields & Cotton, 2012, p. 156). Therefore, Blizzard employs thousands of customer support positions around the world, which solves everything from payment issues, technical issues, mitigating disputes and to bugs within the game world. If subscription models are used as the sole way of monetizing the users, it can limit the total amount of revenue, which is potentially possible to generate from a user within a given time frame (Fields & Cotton, 2012, p. 156). For instance, Blizzard started to implement other revenue mechanics into their game World of Warcraft in order to accommodate this. They started to present paid services such as race changes, name change, appearance change, faction change and server transfer as possible revenue streams. Fields and Cotton argues that even if you use a blended model like the combination of monthly fees with paid services, there are still risks of limiting your potential loft of income pr. user (Fields & Cotton, 2012, p. 156). This is based upon the claim that if you already employ a monthly fee, the users are required to pay up front and can therefore become resentful if they will have to pay for access and resulting in reducing the

Figure 36: ***Screenshot from Blizzard website shows the different subscription options***



chance of which the users will utilize any of the extra microtransaction available in-game.

3.6.1.4 Freemium

"Get the Basics for Free, Pay for More"

- (Osterwalder & Pigneur, 2010, p. 96)

Osterwalder and Pigneur defines the free business model as that at least one substantial customer segment is able to gain a benefit from a free-of-charge offer (Osterwalder & Pigneur, 2010, p. 89). Different patterns make the free offer possible and is one that is used as a model in a wide variety of different products. In video games that would be how the video game chooses to monetize through different microtransactions or advertisement etc. Therefore the non-paying customers are financed by another part of the business model or by another customer segment (Osterwalder & Pigneur, 2010, p. 89).

As these patterns; microtransactions, advertisement or other makes a freemium model possible, there could be inferred that they have significant importance and influence on all the elements which they are in connected to in a video game. As such there is therefore a direct interface between the business model and game design in relation to revenue model and its revenue mechanics and the game.

The term freemium was first coined by Jarid Lukin and popularized by the venture capitalist Fred Wilson through his web blog. The term freemium is most commonly referred to as free-to-play within the games industry (Osterwalder & Pigneur, 2010, p. 3).

"Every industry that becomes digital eventually becomes free."

- Chris Anderson Editor-in-Chief, (Anderson, 2008)

The commonly named freemium model have evolved and become popular (Osterwalder & Pigneur, 2010, p. 90) in line with the increasing digitization of services and products offered to customers through the internet. The long tail (Osterwalder & Pigneur, 2010, p. 67) is one of most significant patterns that helped the freemium concept gain a widespread recognition. In the long tail pattern the focus is to offer a large number of niche products, each selling in low volumes (Osterwalder & Pigneur, 2010, p. 69).

Freemium is primarily characterized by the sizable number of users benefiting from the no-strings free value proposition and with only a small percentage of users either subscribing to a premium service or generate high income through other services. For instance in-game microtransactions in video games requires a much larger customer base compared to traditional premium products in order to function and generate revenue. Therefore, it becomes very important to understand a wide variety of metrics in relation to the users. Below are just some of the key metrics in a video game using the freemium model:

- The average cost of serving a free user, (Osterwalder & Pigneur, 2010, p. 96)
- The rates at which free users convert to paying customers (Osterwalder & Pigneur, 2010, p. 96)
- The average income of a paying customer through microtransaction (Fields & Cotton, 2012, p. 66)
- Daily active users (Fields & Cotton, 2012, p. 63)
- Monthly active users (Fields & Cotton, 2012, p. 156)

So in what ways can a video game using the freemium model or just in-game microtransactions generate revenue? In the third section we will describe the major types of revenue mechanics in video games.

3.6.1.5 Metrics and freemium

Evaluating metrics have become more and more important in online and social games in order to balance the game and generate revenue (Fields & Cotton, 2012, p. 63). MMORPG's have recognized the importance of understanding metrics for years (Fields & Cotton, 2012, p. 71). The magnitude of the games in regards to balancing the mechanics and systems of large raid encounters, player versus player combat and so forth require not only quality user testing, but also quantitative testing (metrics). With social gaming,

especially in regards to the free-to-play monetizing strategy, analyzing metrics have become more familiar to the average developer.

Free tools have started to gain traction for instance Game Analytics, which support a wide variety of platforms such as Unity, Android, iOS, Flash and more. Analyzing the games metrics will give an understanding of the user behavior and its changes on minute basis, making it possible to react quickly. Analyzing metrics are not exclusively for optimizing your revenue, as it can provide vital data for improving the game experience for the players, as senior supervisor Teut Weidemann states:

> ***"People forget that we're in the online games business, - People see the metrics and only think about the monetization. At Ubisoft we call players 'fans'. It makes you think differently."***
> - Teut Weidemann, senior online game supervisor at Ubisoft (Handrahan, 2014)

Some developers voice a concern of possible pitfalls in regards to the use of metrics as a primary driver, when designing video games today, because they are so focused on monetizing (Handrahan, 2014). Laralyn McWilliams shares this concern towards the use of metrics when designing video games:

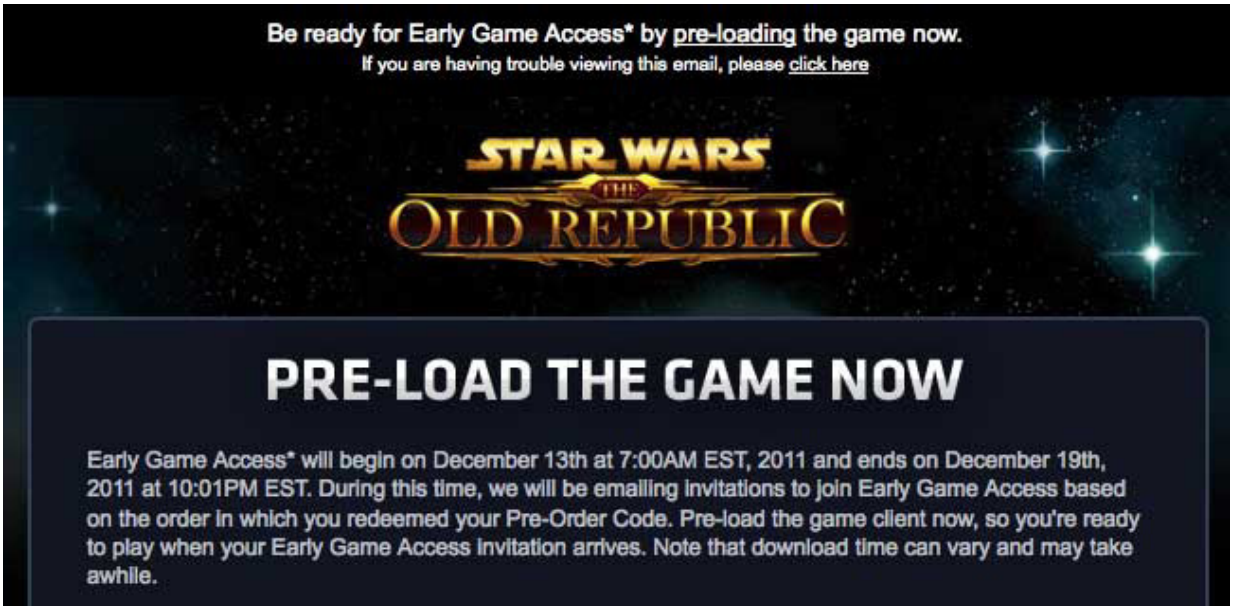
> ***"The point is that it's a mix of logic and emotion that goes into our decisions as game Designers," she said. "That's why we can never design by metrics."***
> - Laralyn McWilliams, the former creative lead on SOE's Free Realms (Handrahan, 2014)

McWilliams further points towards the complexity of video games in regards to blindly following numbers in order to determine the player's happiness, as they do not give the whole picture (Handrahan,2014).

> ***"Retention is not the same as happiness - There's no measuring spoon for love. You can't quantify it"***
> - Laralyn McWilliams, the former creative lead on SOE's Free Realms (Handrahan, 2014)

Evaluation and metrics do no equal a successful game (Fields & Cotton, 2012, p. 71). It must be appealing, have fun interesting game mechanics. However, regular iteration and careful evaluation, based upon metrics data, designers and business performance managers, can make strategic decisions that transforms a good

Figure 37: ***Bioware's Star Wars: The Old Republic uses the early access business model to create exclusive content to their paying customers.***



games into a big hit (Fields & Cotton, 2012, p. 72).

3.6.1.6 Early Access

A rising business model (Davidson, 2014) is the early access model where the publishers release their game unfinished to the public, giving access to the players as early as the alpha stage in the creation cycle. The early access business model is often connected to a subscription- or premium based model, which allows the publishers to create revenue in the creation phase and get feedback from the players at a time where changes in the design of the game can still be made to better fit the wishes of the player base. Early access has recently been a popular business model for smaller companies, whom often have a very small economic capital. If successful in funding, early access can give economic capital and allow developers to finish and polish a game.

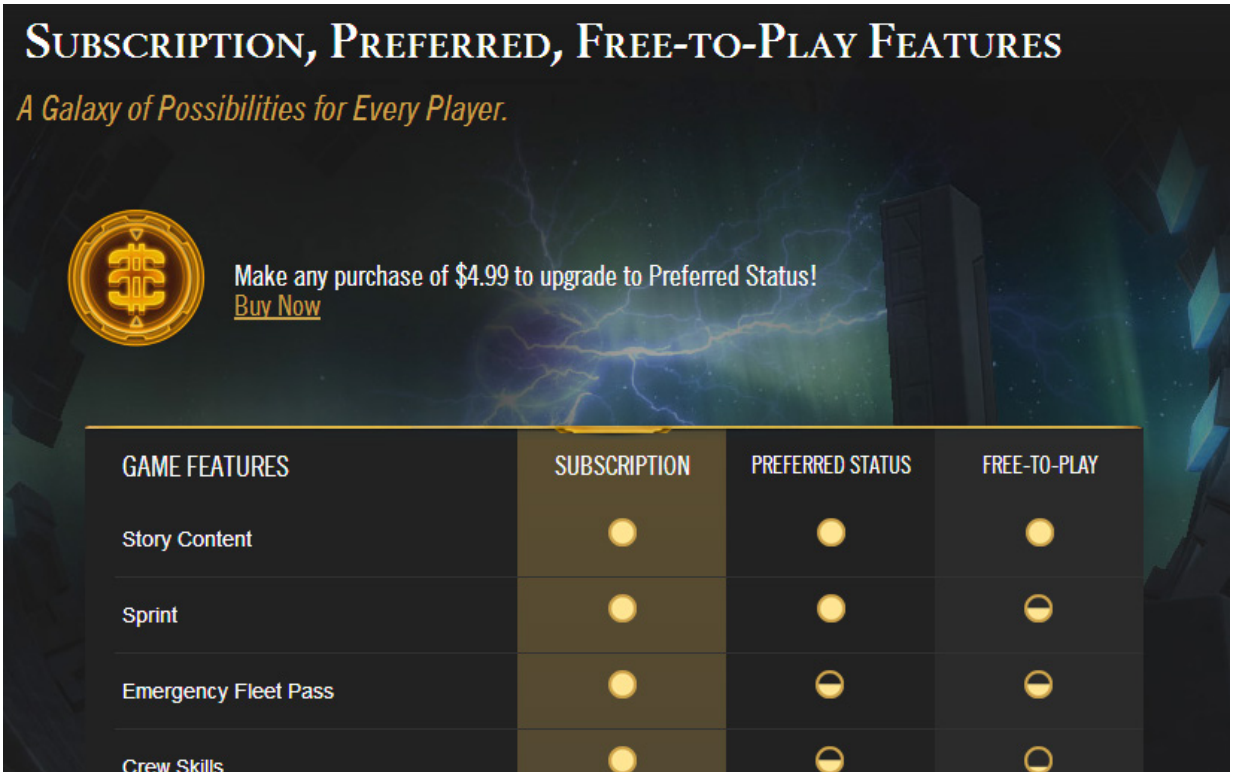
Furthermore, early access has the possibility of exposing the game to the market, creating awareness of the game on the game market. Not only do smaller companies utilize early access, also triple-A companies like Bioware and Blizzard uses it. In 2013, Blizzard announced that by signing a one year agreement of subscription to World of Warcraft, the player would be given access to the beta of the upcoming expansion 'Mists of Pandaria' and get the expansion for free once released.

BioWare has incorporated the early access model in to their business model of Star Wars: The Old Republic, that uses both a free-to-play- and subscription based business model. Here the players that subscribes to the game, gets early access to the upcoming DLC to the game. Thereby, BioWare uses the early access model as a way of creating exclusive content to their paying customers.

3.6.1.7 Combinations

Choosing any of the described models do not exclude combining them. For instance Star Wars The Old Republic employ a combination of offering three different payment features; a subscription, free-to-

Figure 38: ***Screenshot from Star Wars - The Old Republic website, shows three different models: subscription, preferred and free-to-play.***



play and preferred status model to their users, each presenting different value propositions.

To obtain the preferred model it requires the user to make purchases of at least $4.99. The preferred model is a sort of "middle" way between the full subscription model and free-to-play, giving less benefits than subscription, but more than choosing the full free-to-play.

Star Wars The Old Republic uses transparency of communicating exactly what the user gets by choosing the three different features.

3.6.2 REVENUE MECHANICS

The following list is all the major types of revenue mechanics which will be described in this section, these have been chosen based on literary studies and what has been identified in our units of analysis:

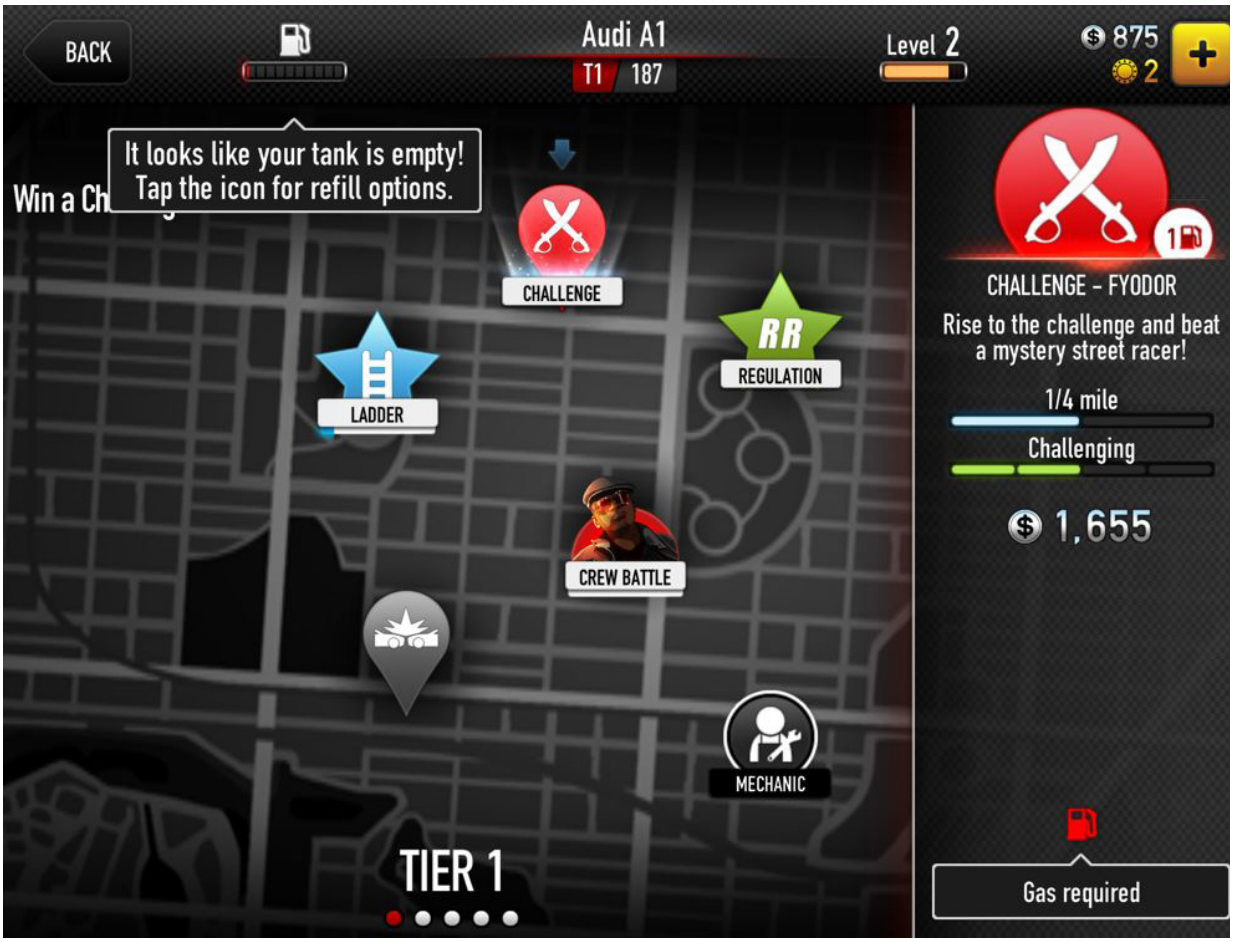
- Sell time
- Sell virtual goods
- Currency
- Offer walls
- Popup ads
- Ad placement
- Advertainment
- Game content unlocks and LDLC

3.6.2.1 Sell time

Time is one of the most commonly sold commodities in many free-to-play video games available on social platforms (Fields & Cotton, 2012, p.157).

Sell time is often designed as some kind of energy mechanic. For instance, the user will use 10 energy, performing an in-game action over 10 minutes, but

Figure 39: ***Screenshot from CSR Racing that show the player's car tank being empty***



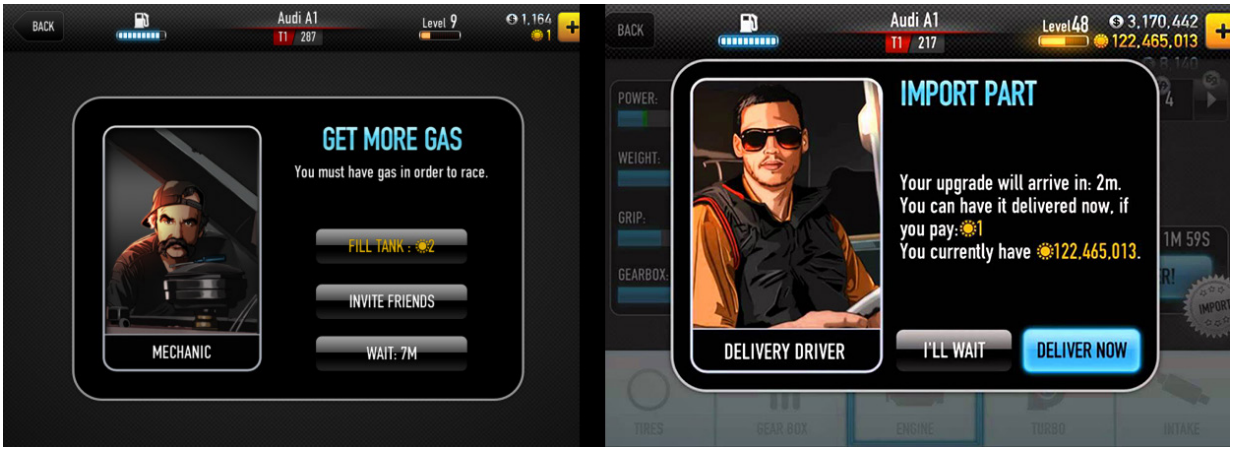


Figure 40: ***Screenshot from CSR Racing that show how the game tries to facilitate/aid the immersion of their gas and car part mechanics, by incorporating a car mechanic and delivery driver characters into the game world.***

the user is only able to generate 10 energy every one hour. This means the game in some sense prevent the user from performing more actions, unless the user want to avoid waiting the hour and purchases more energy.

One example of this is CSR Racing developed by NaturalMotion Games, where the energy mechanic of the game comes in the form of gas. When you have completed a race, the car runs empty of gas. The user is then presented with the option to buy more in order to continue playing, or unless you wait for it to refill automatically. NaturalMotion Games received substantial critic for the way of monetizing their game, but were one of the highest-grossing iPhone and iPad games in 2012 (Yin-Poole, 2012).

There are many other examples of sell time such as (Fields & Cotton, 2012, p. 157):

- Resource spawn per day.
- Leveling up tasks.
- Speed up "grind" type mechanics and many more.

As a standalone revenue mechanic sell time usually do not "break" the game balance and is therefore popular with many game designers (Fields & Cotton, 2012, p. 158) and arguably with the users if it fits the context of play. The context play is not only relating to the everyday life of the different customer segments (time available, place etc.), but also in relation to the reality that the game world is trying to portray/simulate. Perhaps it is easier for the player to accept some of these sell time revenue mechanics, if they are credible and well integrated into the fiction of the game and therefore facilitates/aid the immersion of the player. CSR Racing tried to do this by using a real life mechanics in the form of their gas and car parts mechanics.

3.6.2.2 Virtual goods

Monetizing on selling virtual goods is referred to as microtransaction. Microtransaction is any purchase

WHALES, DOLPHINES & MINNOWS

The different customer segments within freemium games are usually referred to as being either minnows, dolphins, whales or freeloaders (Lovell, 2011). This is based upon the amount of revenue each of the individual customers of each group generate of revenue per month. For example the minnows the smallest amount around $1, dolphins around $5 and whales in average $20, but in some cases up to many thousands of dollars.

Figure 41: ***Shows the original avatar for the 'Monkey King' (to the left) and the personalized character upgrade option (to the right).***

done in a game, be it virtual goods or selling time etc (Fields & Cotton, 2012, p. 3). Even though some of these microtransactions can become quite 'large' and with the aim to target, the so-called "whales" (Fields & Cotton, 2012, p. 219).
The users are usually presented with a wide variety

of options to either provide a cosmetic effect on their avatar, in-game character or different weapons in first person shooter games, that for instance can give the player different strategic options or better fire power (Clark, 2014, p. 126).

Before the rise of the free-to-play models and microtransaction, players were selling virtual goods in online multiplayer games like Diablo 2 and many more. Here players were selling in-game items through forums or website services like eBay. Users were handling all the transactions and it was therefore only the player that generated any revenue from it. Some of the first video games to implement systems to provide virtual goods, were the Korean based MMORPG Maple Story in 2003 (Clark, 2014, p. 5).

There exists many categories to define the different virtual goods today. Fields and Cotton define the two major categories of virtual goods as being divided into functional and vanity features (Fields & Cotton, 2012, p. 189).

> ***"Only if we have demonstrated the value of investing time into the experience of our game will we be able to provide the conditions where they will be willing to pay"*** - (Oscar Clark 2014 p. 67)

Clark describes a category of virtual items to improve the players performance temporary in one way or

Figure 42: ***Ethereal flame pink war dog in-game courier from Dota 2 by Valve.***

another to give them advantage for instance higher power ammo for short amount of time (Clark, 2014, p. 268). Another improving the player actions such as experience point boosts (Clark, 2014, p. 268) or other virtual items for instance providing insurance against your crops withering in your farm in FarmVille. One could argue Clark's categories for virtual goods all provide some form of function to the player contributing to the play and therefore are sub categories within the main category of functional goods.

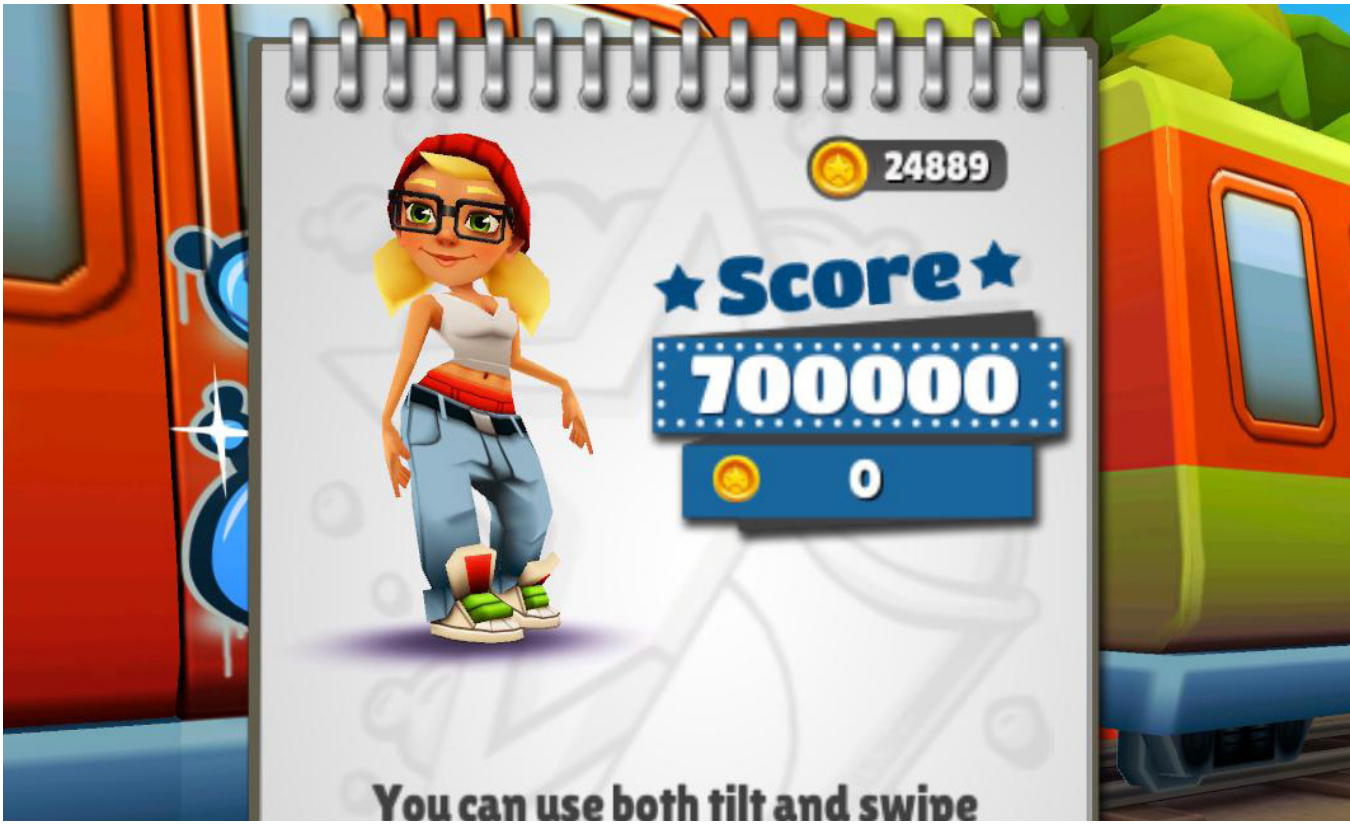
Vanity items gives an aesthetic value to the player and gives no functional advantages. Selling vanity items is directly aimed towards the players desire to feel unique, look cool and give them status (Fields & Cotton, 2012, p. 189), for instance a custom look for a selectable character in Heroes of Newerth shown in Figure 41 on page 70.

Valve have had great success implementing vanity items in their games Dota 2 and CS-GO (Counter-Strike: Global Offensive), where players sell items on a daily basis. Valve provide the platform from which the players can sell their items for a 10% fee (Community Market FAQ, 2013). The highest vanity item ever sold in the steam marketplace is the "Ethereal flame pink war dog" in-game currier for the high sum of 38,000$ (The Value of Dota2 Items, 2014) shown in Figure 42 on page 70.

One of the main reasons Valve only employ vanity goods opposed functional goods in their two video game titles Dota 2 and CS-GO is because such goods do not have any real effect on the game balance (Fields & Cotton, 2012, p. 195). This is crucial for Valve as both of the titles are competitive e-sport video games and any purchasable advantages could potentially ruin the gaming experience.

An advantage of selling vanity items is the viral effect they can bring. Even though a vast majority of players have not bought the newest vanity item, they are exposed to it, when watching streams of their favorite e-sport team or play with or against players who have

Figure 43: ***Screenshot from Subway Surfers by Kiloo Games and Sybo Games, Subway Surfers uses a dual currency system 1) the score 2) gold coins.***



acquired the item, making them more likely to desire it (Fields & Cotton, 2012, p. 195).

3.6.2.3 Currency

Currency in games do not necessitate the use of money as we understand in the real world. All video games need an economy (Fields & Cotton, 2012, p. 205) to function, consisting of key systems and key mechanics. In a sport game points scored or the total player stats (Fields & Cotton, 2012, p. 205) often measure the economy. As previously mentioned such an economy is tied to the "intrinsic" reward mechanics (Clark, 2014, p. 49), the player will be able to measure achievements or as minimum create a meaningful comparison and therefore works as a motivator for the player (Clark, 2014, p. 50). Both Fields, Cotton (Fields & Cotton, 2012, p. 205) and Clark (Clark, 2014, p. 68) uses the currency term in relation implementing monetizing features within the in-game domain of a video game to describe the functionality of the game economic model to generate revenue.

There exists different currency models like single and dual currency. In regards to creating a viable currency model for monetizing on microtransactions in video games, a single currency model can be fairly limited (Fields & Cotton, 2012, p. 206). For example if a game uses a single currency system in the form of lumber in a FarmVille similar game, the lumber is tied directly to real world money. The game essentially requires the player to spend real world money in order to proceed and therefore creates a barrier toward the player (Fields & Cotton, 2012, p. 206) and there is a real chance of them being less inclined to spend any real world money. Furthermore, it can be complicated to reward and motivate the user without compromising the game, because you would have to give away currency (Fields & Cotton, 2012, p. 206).

The definition of a dual currency model is one that are commonly defined to consist of a "soft" and "hard" currency (Fields & Cotton, 2012, p. 205) (Luton, 2013, p. 56). The soft currency consist of in-game player rewards, and "hard" currency is tied to real world money and can therefore be purchased by the user as he pleases.

The dynamics between the soft and hard currency is often that the soft currency for instance the score in Subway Surfers (see Figure 43) is earned in-game, and the hard currency is earned in very small numbers in-game or purchased through a meta layer around the in-game (Fields & Cotton, 2012, p. 207). It is common practice that the most powerful or unique virtual goods are bought with hard currency (Fields & Cotton, 2012, p. 207), in Subway Surfers you can buy boosters for instance extra life in-game, head start, coin multiplier etc.

3.6.2.4 Offer walls

Offer walls is one way to attract many users to play a free-to-play video game. When using offer walls, the

Figure 44: ***Screenshot that shows how the developer have implemented an offer wall into their game.***

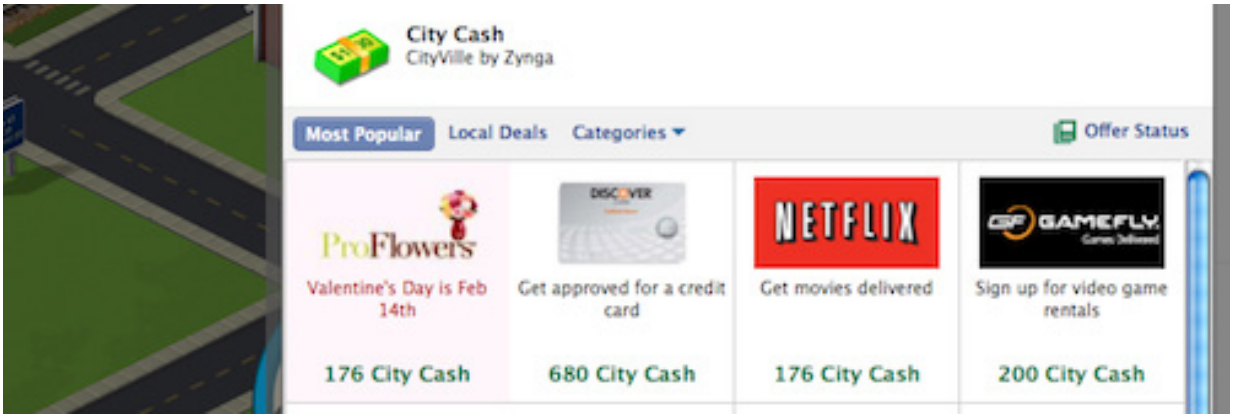


Figure 45: ***Screenshot from Zynga's FarmVille that shows product placement***

developer gives money away for the chance that users will install and play their game (Fields & Cotton, 2012, p.161).

The way the offer wall functions can be exemplified as, developer B (in figure X that would be Zynga) integrates the offer wall of the new game or product from developer A (in figure ProFlowers, Discover, Netflix and Gamefly) into their successful game, resulting in a high exposure to a large volume of users (Fields & Cotton, 2012, p. 161). For instance in Figure 45 Zynga then offer their own users with $0.50 (used as an example) worth of in-game currency, if the use choose to click and install or signup to any of the other companies offers. If the user chooses to accept and sign up or install the different offers, the companies will pay Zynga money. Hereafter Zynga will pay the user the $0.50 worth of in-game currency and keep the rest (Fields & Cotton, 2012, p. 161).

3.6.2.5 Popup ads

Popup ads allows the user to gain virtual goods, such as free in-game consumable or cosmetic items. However, they will have to choose to play the popup add in exchange. Video game developer and publisher Square Enix tried to employ a similar model in their online service Core Online (Gera, 2014), where playing old and new titles such as the Hitman franchise is free, but at the cost of watching advertisements between levels.

3.6.2.6 Ad placement

Ad placement is another form of advertisement within video games which is more commonly referred to as product placement.

This form of product placement is not new within advertisement and is often seen in big hollywood movies, like Mission Impossible 3 where actor Tom Cruise drives a specific BWM that is tied to the narrative of the movie.

Figure 46: *Screenshot from Coca Coca's The Coke Zero Game.*

Figure 47: *Screenshot from Call of Duty : Black Ops 2 home-page*

3.6.2.7 Advertainment

Advertaintment are companies that chooses to advertise by developing a video game for the sole purpose of giving exposure to a specific product (Fields & Cotton, 2012, p.163), for instance the Coke Zero Game in Figure 46 on page 74.

3.6.2.8 Paid downloadable content

Paid downloadable content (PDLC) is as the term simply states, new content the user can choose to purchase and download. Where games like Rock Band offers an option to buy extra songs for 3$ or the Call of Duty franchise from Activision and Infinity Ward, which provides PDLC content in the form of map packs.

The above revenue mechanics represents different ways for games to generate revenue. In the next section, we will present a critical view of the use of in-game monetization, as the free-to-play model has been the root of a lot of controversy in the video game industry.

3.6.2.9 A critical view of in-game monetization

With the development in free-to-play and distribution developers have found various ways of earning money in-game. We have seen both good and bad examples of games that utilize microtransactions. The developments in games that utilize microtransactions have become a pivot of debate in many video game communities.

The debate centres around how, and to what extent, different games intend to make money on in-game purchases. While some games monetize on purely cosmetic items, other games monetize on features that have a larger impact on the game play. The implementation of such features have not only changed how games are played but also raised an important question: what is "fair" to monetize? Witnessing how games like Dungeon Keeper mobile teaches the player how to spend money within the first minutes, right after the game has finished downloading, has left many players and game critics questioning the business ethics of free-to-play games.

Creators of the original Dungeon Keeper from 1997, and critics gave their take on some of the problematic issues facing EA's mobile version of Dungeon Keeper:

> ***"I felt myself turning round saying, 'What? This is ridiculous. I just want to make a dungeon. I don't want to schedule it on my alarm clock for six days to come back for a block to be chipped "***
> - Peter Molyneux, creator of the original Dungeon Keeper from 1997 (Ward, 2014)

> ***"It's free to wait, but not to play anything, There's nothing to actually play "***
> - Jim Sterling (Sterling, 2014)

EA argued that they were relying on already known features, which have proven their worth in other free-to-play titles. Furthermore, they emphasized that players are not required to spend any money in the game:

> ***"We believe we've designed an experience wherein players don't have to spend money if they don't want to....We specifically built Dungeon Keeper around typical mobile play patterns, that is checking in a few minutes here and there..."***
> - EA spokeswomen (Ward, 2014)

It is interesting to see how leading developers, such as EA, follow the mobile play patterns from other free-to-play games. This shows that these patterns must, at least to some extent, work, and that some players

Figure 48: ***EA's mobile version of Dungeon Keeper***

enjoy spending substantial amounts of money on in-game features. However, it is also clear that not every game will have the same degree of success. In the case of Dungeon Keeper mobile it is also important to consider the context of the original game, and the nostalgia and feelings people associate with that game when evaluating its critical reception.

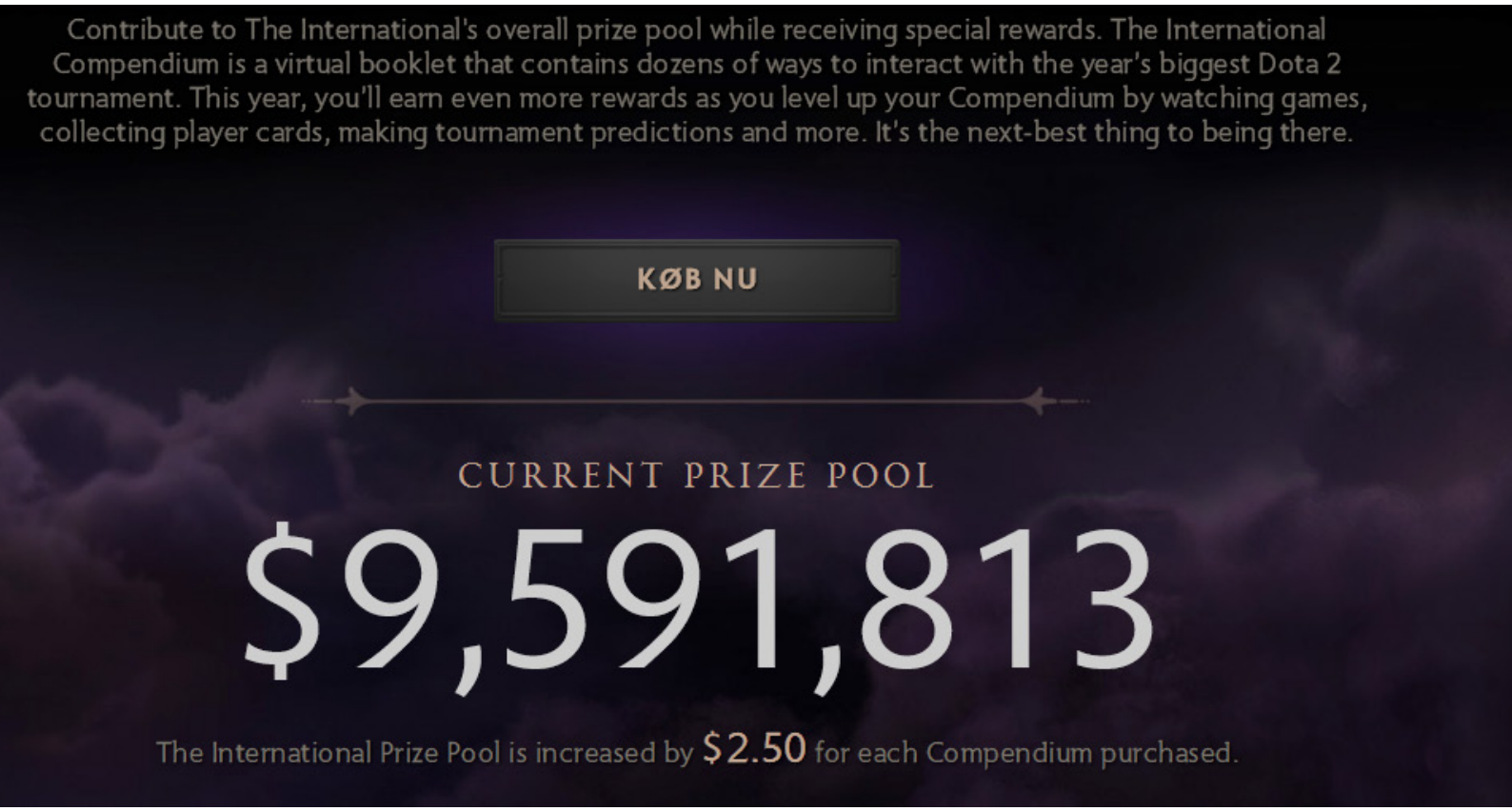
With the development of monetization features of many free-to-play games following an often negatively perceived model it is interesting to consider what consequences it has for the design of future games. One might argue that monetization as it currently looks is just a natural evolution of everything being online as opposed to inserting coins into a video game in an arcade hall but the complexity of this thesis suggests otherwise.

The European Commission (European Commission, 2014) has also contributed to the debate regarding the concerns of the use of monetization features in free-to-play games. The commission has published a press release where they highlight the four major issues regarding the subject, as raised through consumer complaints:

- Games advertised as "free" should not mislead consumers about the true costs involved;
- Games should not contain direct exhortations to children to buy items in a game or to persuade an adult to buy items for them;
- Consumers should be adequately informed about the payment arrangements and purchases should not be debited through default settings without consumers' explicit consent;
- Traders should provide an email address so that consumers can contact them in case of queries or complaints.

With the increasing trend of monetizing in-game and its related debate, developers have tried to give their

Figure 49: ***Screenshot from the official Dota 2 website, displaying the current price pool of The International 4, 16-06-2014***



take on what they believe creates the most positive gaming experience in a free-to-play game with monetized features. At a talk given in 2014, Kyle Davis from Valve (Davis, 2014) spoke of five elements that he recommended developers to follow in order to simply achieve a positive gaming experience through the free-to-play model. These five elements are applied in two of Valve's most popular free-to-play games, Dota 2 and Team Fortress 2:

1. Focus on persistent customer value.
2. Create positive externalites
3. Make everything tradeable
4. Distribute value randomly
5. Let users make value for each other

The five elements in Valve's model, are the elements they believe make a great gaming experience in free-to-play games.
In his talk (Davis, 2014), Davis points out that the use of a game designer, rather than a business developer, was an important factor for developing their monetization features.
The two games are currently the most played free-to-play games on Steam. The popularity is also reflected by this year's biggest Dota 2 tournament, as the current price pool is well on the way towards reaching 10 million dollars, mainly funded by the community itself:

This section intended to present the reader with an understanding of some of the current tendencies of free-to-play games. However, it is important to remember that the domains of game design and business models are constantly evolving and new patterns and concepts keep arising.
Through the gathered theory and knowledge, we have seen the value of constructing a Revenue Mechanic Framework, which will be presented in the next section.

3.6.3 REVENUE MECHANIC FRAMEWORK

In this section, we will explain the rationale behind our Revenue Mechanic Framework. The framework is constructed through the presented theory on game design and revenue mechanics.

By reviewing literature, analyzing state-of-the-art video games and conducting expert interviews with practitioners from the gaming industry from our 8th semester project and throughout this master's thesis, we have constructed the following model of what we believe to constitute a revenue mechanic framework. The presented theory from Clark, Luton, Fields and Cotton have provided the foundation for coining the different terms used in the framework, and helped to construct and clarify categories. Furthermore, the Revenue Mechanics Framework is inspired by the practical use of Osterwalder and Pigneur's BMC that facilitates discussions concerning future and present stages of a business model.

The model functions as a table, where the constructed categories will guide the user to classify the different revenue mechanics in a game and provide a quick overview of how video game intends to make money.

Furthermore, it will serve as a pragmatic way to obtain a 'common' language between the team members of the thesis project group. As such, it allows for facilitation of both descriptions and discussions before we go into a more detailed analysis of the different components of the revenue model's revenue mechanics.

3.6.3.1 Structure

The first thing the user must do in order to determine a revenue mechanic, is to assess whether it is a functional- or a vanity mechanic. Functional revenue mechanics can have an effect on the game balance, this can been in various forms, e.g. experience boosters will make the player level up faster. Vanity revenue mechanics is personalized aesthetics in regards to the player's character as mentioned in section '3.6.2.2 Virtual Goods', the game world and around the game that do not affect the game balance.
The next step is to see whether the revenue mechanic is permanent or non-permanent. Permanent revenue

Revenue mechanic framework

Currency	
Main currency:	
Deluxe currency:	

	FUNCTIONAL			VANITY		
		Permanent: *Is the feature permanent after being purchased?*	**Non-Permanent:** *Is the feature duration (time) or number of use (charges) based after being purchased?*		**Permanent:** *Is the feature permanent after being purchased?*	**Non-Permanent:** *Is the feature duration (time) or number of use (charges) based after being purchased?*
In the core game:	Booster advantage:	Advantages giving the player a power upgrade/making them more efficient. Ex: Power/dmg Ex: Resource gathering capabilities	Advantages giving the player a power upgrade/making them more efficient. Ex: Power/dmg Ex: Resource gathering capabilities	Personalize character:	Aesthetic features only affecting the player character. Ex: Gear/Equipment (size, etc.) Ex: Accessories/skins Ex: Overall character skins Ex: Non-particle effectures Ex: Non-audio/character voice or effects Ex: Emblems	Aesthetic features only affecting the player character. Ex: Gear/Equipment (size, etc.) Ex: Accessories/skins Ex: Overall character skins Ex: Non-particle effectures Ex: Non-audio/character voice or effects Ex: Emblems
	Convenience advantage:	Advantages making the player core loops more convenient/automated player input. Ex: Inventory potion Ex: Mouse/Click and drag	Advantages making the player core loops more convenient/automated player input. Ex: Inventory potion Ex: Mouse/Click and drag			
	Rapid progression advantage:	Advantages allowing the player to skip constraints and gain access to content faster. Ex: Level skip. Ex: Arena skip Ex: Time skip, Ex: unit skip Ex: gold/currency skip. Ex: Early access	Advantages allowing the player to skip constraints and gain access to content faster. Ex: Level skip. Ex: Arena skip Ex: Time skip, Ex: unit skip Ex: gold/currency skip. Ex: Early access	Personalize game world:	Aesthetic features only affecting the game world around the character. Ex: Overall skin Ex: Decorations/items etc. Ex: Non-overhauls	Aesthetic features only affecting the game world around the character. Ex: Overall skin Ex: Decorations/items etc. Ex: Non-overhauls
	Expansion:	Increased resource storage or access to new areas/maps. Ex: Mine/storage Ex: Mine openings.	Increased resource storage or access to new areas/maps. Ex: Mine/storage Ex: Mine openings.			
	OTHER REVENUE MECHANICS					
	Advertising:	Advertising revenue mechanics in the core game Ex: Pop-up ads Ex: In-placement				
Around the core game:	FUNCTIONAL					
	Inter-play:	Features which are only obtainable through user to user interactions Ex: Trade Ex: A/Chat Ex: Mail/Help Ex: Guild/management Ex: Friend gift sponsorship (Friendly Soldiers in Farmville 2)		Personalize around the game:	User generated vanity features. Ex: World skin Ex: Decorations/items etc. Ex: Mount	User generated vanity features. Ex: World skin Ex: Decorations/items etc. Ex: Mount
	Additional activities:	Features around the core game that potentially can give the player a reward or advantage in the core game. Ex: Mini games Ex: Events Ex: Gambling and wagering				
	OTHER REVENUE MECHANICS					
	Advertising:	Advertising revenue mechanics around the core game Ex: Offer walls				
	Premium / VIP access	Ex: Rental Ex: Subscription				

Note: The description and examples in the columns of Functional Permanent and Vanity Exclusive is also applicable in the Non-permanent and Non-exclusive columns. Permanent/Non-Permanent and Exclusive/Non-exclusive only denotes/refer the state of the feature

	OTHER REVENUE MECHANICS	
Outside the core game:	Advertising:	Ex: TV commercials Ex: Real advertisement
	Spin off:	
	Mechandise:	

Figure 50: ***Revenue mechanic framework – The framework is constructed to analyze and facilitate discussions in regards to the selected state-of-the-art games. The framework is divided into three main categories of revenue mechanics: functional, vanity or other revenue mechanics.***

Within each of these three parts are placed new sub-categories to determine and specify the nature of the revenue mechanics even further.
As these sub-categories are based upon the presented theory, we will only explain these briefly, to avoid redundancy.

3.6.3.2 Currency

Currency is unique in our framework, as it is isolated from the rest of the framework. This division is made to emphasize the importance of currency in video games. As the revenue mechanics all depends on some sort of currency to function, be it an in-game resource or real-world currency (dollars, euros etc.). Currencies can be divided into two categories: deluxe and main currency. Sometimes these two merge into one, however main currency is often obtainable by playing the game, and is utilized frequently in game sessions. The deluxe currency is often what the players purchases through various payment methods (VISA, MasterCard, Paypal etc.). Deluxe currency is therefore resources that are obtained through microtransactions.

3.6.3.3 Functional components

1. Booster advantage: Booster advantages provides the player with a power upgrade/making them more efficient. This could be a weapon with increased damage stats.
2. Convenience advantage: Advantages making the player core loops more convenient/automated player input. An example of this could be an automatic refill of ammunition in a war game.
3. Rapid progression advantage: Advantages allowing the player to skip constraints and gain access to content faster. This is often seen in the form of time walls, for instance building in Farmville takes time, but can be skipped with currency. Rapid progression also occurs when the player buys experience boosters, which allows them to unlock features faster.
4. Expansion: Increased resource storage or access to new area/maps.
5. Inter-play: Features which are only obtainable through user-to-user interactions e.g. unlocking a new content or feature through help from other players.
6. Additional activities: Features around the core game that potentially can give the player a reward or advantage in the core game. For example mini games, events, gambling and wagering.

3.6.3.2 Other revenue mechanics

1. Premium / VIP access: Some games offers VIP/ Premium subscriptions features, which provides the player with additional features. These features could for instance be more storage capacity, increased experience/currency rate or a new game mode.
2. Advertising: Some games features in-game advertising of specific products, e.g. a special type of beer, food or car. Some games have also implemented a specific section, where they player is offered rewards for playing other games, this is known as an offerwall.

3.6.3.3 Vanity components

1. Personalize character: Aesthetic features only affecting the player character. This could be new pants, hats or shoes for the player's character.
2. Personalize game world: Aesthetic features only affecting the game world around the character. In a building game, this could for instance be decorative plants, flags or monuments, which only have symbolic value.
3. Personalize around the game: User generated vanity features. These are often seen as fan art that is created in the community around a game. Some games allows user to get their creations implemented in the games.

3.7 THE CORRELATION BETWEEN GAME DESIGN AND BUSINESS MODELS

In order for the thesis to find the optimal connection between game design and business models, it is required to study the elements of which the two fields are connected. In order to do this, the thesis explores the works of other researches on the field of connecting game design and business. This is done to create an understanding of how previous studies connects the two fields of study and to create a framework that can compare the results of the thesis to other studies. The following section seeks to describe some of the game elements that are both influenced by the design and the business model of games and some of the challenges that emerge when the two areas are connected.

3.7.1 THE DILEMMA OF GAME BALANCE

One of the main challenges of giving players access to buyable upgrades in a game that gives the player an advantage is the fact that they have a great impact on the balance in the game. What are the consequences of a player being able to buy his way to functional advantages? Tim Fields and Brandon Cotton notes that designers have to be very careful by using such advantages as they might result in an unbalanced game that alienates the players (Fields & Cotton, 2012, p. 193). Their approach to the challenge is that designers have to price the functional advantage accordingly to how big an advantage the player gets for buying upgrade. Their approach to the subject of game balance and purchasable upgrades is to consider the subject through a "money-for-time"-equation. Their solution is to price the upgrades according to how much time the player has 'saved' by buying the functional advantage; the more time the player saves by buying the advantage, the bigger the price of the advantage should be. In this way the functional advantage is seen as a "time accelerator" (Fields & Cotton, 2012, p. 193).

However, one thing is to give players the opportunity to save time by buying in-game goods, another is to give players access to goods that give them advantages against each other. Fields and Cotton points toward there being a big difference between PvE (Player versus environment)- and PvP (Player versus player)-oriented games (Fields & Cotton p. 193). As mentioned in the introduction to the thesis, players are quick to mark certain games based on their business model: In the case of PvP-oriented games, players are known to call certain games 'Pay-to-win', which often is a result of an unhappy customer. Fields and Cotton address that one of the consequences of failing to implement an optimal business model is that players are "alienated" (Fields & Cotton, 2012, p. 193) from the game.

3.7.1.1 The purchase of exclusive content

It has been stated that there is a challenge in selling in-game goods to the customers, since it influences the game balance and that there is different ways of giving players advantages. For now, it has been assumed that the buyable content is the same as the content that players can achieve by simply playing the game, making it a matter of time versus money. However, one of the big subjects between game designers is, whether buyable content should be exclusive; content that is only obtainable by buying the content with real money. Fields and Cotton (Fields & Cotton, 2012, p. 213) mentions that designers, and players alike, are split in the opinion on whether it is "right" to make players able to purchase their way to functional advantages.

Further notes because the games and player base is rapidly expanding, there is a need of a flexible business model (Fields & Cotton, 2012, p. 213) that caters to both players that favor time over money and those who favor money over time. They point towards that games should implement a dual currency system where one currency system caters to the players who favor time over money and one that caters to the players who favor money over time. They come to the following conclusion:

"The more you are able to indulge

both types of players simultaneously, selling advantage to those who seek it while offering alternative avenues of advancement and uses for hard currency for those who don't, the broader your appeal and the greater your overall success." - (Fields & Cotton, 2012 p. 213)

3.7.2 IN-GAME PURCHASES AND THE CORE LOOPS

The thesis has previously covered the importance of the mechanic-, context- and meta core loops for players to find a game enjoyable from the moment they start playing and throughout a longer time scale. The core loop is of vital importance to the quality of a game and is one of the core elements of designing a game.

"Their job is to provide something compelling for the player to do every second, but also to provide an exit point in a session, a reason to return, and self-modification to create long-term goals." - (Luton, 2013, p. 33, Ebook)

However, the core loops also play a key role when it comes to generating revenue on a game; especially to games that features in-game purchases as a part of their game business model.

Will Luton presents another perspective on the core loops of the game that has similarities to the core loops described by Oscar Clark that has been presented earlier, but focuses more on the time spend by the player and how a game generates revenue on the core loops of the game (Luton, 2013, p. 32, Ebook). Luton presents three levels of the core loops where he categorizes the levels by the amount of time it takes the player to go through the core loop. Luton's three core loops are:

- Minute-to-minute
- Hour-to-hour
- Day-to-day

The three core loops have different qualities, contributing in different ways to the game, but they all have the same goal; to set goals for the players that make them want to play the game and keep playing it.

3.7.2.1 The Minute-to-minute core loop

The minute-to-minute core loops are, in style with Clark's mechanic core loop, the loops the player keeps repeating multiple times during a game session (Luton, 2013, p. 32, Ebook). It is the fundamental core loop that makes the game enjoyable to the player when playing the game for the first time, rewarding the player for his actions. If the minute-to-minute core loop is not enjoyable to the player, the player often loses the motivation to keep playing the game. Luton describes a general pattern of the minute-to-minute core loops as:

Action (a certain player activity) → Reward (a virtual good in form of currency or items) → Upgrade (The player boosts himself by buying something with the gained currency or uses the item given).
- (Luton, 2013, p. 33, Ebook)

However, many games using a free-to-play business model uses an additional step in the minute-to-minute core loop: The wait step. The wait step is a way for the game to prolong the time between the player action and their reward, giving the player something to look forward to in the basis core loop, making the steps of a minute-to-minute core loop look the following:

Action → Wait → Reward → Upgrade
- (Luton, 2013, p. 34, Ebook)

The use of the wait step in the core loop is used in many successful free-to-play games, such as Farmville, Hayday and Clash of Clans. The wait step creates a natural point in a game session for the player to leave the game, which is important for the player to not get tired of the game. Ben Cousins, general manager at Scattered Entertainment, states the important quality of creating a clear 'exit point' for the player:

"Add mechanics to make sure players don't binge on content. Players who play too much in one session are less likely to come back for more sessions."

- Ben Cousins (Luton, 2013, p. 34 Ebook)

3.7.2.2 The Hour-to-hour core loop

The hour-to-hour core loops are focused on making a game session enjoyable as a whole. Their role is to create a compulsion for the player to come back, wanting to play the game again. According to Luton, the hour-to-hour core loop is tightly connected to what he describes as return triggers (Luton, 2013, p. 37, Ebook). Return triggers are the many ways a game can motivate a player to come back playing the game; creating a connection to the player and the game while the player is not actually playing the game. Luton lists the following return triggers:

- Appointment Triggers
- Competitive triggers
- Social commitments triggers
- Location triggers
- Sales and events triggers
- Nudge triggers

Games are very different and certain return triggers

Figure 51: ***Type of trigger and description of trigger***

TYPE OF TRIGGER	DESCRIPTION OF TRIGGER
Appointment	• A future reward at a specific time that is the result of a player action. • Often connected to the wait core loop. • The player has an influence on the time of the reward of his action.
Competitive	• Uses the natural competitive appeal of games to triumph over other players. • Connected to the competitive features within a game such as score leader-boards and every other PvP-aspect.
Social commitment	• Makes the player feel obligated to return to the game for other players to proceed. • A direct or indirect trigger that connects the playing of different players with each other. • A very powerful return trigger, but difficult to implement successfully. • Often requires an asynchronous gameplay.
Location	• Activates on the player's current location where the player gets certain goals such as competing with other player's in his/her area. • Often connected to the competitive- and social trigger.
Sales and events	• Creates awareness of the game by introducing exclusive content only available within a fixed timeframe also known as 'seasonal content'. • Is often connected to real life events such as holidays. • There has to be a balance in the use of sales and event triggers: Too many sales and events triggers reduces the value of the trigger and too few results in lost opportunities.
Nudge	• Directly contacting the player to remind them of the existence of the game. • Generally the weakest return trigger. • Often used through the 'push notification' options available on mobile devices. • Often used as a 'last resort' to get nonactive players back in the game

Figure 52: ***The free-to-play mobile game, Hay Day, uses an achievement system to create different goals for the players to reach.***

fits to different games based on the style of the game and the game's player base. The return loop that Luton describes is:

Return (new session) → Session → Leave (Finish Session) → Return Trigger → Return
- (Luton, 2013, p. 38, Ebook)

3.7.2.3 The Day-to-day core loop

The day-to-day core loop has the role of creating longer term goals for the player to look forward to, in the form of giving the player a bigger reward or a sense of progression through the game (Luton, 2013, p. 32, Ebook). The key to the day-to-day core loop is to create systems where the players can decide their own goals for the game. This is done by creating a goal system with a wide variety of goals that are appealing in different ways. A widely used goal system in games is the achievement system that rewards the player for reaching specific goals and combinations of goals within the game, giving the player a specific (often bigger) reward for completing the set of goals.

Throughout this section we have described a theoretical framing for how game design and business models influence each other. The next section will give the reader an understanding of how games are developed and how development of games are changing due to a business models impact. This is essential to answering the methodic part of our research question.

3.8 WHAT IS A GAME CREATION CYCLE?

The problem statement of the master's thesis deals with what the optimal correlation between a game design and a business model. This section seeks to understand what a digital creation cycle is, with a focus on both the creative- as well as a business perspective.

3.8.1 THE DEVELOPMENT PHASES OF VIDEO GAMES

Every game that has been and is being developed has

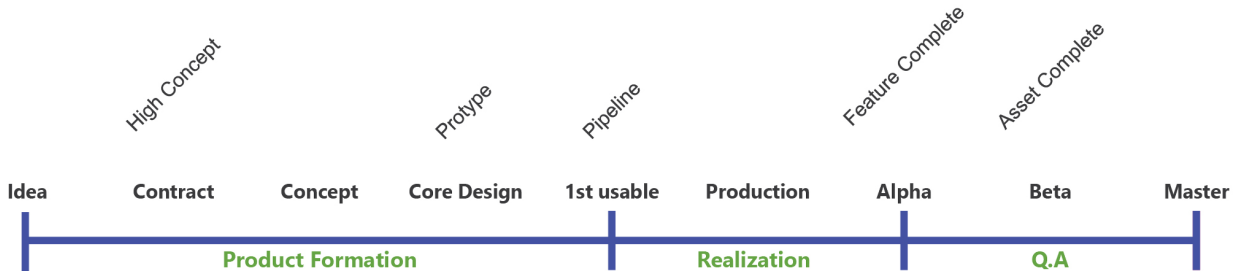


Figure 53: ***Digital Media Creation Cycle***

its own production cycle, all projects in many ways differs from one another making the development of video games so challenging.

> ***"One developer might have a small team of 15 people working on a mobile game, but another developer could have more than 100 people working on a console game based on a well-known movie license"***- (Chandler, 2014, p. 3)

Nevertheless, Heather Maxwell Chandler believes that there is a basic framework that all developers work from, regardless of size of team, scope of game or the budget. Most video game productions starts with the initial game concept and ends with a Master copy of the game (Chandler, 2014, p. 3), this is usually a golden disc where the master file of the game is on which is then send to production. Heather Maxwell establishes four phases (Chandler, 2014, p. 3) of a game development process, as being;

- Preproduction
- Production
- Testing
- Postproduction

A more in-depth view of the four phases can be found in the creation cycle model, made by Claus Rosenstand and Per Kyed shown in Figure 53 on page 84.

3.8.2 PREPRODUCTION

Within these phases, several goals must be accomplished before moving on to next phases or different goals. The preproduction phase is where the team, over weeks or years, creates a game plan (Chandler, 2014, p. 5) for the game. The game plan usually consist of a roadmap for how the game is to be finished and what elements needs to be made (Chandler, 2014, p. 5). Elements that need to be defined during the product formation (Rosenstand & Lauersen, 2013, p. 83) are the games concept. The concept phase is generally where a group of leads comes together to form the idea of what the game is going to be, ideas can come from anywhere. If the game company has a Game Director, he or she might have a broad vision for what the game is supposed to be (Rosenstand et al., 2013, p. 83).

During the concept phase, elements such as genre and the platforms for which to release the game on will also be done. This is important since it will define what shape the concept will become.
Therefore the concept phase is crucial for stating the criteria of the design for the game (Rosenstand et al., 2013, p. 84), something that is normally done through a game design document as well as a technical document. Once the concept is approved the core design of the game has to be made;

> ***"The core design constitutes the essential design principles – including the interactivity principles where interactivity is defined as" ... a measure of a medias potential ability to let user exert an influence on the content and/or the form of the mediated communication"***
> - (Jensen, 1998, p. 201)

The design of the game has to fit the interactivity that the media is capable of. Yet, if the director and the game designer wants a game that immerses the player in, with incredible visuals and 5.1 surround sound then releasing the game on mobiles is simply not viable. Chandler calls this type of decision making for 'constraints'.

> ***"Constraints should be considered when determining the feature set priorities. For example everyone may agree that building a new graphics engine is a must have feature, but if there is not ample time to build the engine, this feature will be dropped down to a would be nice to have feature"***
> - (Chandler, 2014, p. 7)

The team then has to figure out how to design the game to better fit the desired platform and its mediated communication. This can be done through prototypes to avoid releasing a game that does not work. Prototypes also makes it possible to meet potential high risk challenges during the main production, thereby avoiding them to occur in the master phase.

Once the team has successfully made the concept into a working prototype, Claus Rosenstand and Per Kyed discusses the importance of a 1st usable, where audiovisual parts of the game or system or mechanics work, as a proof of concept (Rosenstand et al., 2013, p. 84).

3.8.3 PRODUCTION

The production phase or realization phase (Rosenstand et al., 2013, p. 84) is where the team can start producing assets and code for the game. The further the team gets in the process, the better the understanding of the pipeline and the qualities of the game become. The pipeline made by the project manager is an iterative process that should be open to prioritizing the assets and features according to the new and better understanding (Rosenstand et al., 2013, p. 84). This is potentially where high risk challenges can rise up; if during production it is discovered that the game simply is not fun to play, the game's release might have to be postponed.

Through the production phase and through numerous testing, an alpha build of the game can be made. The alpha phase means the game is feature complete (Rosenstand et al. 2013, p. 85).

3.8.4 TESTING – AND MOVING FROM BETA TO MASTER

When the alpha is completed and it is decided that no new features can be implemented into the game, Heather Maxwell argues that testing is a crucial phase in the games development (Chandler, 2014, p. 12). Together with QA (Quality Assurance), the team makes sure that the functionality of the game works as intended. QA is an ongoing process through the entire production cycle of a game, also after the release of the game. The main idea behind testing with QA during the alpha phase of the creation cycle is for the game to reach a state of asset complete, and thereby advancing the game into what is called beta. Asset complete means that the game itself is done, in the sense that all levels, audio and visuals is completed and that the entire game can be played from start to finish.

3.8.5 MASTER AND POSTPRODUCTION

Once the game has reach a state of feature completion and reach the goals set in the contract (Rosenstand et al., 2013, p. 85), the game enters the final phase the in creation cycle called Master. Master means that the game is finished and ready for distribution. After this it is important for any production that they conduct a thorough postmortem in order to bring a sense of closure for the team (Chandler, 2014, p. 257). Postproduction is particularly interesting in regards to a modern way of developing games. Some developers might want to patch a game or release content updates for the game in the future. (Chandler, 2014, p. 265).

The next section will explore how developers mold and adapt the games to the player's experience and how changing maturity effectively making the games a service for the players (Clark, 2014, p. 62).

3.8.6 GAMES AS A SERVICE – HOPE IS NOT A STRATEGY

Games as a service (Clark, 2014), this expression stems from the increasing trend in making and releasing free-to-play games, Oscar Clark believes that game companies can no longer develop expensive games hope for it to be successful.

> ***"...we can no longer afford to simply build a game, throw it over to the marketing team, and then hope someone buys is"***
> - (Clark, 2014, p. 16)

Clark states that the old approach to how developers make and release "box-products" is an ineffective and to some extent dangerous business model (Clark, 2014, p. 16) and that developers need to rethink their approach to this. Clark proposes that developers start need to look at the way players consume media, more precisely video games, and use the data to shape and build a service oriented product. Looking at Osterwalders Business model canvas, the value of products is essential towards the success of a given product.

Oscar Clark has the same mentality, and describes it as: "Lifetime Value" (Clark, 2014, p. 62). Lifetime value is crucial for the success of a product, that is developed as a game service product as most game service product are about sustaining relationships with users through the game.

> ***"That means that it is not good enough that a game have sufficient materiel to play in principle for the lifetime of the player, it has to adapt that content to the player's changing needs as their experience and commitment evolves"***
> - (Clark, 2014, p. 62)

Games that are made in the traditional structured cycle will more than likely not be able to sustain the users over extended periods of time, since many do not take into consideration the users evolving maturity. Triple-A products are as Clark describes dangerous, economically speaking, where a service product has the ability to change the evolving nature of its users, through data mining. We find this truly interesting as it completely changes the view of how games are made, what games are and why users play them.

> ***"Considering games as a service also allows us to look at production as a Journey"*** - (Clark, 2014, p. 61)

Games as services, however, still consists of developing a concept and thereby try to figure out what consumers desires (Clark, 2014, p. 62). Therefor it is important to understand many of the traditional phases in game development, but the game has the potential to go through many more stages of iteration and prototyping where data can be mind.

For instance, by giving the users early access to the game, developers could be able to gather data from early adopters (Clark, 2014, p. 62). Potentially, if the game has a strong social games connection (Fields & Cotton, 2012, p. 25), this can help the developers to shape their game, since it allows players to interact and help drive adoption of the game:

> ***"A social game is one in which the user's interactions with other players help drive adoption of the game and help retain players, and that uses an external social network of some type to facilitate these goals"***
> - (Fields & Cotton, 2012, p. 25)

Games like Rust and Subway Surfers are prime examples of games that have been release to early adopters, and used the hype garnered by these users to successfully reach a growth state (Clark, 2014, p. 62)

Figure 54: ***Rust was released as an Early Access Alpha version on Steam in 2013 and has been in the top 10 list of most downloaded games on Steam since 2013.***

Interestingly, Oscars Clarks definition of Lifetime value can be summarized into being:

- Develop Concept
- Release game to early adopters
- Use hype and social media to gather new audience
- Broaden brand appeal, thereby prolonging the growth stages

The idea of releasing games early, not just games like Rust, but also more complete games like Subway Surfers, and then using data gathered from users to shape the development of features based on users evolving experience with the product is interesting.

3.8.7 SUMMARIZATION

This section gave an overview of the traditional development cycle that many software products go through, yet this form of production is slow, costly and dangerous and therefore requires a new more innovative way of development. With the introduction of games as a service, we are able to further understand how games are made and shaped by the evolving experiences players have with a product. A product that is usually release in the early stages of production and then uses early adopters to gather steam and hype to successfully reach a stage of growth. The next section will focus the rational of the master's thesis Game Design Model

3.9 RATIONALE OF THE GAME DESIGN MODEL - OUR THEORETICAL FRAMEWORK

In this section, we will explain the rationale of our theoretical framework, the Game Design Model. This will illuminate how the framework is intended to be used when analyzing and developing video games.

Throughout the process, the components and structure of the GDM has undergone numerous iterations, as such we have gained new insights while conducting

literature studies, analyzing our expert interviews and state-of-the-art video games. Which made it possible to review and refine the theoretical framework.

The GDM is constructed from known theory on game design, the analyses of state-of-the-art video games and our interviews with experts from the industry, who have contributed with both theoretical discussions as

Figure 55: ***Shows the Game Design Model.***

Game Design Model

VISION Xxxx Ex1: xxx Ex2: xxx				
In the core game:	**DESIGN**		**INTERACTION**	
	Mechanic: *What does the game consist of?*	**Controls, physics, key mechanics.** Ex1: Aiming and shooting mechanic. Ex2: Combat system. Ex3: Altered gravity.	**Mechanic core-loop (minute-to-minute):** *How does the player play the game?*	**The repeated player action pattern in a game session.** Ex1: Seed –> Wait –> Water –> Wait –> Harvest [Reward] Ex2: Move –> Shoot –> Reward –> Move –> Shoot –> Reward
	Context: *What is the game about?*	**Narrative, challenge & progression.** Ex1: Highscore boards comparing the player with his friends. Ex2: Several story outcomes depending on player's actions. Ex3:	**Context core-loop (hour-to-hour):** *What are the player's goal(s)?*	**The player's reason for playing the game.** Ex: Game session ends –> Player exits game –> (X Time) –> Return Trigger –> Player enters game –> Game session starts
Around the core game:	**Meta:** *What is the culture and mentality around the game?*	**Social components, platform connectivity, goal system & user-generated goals.** Ex1: Communities Ex2: User-generated content Ex3: Social media- and streaming services Ex4: Achievement System	**Meta core loop (day-to-day):** *How does the game change from a passtime activity to an enjoyable experience?*	**The player's feelings towards the game.**
TECHNOLOGY Xxxx Ex1: xxx Ex2: xxx			**USER & CONTEXT OF USE** Xxxx Ex1: xxx Ex2: xxx	
INTENDED USER EXPERIENCE Xxxx Ex1: xxx Ex2: xxx			**PERCEIVED USER EXPERIENCE** Xxxx Ex1: xxx Ex2: xxx	

well as peer reviews during the last three semesters.

3.9.1 STRUCTURE AND FLOW

In this section we will explain and visualize how the GDM is meant to be used and understood in order to utilize the model as our theoretical framework for analysis. The structure of the GDM is based on our general knowledge of user-centered design (UCD) and human-computer interaction (HCI) (Norman, 2013 p. 306).

Structure

The left side of the model consists of the "interface" without a user interaction (see figure xx). Each box is centered around the user, according to our general understanding of UCD (Buxton, 2007). The focus the right side consists of the "interface" with a user interaction (see Figure 56 on page 89).

The left side represents the most important mechanics, systems and technology to create the intended user experience. The right side represents the user-to-computer and user-to-user relationship that creates the play pattern interactions which results in the perceived user experience.

Flow

The first step of a game development starts with the vision and concept. The design is created from the vision of the game, which is intended for a specific technology to give an intended user experience.

When the user interacts with the design/technology in

Figure 56: ***Shows the structure of the GDM***

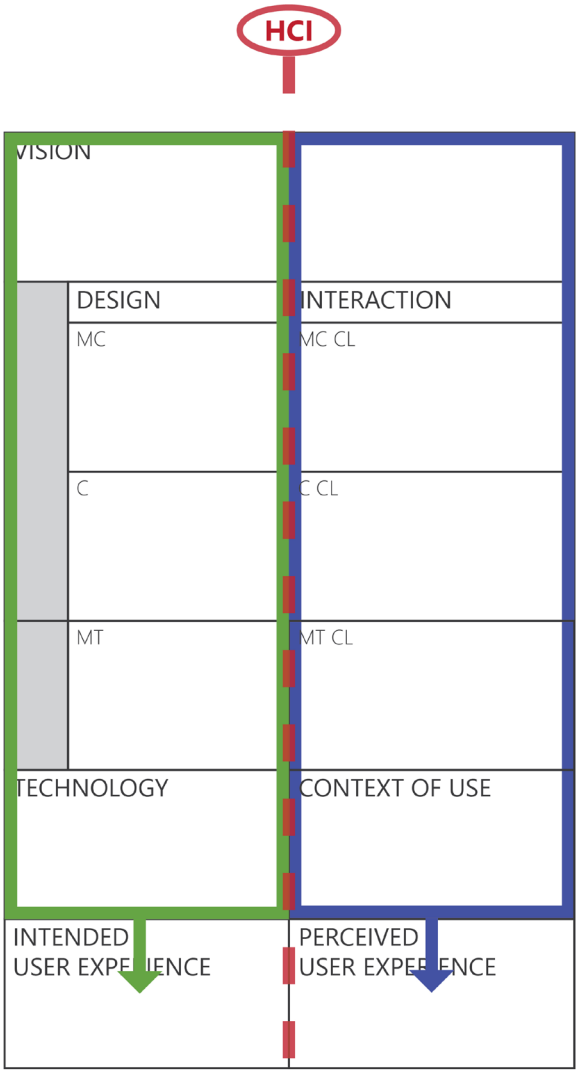
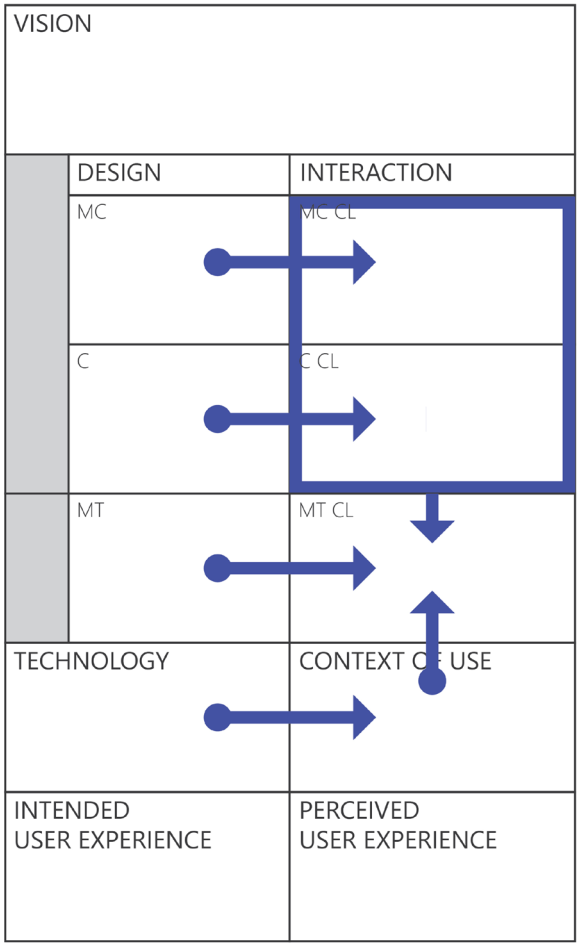


Figure 57: ***Shows the flow of the GDM***



a context of use, the interaction creates the core loops of the game on a mechanic, context and possible meta level, which results in the perceived user experience.

3.9.2 COMPONENTS

In the above section, we described the structure and flow of the GDM. The GDM consists of boxes with different functions and purposes. Some are purely for guiding the user to see where in the game the model operates, others are made for the user to fill out with information regarding the respective game, others are a mix of both. The user in this case can either be a game development team or simply anyone who wishes to dissect a certain game in order to gain a deeper understanding about its different parts. It is important to note the difference between using the GDM as a development tool and an analysis tool.

Furthermore, each component of the GDM is, like Osterwalder's BMC, a simplification of reality and therefore represents an overview of more detailed and complex information. As such the purpose of the GDM in the thesis is to identify and extract key information of state-of-the-art games in the form of an "as-is" model.

The following order is presented to give the reader an understanding of the framework:

1. Vision: The vision box contains the vision of the game, this is usually a few short sentences that describes the type of game and the most important aspects of the game. The accuracy of the content in this box depends on the user, as a development team might have their own private vision for their game, which is not necessarily available to the public. As such, if the model is used for analyzing different games, the vision must be filled out in accordance to the conviction of the user.
2. Mechanic design: The mechanic box placed under the design headline, is where the core systems of the game are detailed. A mechanic core system in a FPS game could for instance be a combat system, which allows the player to move, aim and shoot.
3. Context design: The purpose of this box is to show the context core loops of a given game. These systems often indicate what the game is about, how the player is supposed to progress in the game and the different game modes could be an example of this.
4. Meta design: The meta design box contains elements that revolve around the core game. This can be forums, community sites, or elements that let players discuss, share experiences or create content about the game. These aspects often constitute the culture that surrounds the game.
5. Technology: The technology box shows which technology is required to play the game. In most cases this show the platform the game has been released on, e.g. PC, X-box or Playstation. However, some games suggest additional technology is required in order to get the best experience out of the game. This could be a headset to optimize the communication with your teammates in Battlefield 4. The choice of technology is also important, when considering the possibilities and limitations of the platform and software engines used.
6. Intended user experience: The purpose of this box is to let the developers aim for the kind of user experience they want their players to have. The content of this box is determined by what the team decides to aim for at the beginning of development, and can be hard to answer in an analysis without an interview with said developers.
7. Mechanic core loop: The mechanic core loop is the pattern and method of play. It is constituted by the mechanic design (system) and the interaction of the user. This could be the combat loop in a first person shooter game like: locate → perform action → reload/wait for timer → win/lose → xp/reward.
8. Context core loop: The context core loop box shows how the player interacts with the system from the context design. An example of a context core loop could be a game session loop in first person shooter game: Select game mode → Select class → game goal → Win / lose receive xp/reward → end game session → use xp/currency.

9. Meta core loop: Through the mechanic level, context level and the context of use a frame of the game is created, which constitutes the meta core loop of the game. The meta core loop sets the conditions in relation to the interaction between player and computer (system+technology+context of use) to make the meta core loops around the game. As such, the meta core loop details the culture and mentality around the game. An example of a meta core loop could be the interplay, strategy and knowledge that were required to gain and maintain control of rare resource nodes in World of Warcraft. The mechanic for collecting the resource and the resource system itself is within the mechanic and context level of the game. However, it became a meta core loop, when the players had to set up an entire external community tool, protection alliances through social interaction and surveillance systems in order to maintain control and be able to succeed in gathering the rare resources.
10. Context of use: The usage situation is constituted by the technology, game genre, time and place. The technology, game genre, time and place is important when considering how the user intends to make use of the specific game. For instance, some players have a limited time for game sessions, and therefore enjoy quick short game session on their way to work on the bus or whenever it is convenient. The context of use affects all the three levels of core-loops.
11. Perceived user experience: This box shows the actual user experience the user receives by playing the game. The content of this box is meant to show how the intended user experience differs from the perceived user experience. This focus stems from notion that one thing is to design a video game towards a specific user experience, another is what is actually being perceived by the user.

3.10 SUMMARY

The above presented theories will function as the basis for the analysis of the state-of-the-art video games. As such, we have gathered theories on:

- Fun in games
- Game design
- Business models and revenue models
- Revenue mechanics

These theories have contributed to the construction of our theoretical frameworks; the game design model and revenue mechanic model. Alongside with business model canvas, these models will function as our main theoretical frameworks for analysis. Next, the analysis will focus on key findings from our interviews, and a detailed analysis of the selected units of analysis.

VANITY
Permanent
Non-permanent
Exclusive:
Is the feature only available in a specific time period?
Non-Exclusive:
Is the feature available all the time?
Aesthetic features only affecting
Personalize
character:
Personalize game world:
Exterior camouflage
Consumables
+50% credit and experience boost
Shells
Exterior Emblem
Exterior Inscription
Exterior camouflage
Key Partners
Cost Structure

Currency
Silver
Experience
Gold
FUNCTIONAL
Equipment
VANITY
Exterior camouflage
Consumables
In the core game:
Around the core game:
OTHER REVENUE MECHANICS

Chapter 4

ANALYSIS

The following chapter presents the process and results of the collected and observed empirical research data, following the research strategy principles of Robert K. Yin and philosophical reasoning of the Systems view.

Here the theoretical framework of the master's thesis consisting of the Business Model Canvas, Game Design Model and Revenue Mechanics Framework function as analytical tools for six free-to-play video games divided into two categories.

4 ANALYSIS

Following the theoretical construction, the purpose of this chapter is to present our findings from expert interviews and a state-of-the-art game analysis of three mobile games (Clash of Clans, Boom Beach, Dungeon Keeper) and three PC games (World of Tanks, Team Fortress 2, Loadout). In each of the two primary sections of this chapter; 'Interview' and 'State-of-the-art analysis', the method of collecting and analysing the data will be explained, and subsequently, the respondents or games will be introduced and completed with the analysis of these.

The analysis of games is highly complex, since the study of games is an interaction between many fields of study and mediums. Based on our philosophy of science and methodological approach of examining the whole system and all its parts for cohesion, the analysis is comprehensive in both the working process and documentation.

Therefore, in each of the two primary sections of this chapter, the method of collecting and analysing the data will be explained. Subsequently, the respondents (Interview section) and games (State-of-the-art analysis) is introduced and completed through the explained method of analysis. Furthermore, each section presents models designed to bring an overview and finally, each section of our key findings and corresponding part conclusion is presented.

This is in order to provide structure and therefore make it easier for the reader to evaluate and compare the different units of analysis.
Furthermore, according to Yin (Kelly and Yin, 2007, p.137) it is important for the reader to understand how the theoretical framework for analysis is operationalized in order to comprehend and evaluate the results of the research.

4.1 INTERVIEW

This section describes the process of which the interviews were conducted and furthermore describes how data was categorized and subsequently analysed.

4.1.1 INTERVIEW PROCESS

When conducting our interviews, it is vital that we are

able to interpret the meaning of the data we collect, as we are looking to gain the subjective opinions of our respondents. Through our interviews, we will also be able to ask our respondents to elaborate on new subjects that might rise along the interview, adding flexibility to the method (Kvale and Brinkmann, 2009, p. 100). This will also allow us to gain a more nuanced picture of our domain of interest, as opposed to an objectified one that does not consider the context of the interview (Kvale and Brinkmann, 2009, p. 45).
The criteria for selecting the respondents for our expert interviews, is based upon the focus of this thesis. We wanted our respondents to have either a practical or a theoretical area of expertise in either one or both of these domains. In relation to the usage of in-game revenue mechanics, we wanted to have game companies that made use of in-game revenue mechanics in their games, but also game companies that deliberately have chosen not to. In this way, we will assure that we have respondents that can help clarify both pros and cons for utilizing in-game revenue mechanics. Addressing rival explanations is also a part of obtaining internal validity (Yin, 2009, p. 40), as mentioned in our validity and reliability section. This has led to the following main criteria for selecting our respondents:

- A practical or theoretical insight in development of games
- If practical, having either implemented in-game revenue mechanics in a published game or made a choice to deliberately not to implement in-game revenue mechanics in a published game.

4.1.2 INTERVIEW ANALYSIS METHOD

It is important to have an iterative approach for our interview process; therefore we have created the model below (iterative interview process) illustrating the course of our interviews Figure 58. Since the thesis builds on collected data, from our 8th and 9th semester's projects, these should be considered as pilot projects for the master's thesis. The data gathered during the previous two semesters are vital

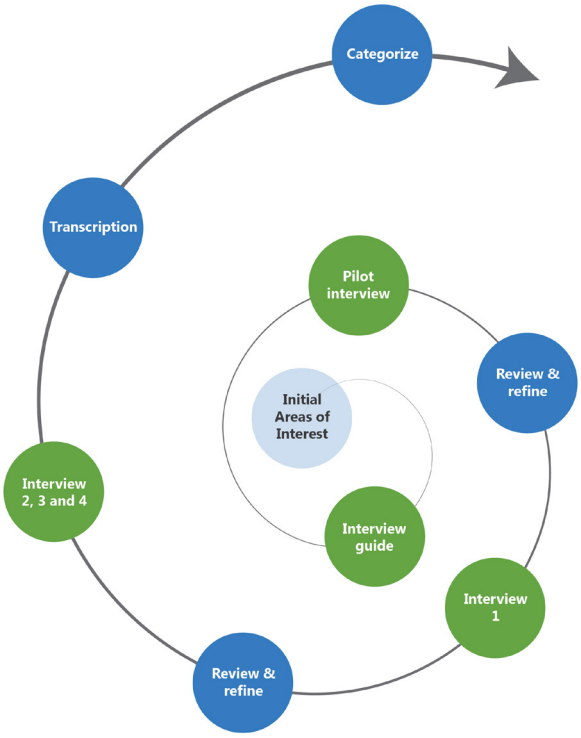


Figure 58: ***The data processing of our interviews.***

for how we understand the field of game design and business models.

From these two defining knowledge phases, we are able to refine a new area of interest, shown by 'initial area of interest' for the 10th semester.
Having established the area of interest we made the new and improved 'interview guide' which is based on Steiner Kvales interview guide principles, and with the new knowledge gathered through the initial master's thesis research phase. After the pilot interview, with Thomas Lund CEO of Full Control, we 'reviewed and refined' the interview guide and created a new for the following interviews.

After finishing the interviews, we initiate the transcription of interviews, however some interviews where conducted via emails. Furthermore, we have to simplify the respondent's statements into smaller phrases and connect them to new subcategories. When the transcription phase is completed, we start to categories statements seen in Figure 59 on page 96, this gives us a new insights and knowledge of the two domains of game design and business models.

Figure 59: ***Affinity diagramming the categorized interviews, helped discovering key findings and systematization***

Condensing the interviews into categories helped keep track of statements and data in general.

4.1.2.1 Interview categorization

Ensuring that we in the thesis group have a consistent understanding of the data gathered, each group member evaluates the transcript before the actual categorization begins. All the transcript interview data is printed and broken down into smaller bits. Doing so enables a categorization of the different data into themes that correspond to our areas of concern. Respondents will be colour coded, clear separation of the various statements is vital for how we will categorize statements. Figure 60 on page 97 shows the first categorization process, where transcribed data will be categories in main and sub categories. This process gives us a new and refined understanding of our data, and reviews our area of concern to get a deeper theoretical understanding of the field as well as practical knowledge, whilst enabling us to get a refined area of interest. Figure 61 on page 97 represents an on-going evaluation of conducted interviews.

Throughout the process of evaluating the data, it is necessary to condense the data even further. Here, newly categorized data goes through a second evaluation procedure by group members. Having done so, the extraction of key points, through a meaning condensation process will take place and be

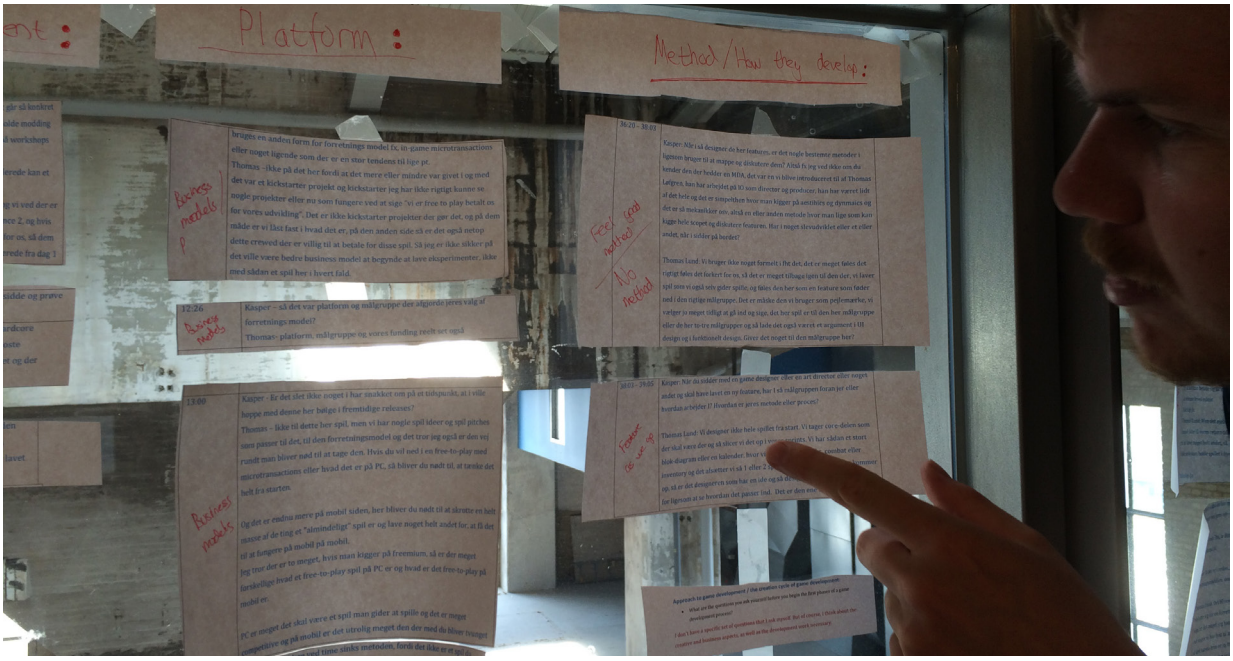


Figure 60: ***An example of the categorization phase.***

written into a matrix. Condensing interview material will further refine our area of interest, as we will be working through the data again. As shown in figure xxx, the categorized empirical data is pasted on a wall and can therefore be hard to grasp, a computer version of the wall will be made used as a tool throughout the case analysis process.

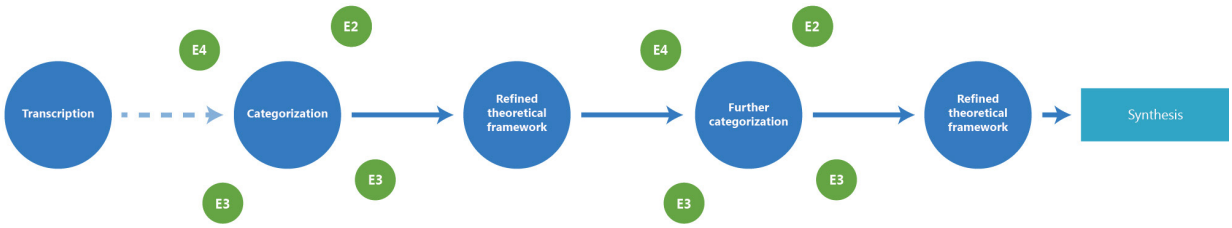
4.1.3 INTERVIEW GUIDE

As with any project that relies on interviews to gather data concerning a specific area, an interview guide is made (see annex 13 for guide) that approaches interviews from a research perspective (Kvale and Brinkmann, 2008, p. 119). Our reason for doing research interviews is based on the open structure that encourages the respondents answers and occurring topics to become the focus of the interview to avoid directing the respondents into forced topics and questions. This open structure supports the dialog between the conductor and the interview respondent. It is important for us to have the open research interview structure, since we want our respondents to be able to talk freely about the subject of video games and business models.

By letting our respondents talk freely, enables us to follow up on statements and delve further. Since some of our interviews is done through Skype and over E-mail, it is important for us to make a detailed agenda which is sent to each respondent. This is done prior to each interview, allowing interview respondents to have a chance to prepare.

During the start of every interview, we briefly explain

Figure 61: ***Shown is the interview categorization model, showing different phases of the interview process.***



RESPONDENTS	COMPANY	JOB POSITION
Jonas De Freita	King.com	Business Performance Director, primarily in charge of the performance in Candy of Crush
Thomas Lund	Full Control	CEO, Producer, Game designer, Software developer, currently working on Jagged Alliance - Flashback
Rune Vendler	Square Enix owned studio Haptico	Game Director currently working on three free-to-play games
Paul Barnett	Mythic Games at EA Games	General Manager of Mythic Games, currently working on: on demand cable streaming technology Background as a creative game designer, also a stint at running a studio

Figure 62: ***Respondents of our interviews***

the agenda of the interview to facilitate a sense of safety for the respondents. Since we are working in an iterative manner, the interview guide is reviewed and refined between each interview based on the knowledge of the field we have gathered.

4.1.4 INTERVIEW RESPONDENTS

During the planning of our interviews, we have started by emailing various game companies and academics that has led to the following list of people as respondents for our expert interviews. The respondents have been colour coded to track who says what, specifically for key findings.

4.1.5 KEY FINDINGS FROM INTERVIEWS

The subcategories are based on themes that have a larger presence during the interviews, as well as some of the main themes that we have found relevant to discuss. One of the main points discovered in the interviews is the respondents' opinion on the development of free-to-play games. Another main point through the interviews is the optimal time to monetize on in free-to-play games in relation to the player life cycle and development life cycle. Furthermore, the interviews address which specific monetization features are the most advantageous to monetize on for both the developer and user.

RESPONDENTS	Platform	Method of development
Jonas De Freita, King.com, Annex 1	**Business model:** Depends on the customer the game is being developed for. Needs to be a fun game and sticky, afterwards an appropriate business model can be integrated.	**No method:** There is no specific method for development (like GDM or MDA). Working iteratively in smaller scrumm teams and using sprints is effective. It should not be directed what and how a team should work, they will discover that on their own
Thomas Lund, Full Control, Annex 2	**Business models:** A platform of choice depends on what genre, target audience and funding a developer has.	**No method:** Generally Full Control does not use a specific method for development, rather relies on "what feels good".
Rune Vendler, Habtico, Annex 3	**Business Model:** Uses free-to-play, since it fits genre and playform the most.	**No method:** There is no specific method used in development of features, rather focus on the creative and business aspects.
Paul Barnett, EA Mythic Annex 4	**Business model:** Depends on the platform and genre. Some platforms are better suited for specific business models. Business models are dependen on hardware. In this case, EA picks the model that has highest market penetration.	**No method:** There is no specific method for developing a feature (possibly misunderstood question).

Figure 63: ***Main categories are displayed at the top in bold. Respondents names are colour coded. Annex number shows which number in the annex the full transcription of the interviews can be found. Subcategories are displayed with ": in bold" . If a respondent does not discuss a specific main category, "No data" will be written.***

RESPONDENTS	Early access	User generated content
Jonas De Freita, King.com, Annex 1	No data.	No data.
Thomas Lund, Full Control, Annex 2	**Definition:** Early access is both a business model and development model.	**Retention:** Content generated by users is a good way to establish retention, as well as market a product virally. Modding community is important.
Rune Vendler, Habtico, Annex 3	No data.	No data.
Paul Barnett, EA Mythic Annex 4	No data.	No data.

Figure 64: ***Early and user generated content***

RESPONDENTS	Creation cycle	Revenue mechanics
Jonas De Freita, King.com, Annex 1	**Balance/fun:** Focus on how a new feature can increase audience levels, if its not good enough they iterate and release new features. Social features: An important focus is also to design features that increases the social connectivity, having friends play the game increases retention over short and long term	**Teaching players:** Hook the player and be open about how the game intends to monetize. Explain and let users try out all the various revenue items, before they have to purchase with real money. The custormer needs to know what they are paying for.
Thomas Lund, Full Control, Annex 2	**Balance/fun:** Fullcontroll has an iterative work process, if they think its fun to play the feature is selected.	**Engagement:** Revenue mechanics should come late, after hooking players. Then monetize heavely on both mechanic and vanity
Rune Vendler, Habtico, Annex 3	**Experience first:** A game designer should think of the experience first, before thinking about money of how to monetize on players. **Defining business models:** It is vitally important to know what model the game is developed for, many elements in regards to game design have to be change if a business model differs through a production.	**Engagement:** Hook the players first, and be open about how the game intends to monetize. Teaching players: Let players try all features, including features that are reveneu based, a good way to teach players the game. **Balance:** No problem with monetizing on player progress, as long as it does not ruin the fun experience establish in the beginning
Paul Barnett, EA Mythic Annex 4	**Business model:** How is the new feature reflected in the business model **Defining Buisness models early:** Has experienced the need to change a business model late in prodcution, a business model has to be defined early in a production	**Business model:** The market decides how much a player should be able to pay to progress. **Balance:** A free-to-play game most allow players to pay to progress from the start, a subscribtion based game should have a reason for players to return.

Figure 65: ***Creation cycle and revenue mechanics.***

RESPONDENTS	Play pattern	Customer segment
Jonas De Freita, King.com, Annex 1	**Player retention:** Social connectivity is important for some games. But not necessaraly for games focused on single player.	No data
Thomas Lund, Full Control, Annex 2	**Player retention:** Hook the player within 5 minutes, before they start playing others games.	**Defining players:** Focus on what games players consume, rather then traditional player types such as, killers/explorers
Rune Vendler, Habtico, Annex 3	**Player retention:** Player has to be entertained, achieving something every session. Player needs something to look forward to when leaving a session. Involve playes with others to establish a social bond.	**Defining players:** What does the player need in order to have fun in the game, no specific player type.
Paul Barnett, EA Mythic Annex 4	No data.	No data.

Figure 66: ***Play pattern and customer segment***

The following is an overview of the key findings extracted from the interview:

- A business model should always be made at the start of a games production, since changing a business model late in the production will require substantial changes in the core gameplay.
- In order to keep users engaged over short and long term, the core mechanics of the game have to be fun before employing specific revenue mechanics, such as boosters or deluxe currency.
- User generated content is a strong way to establish retention. Having players come back for either game specific forums, or if the game features a game editor, keeps a steady income of revenue.
- Regarding platform of choice, respondents believed that this choice depends on the games genre and revenue model.
- In general a developer should not overwhelm players with monetization from the start, only after "hooking" them into the game.
- Interestingly, none of the developers we interviewed used any specific method, like a game design model, for developing games. Rather, they rely on what feels good and work in smaller scrum teams that all have their own development method.

4.1.6 GAMES ANALYSIS PROCESS AND METHOD

When beginning the process of analysing selected games we began with Osterwalders BMC. Doing so makes it possible for all members to test and play each game extensively, whilst placing sticky notes analysing the games business model.

After analysing with the BMC, a dynamic two-part process is begun where revenue mechanics and game design of selected games will be analysed with the use of sticky notes. Following, a more in depth analysis of games business and revenue mechanics and game design will give us a detailed overview for the primary analysis. During this phase, we will also be conducting a cross tabulation of game design and business within platforms and genres. Doing so enable us to see correlations between different genres and platforms, and specifically how they are designed and if there are similarities.
Hereafter a cross tabulation (analytical generalization)

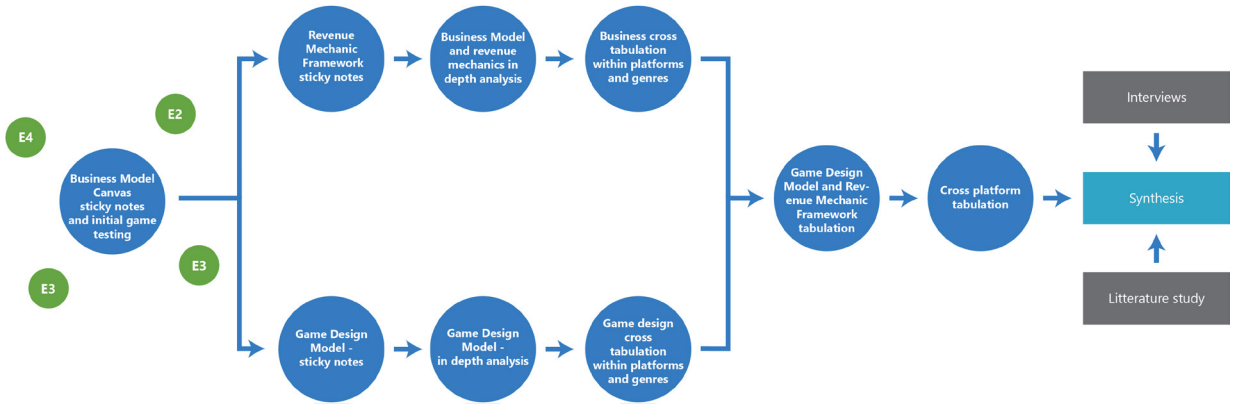


Figure 67: ***This model shows the process of the 'State-of-the-art' games analysis method.***

of game design and business models. Furthermore, it strengthens the reliability and validity of our results.

Finally, we perform method triangulation (Yin, 2009, p.116) by combining our results from the analysed interviews and literature studies with our analysed games, where a cross-case synthesis (construction) is conducted.

4.2 SELECTING STATE-OF-THE-ART MOBILE AND PC GAMES

The criteria for our units of analysis (the selected games) are constructed from the focus of our thesis. We have chosen to focus on how in-game revenue mechanics are implemented into video games and the effect they have on the player experience. Therefore, it is necessary to examine video games that utilize in-game revenue mechanics. Furthermore, the video games should display current in-game monetization methods and should there be recently released games or games have a substantial amount of success: Success, in the form of downloads on the various app-sites or best in class in regards to users and reviews. In relations to the use of in-game revenue mechanics, we have focused on video games that contain multiplayer aspects, or social connectivity.

To give a more varied picture of the different revenue mechanics, we need to cover different platforms and

From these criteria, we have chosen the following video games as the units of our analysis:

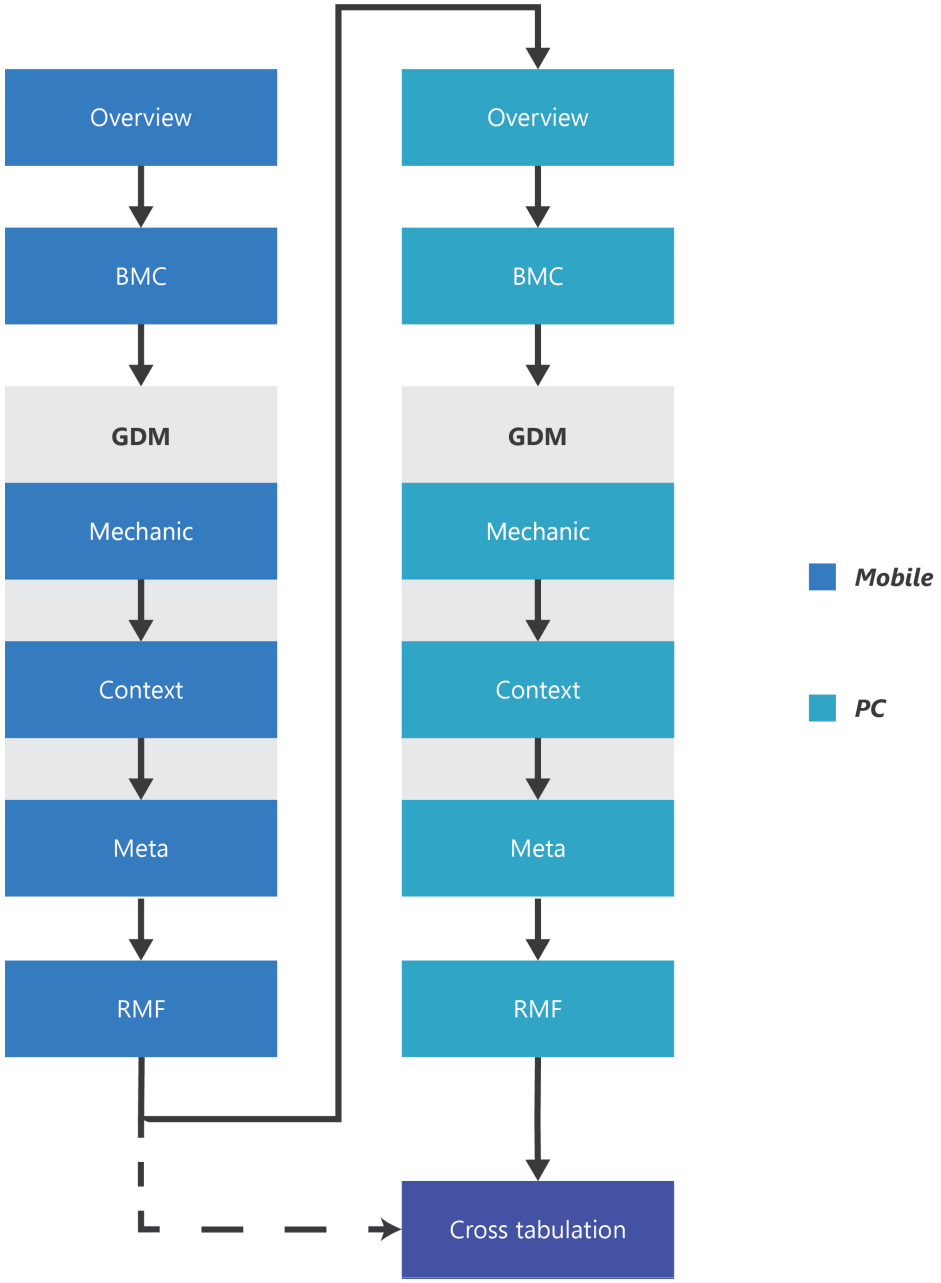
- Clash of Clans by Supercell
- Boom Beach by Supercell
- Dungeon Keeper by EA and Mythic Entertainment
- World of Tanks by Wargaming.net
- Team Fortress 2 by Valve
- Loadout by Edge of Reality

4.3 STATE-OF-THE-ART GAME ANALYSIS STRUCTURE

In order to give the reader an overview of the 'State-of-the-art' analysis chapter, this section explains the general structure. The chapter begins with an overview of the selected mobile games after which a combined Business Model Canvas-analysis of the mobile games is conducted. Thereafter an analysis of the design elements is presented that is conducted through the structure of the Game Design Model presented earlier in the thesis. Afterwards, an in-depth analysis of the revenue mechanics in the mobile games is conducted using the Revenue Mechanic Framework, which is constructed from presented business theory regarding revenue streams. The Revenue sections, while connected to the business model tabulation sections, are presented after the state-of-the-art game analyses, since the Revenue sections connect the

revenue mechanics to the game elements presented in the state-of-the-art analyses.
The analysis procedure is hereafter repeated for the three selected PC games. Lastly, the cross-platform tabulation combines the key findings of the analyses to create a framing of the findings from our units of analysis, which is utilized to compare the results with the presented theoretical and empirical interview results in the synthesis chapter.

Figure 68: ***The model shows the structure of the 'State-of-the-art analysis chapter.***



4.4 STATE-OF-THE-ART MOBILE GAMES OVERVIEW

Clash of Clans overiew:

Developer:
Supercell.

Release date:
2012.

Game description :
Clash of Clans is an online mobile only free-to-play multiplayer game. The game has players build up large bases from which they both defend the base from other players and attack players from, by building up large armies. Like many mobile games, Clash of Clans is a war game with a humorous tone and cartoonish violence. The game is designed for tablets and was released in 2012 for iPad and later iPhone. Clash of Clans uses revenue patterns such as; pay to skip time and the purchase of in-game deluxe currency.

Active users:
Clash of Clans has estimated daily active users of over 3,719,746 million, the game is currently ranked number one as the top grossing app and top free app on the iOS App Store.

Estimated revenue:
Clash of Clans has an estimated daily revenue of $1,086,047.

Revenue model:
Free-to-play with microtransaction.

14

Boom Beach overview:

Developer:
Supercell.

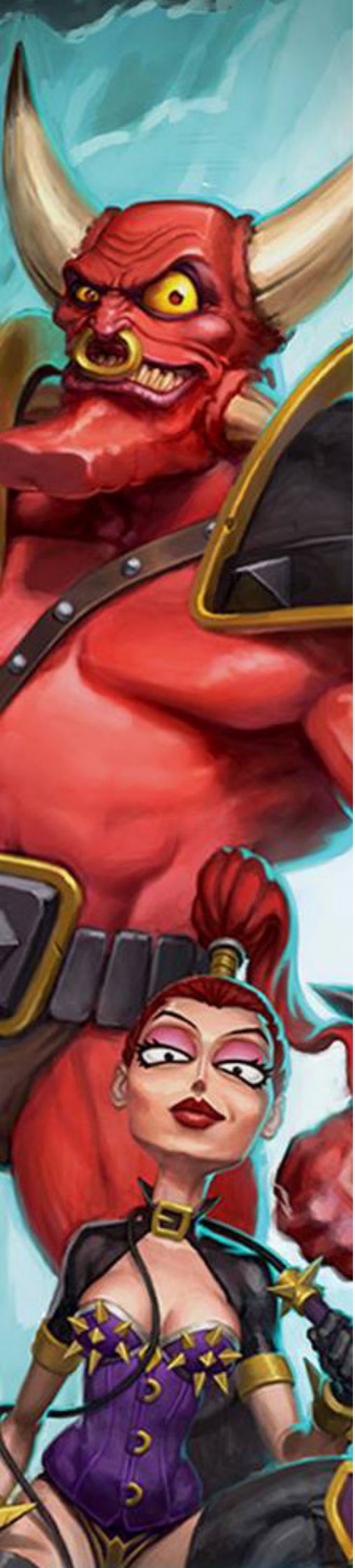
Release date:
2014.

Game description:
Boom Beach, is a mobile only free-to-play game that heavily focuses on strategic combat. In the game, players take on the role of a commander who has to defeat the evil Hammer forces that have enslaved the native villagers of an island region. The game was designed and made for tablets and smartphones, and has so far only been released on Apples iOS platforms. Boom Beach was released in 2014. Like many other mobile free-to-play games, these patterns range from time constraints to faster progression. Boom Beach features one type of deluxe currency; purple diamonds that are used to speed up progress of buildings and other game elements.

Active users:
It was not possible to find data regarding Boom Beach active user, however as of the master's thesis writing the game has 24,397 daily installs.

Estimated revenue:
Boom Beach has an estimated daily revenue of $212,077.

Revenue model:
Free-to-play – with microtransaction, however all features are available if the player does not want to pay real currency.



Dungeon Keeper overview:

Developer:
EA, EA Mythic.

Release date:
2012.

Game description:
Dungeon Keeper Mobile is a new take on the original Dungeon Keeper by Bullfrog. The new Dungeon Keeper is developed by EA Mythic and released on smartphones and tablets in 2013. Dungeon Keeper is a free-to-play mobile game that is focused on strategy and building up a base where players place traps to hold off NPCs and other players. Dungeon Keeper features deluxe currency that can be used to progress faster and avoid time constraints.

Active users:
It was not possible to find active users base, however the game has a daily install rate of 2,615.

Estimated revenue:
Dungeon Keeper has an estimated daily revenue of $6,333.

Revenue model:
Free-to-play with microtransaction.

4.5 MOBILE GAMES BUSINESS MODEL TABULATION

This section of the analysis will focus on the core business model of the three mobile games in the following order; Clash of Clans, Boom Beach and Dungeon Keeper. The purpose of the BMC analyses is to grant an overview of the games business models in a video game context, indicating the differences and similarities of the three games of each platform. In the analysis, our primary theoretical model for outlining the business model of the companies is Osterwalder's Business Model Canvas.

Throughout the analysis, we have analysed the right side of the Business Model Canvas. The right side of the Business Model Canvas aims at describing the product, customer interface and financial aspect of the revenue streams of each game. We assess these components to be essential for our analysis of the correlation between the game design and the revenue models of each game in relation to the thesis research objective, since we need to understand the context of the revenue mechanics in order to assess their functionality and contribution to the games' business models.

Since most of the games have a very similar business model, it would be redundant to present the analysis of each game separately. The section will first present an overview of the right side of the business model and

Figure 69: ***"As-is" model of Clash of Clans' (Green BMC) Customer segment, Value Proposition, Customer Releationship, Channels and Revenue Stream. The shapes outline colors illustrates the linkage between the different elements in the model (for full resouletion see apendix 14-15-16).***

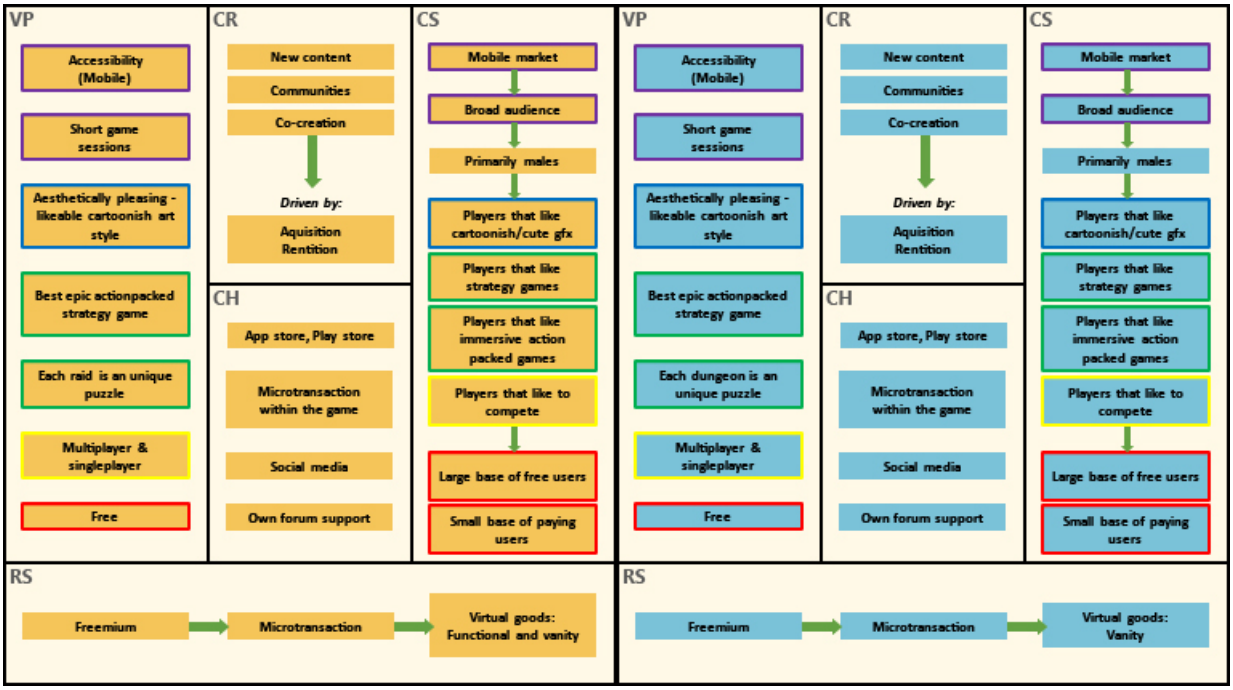


Figure 70: ***"As-is" model of Boom Beach's' (Yellow BMC to the left) and Dungeon Keeper's (Teal BMC to the right) Customer segment, Value Proposition, Customer Relationships, Channels and Revenue Stream***

secondly the tabulation of the three mobile games.
The value proposition and revenue stream segments is briefly described, since a further exploration of the elements of these segments is presented through the Game Design Model tabulations and Revenue mechanic tabulations and redundancy is therefore avoided.

4.5.1 CUSTOMER SEGMENT

All three mobile games aim at the smartphone and tablet market with males as the primary demographic. This is due to the genre and general themes of the three games that regards war and violence, but yet with a humorous twist. In a recent article on Newzoo.com (Warman, 2013), the age and gender differentiation of Clash of Clans users shows that 77% are males ranging from 10- 35 years of age.

Yet, the games seek to achieve a broad customer segment, since it is a very small percentage of the users that the games earn revenue on. Therefore they need a much larger user base in order to make the product profitable.

One game that could potentially have had another customer segment was Dungeon Keeper. As this particular game is the only none original title, in the mobile games analysis, building on the foundations of the original PC game, the game could have tried appealing to the original Dungeon Keeper fans; PC gamers, who grew up with the original PC version, wanted a game that was similar to that version. Many PC gamers in general feel that the game did not have the same skill based gameplay, but was warped by the standards of the mobile economy . The customer segment that EA was making Dungeon Keeper Mobile for was for players familiar with games like Clans of Clans, not the original customers of Dungeon Keeper. Many questions have been raised concerning Dungeon Keeper's economy system and the amount of time players have to wait.

> ***"How can waiting be fun? ... How can paying your way through a task feel rewarding?"***
> - (Sage, 2014)

Figure 71: ***Clans are one of the main value propositions of Clash of Clans, as it allows users to help each other out and compete against other Clans whilst keeping all social activity within the game***

Therefore, if companies take existing intellectual properties, they need to understand the original and new customer segment, not to alienate people from playing the game.

One could argue that it would have been in EA's interest to build a game that would encourage that segment of gamers in order to make a better experience for both casual and hardcore audiences.

4.5.2 VALUE PROPOSITION

Clash of Clans is one of the most downloaded games on both iOS and Android, and is marketing itself as a 'best in class' free-to-play game. Boom Beach and Dungeon Keeper is also exclusively for smartphones and tablets and are currently some of the most downloaded games on iOS, with Dungeon Keeper having a substantially lower revenue and user base than Clash of Clans and Boom Beach. The reason for Dungeon Keeper's lower revenue is further explored in the synthesis chapter.

Clash of Clans and Dungeon Keeper utilizes a social network system that is directly connected to each game's independent ecosystem. The social network systems are called "Clans" and "Guilds", which is the developer's solution to create social connectivity among users, which deepens the engagement of the players and increases the chances of the players to purchase items within the game.

4.5.3 CUSTOMER RELATIONSHIP

In regards to the customer relationships in the three mobile games, we see a very similar pattern. All of them establish a customer relationship by providing communities that players can both get support from, as well as talk about the game(s) in general.

The communities for the games, are facilitated by the companies own websites where players discuss the game in various forums. The communities allow users to become more engaged with the product, describing and showing tactics of how to solve various quests and defeat bosses. The forums also make it possible for the developers to give personal customer support and for customers to support each other.

As with any gaming-affiliated forum, users are able to lend their voice regarding elements within the game, be they good or bad. This is definitely a strength, especially for free-to-play games, since these games never end and new content is regularly launched. It can be argued that utilizing the customer feedback would help the companies to better understand their customers' needs and improve the game and player life cycle.

4.5.4 CHANNELS

All three games try to reach their customer segments and communicate their respective value propositions through their own websites. Social media, such as Twitter and Facebook are used extensively to create awareness as well as give updates regarding maintenance or if the game has a game balance problem. On the websites, and social sites the companies in general have a lot of screenshots and videos of the games and sometimes have users submit videos of them playing the game. This helps new customers to evaluate the value propositions of the game, before they download or start to purchase in-game currency.

The primary channel is, however, the platform where the games are released. Clash of Clans and Dungeon Keeper's distribution channels are Android and iOS allowing for a very broad audience to play the games. Boom Beach has not been released as a multiplatform product and has so far only been released on iOS, however Supercell have announced that the game will be released on Android as well. Since all games are free-to-play, companies do not necessarily earn money by installs. Therefore, they all have channels within the games that set up microtransaction features.

4.5.5 REVENUE STREAM

Having these various mechanisms that help garner attention and sustainability means nothing if the business model does not have a proper revenue stream based upon the value you are selling. Clash of Clans, Boom Beach and Dungeon Keeper employ the same exact revenue streams; make the game freemium and focus on selling virtual goods through microtransactions. None of the mobile games have fixed revenue, such as a subscription model etc., but relies on small to large one-time customer payments (Osterwalder, 2010, p. 36).

All three games sell in-game currency; gems, that are then used to speed up progress of various elements in each game. Interestingly, this is the only actual component that players can purchase. The exact revenue mechanics are further elaborated in the section 'Mobile games revenue mechanics tabulation'.

4.5.6 KEY FINDINGS FROM THE BMC TABULATIONS

- All three games have similar customer segments, designed for users who have smartphones and tablets and for people who like free-to-play games.
- Clash of Clans can be seen as the predecessor to Dungeon Keeper and Boom Beach and lays the foundation for the general business model patterns for free-to-play mobile games. Namely, to engage the player with long-term game lifecycles, by making new free-content available at a consistent pace.

4.6 STATE-OF-THE-ART MOBILE GAMES TABULATION

This section analyses the game design of the three mobile games, what constitutes their core-loops and how the three games incorporate revenue mechanics into the design. The tabulation uses the Game Design Model earlier presented in the thesis and focuses on the core design components and the components influenced by revenue mechanics. The core-loop tabulation analysis is divided into three sections that each focuses on the three different levels of core-loops.

Firstly, the tabulation examines the mechanic core-loops connected to the most common player interactions within the three games. Here the tabulation focuses on the core systems, mechanics and revenue mechanics that constitute each games core gameplay. The second part of the tabulation examines the context core-loops of each game which focuses on how each game sets up goals that gives the player a reason to come back for multiple game sessions. Finally, the tabulation examines the meta core-loops of the three games, focusing on how the games makes the player value the games.

Through the three sections, the three games are compared to each other. Since the three mobile games are very similar in their design, the tabulation mainly emphasizes on the differences between the three games in order to avoid repetition.

4.6.1 MECHANIC DESIGN TABULATION

The core design of Clash of Clans, Boom Beach and Dungeon Keeper mobile consists of three primary systems that constitute every other mechanic within the games. The three primary systems are:

12. The Resource system
13. The Building and upgrade system
14. The Combat system

	DESIGN	INTERACTION
	MC	MC CL
	C	C CL
	MT	MT CL

Figure 72: ***Illustrates what part of the GDM this section contains.***

We define the three systems as prime systems of the game, since every other mechanic and system is connected, or influences, one or more of these systems. The three systems have a mutual influence on each other and together create the basis for the mechanic core-loop of the three games.

Resource system

Clash of Clans uses a triple currency resource system that creates the foundation for a player's progression within the game. The resources are used to build and upgrade structures, to produce units and to attack enemies. The resource system is therefore tightly connected to the two other primary systems.

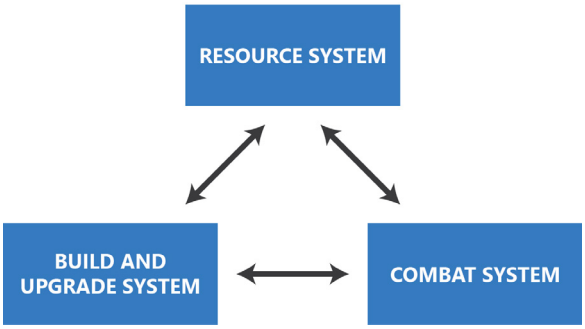


Figure 73: ***The three interconnected primary systems of Clash of Clans.***

Figure 74: ***The triple currency resource system in Clash of Clan as presented in the in-game GUI.***

The Resources in the three games

The three resources in Clash of Clans are (Presented in the order of Figure 74 from top to bottom):

1. Gold
2. Elixir
3. Gems

Gold and elixir are the common currencies within Clash of Clans. Every build, upgrade or unit production requires either gold or elixir. As the player progresses in the game, more and more resources are required to play the game. The player collects resources through specific resource buildings that either produces gold or elixir. Dungeon Keeper has very similar resources; instead of elixir, they have stone as a resource, but the functionality is the same. Boom Beach has five resources:

1. Gold
2. Wood
3. Stone
4. Iron
5. Gems

The resources are similar to Clash of Clans and are used for the same actions within the game. Stone and iron is, however, introduced as the player progresses in the game. Building structures and upgrades, requiring the new resources. This means that the resource system of Boom Beach progressively becomes more advanced, since the player's action begins to require several kinds of resources to be built.

Gems

Instead of spending the other resources in the games, the player can spend gems to replace the resource cost of the construction, upgrade or production in

Figure 75: ***Screenshot from the Gem-Currency showing how the gems can accomodate for missing resources.***

question. The gems can also be used to accommodate for missing resources; the amount of missing resources is converted into a specific cost in gems based on the amount of resources missing to start the production in question.

Another function of gems is to skip the production time on constructions. The amount of gems required to skip the production time is based upon the amount of time it takes to finish the construction. This means that the player can complete a production that is only

Figure 76: ***An example of how the player can instantly skip the waiting time of his action in Dungeon Keeper.***

halfway completed by spending half of the gems that it would take to complete the construction instantly. In Clash of Clans and Dungeon Keeper, gems can be used to defend your base, directly preventing other players from attacking you and stealing your resources.

It should be noted that Dungeon Keeper has more gem features, which players can purchase. Since these do not affect the mechanic core loops, these gem features will first be presented in the revenue mechanic section of Dungeon Keeper.

Building and upgrade system

The three games each have a build- and upgrade system that contains different structures and units that each has certain functionalities. The functionalities of these productions can be arranged into the following four categories:

1. Resource efficiency and capacity
2. Army production
3. Army power
4. Defense power

Applicable to all functionalities are that production or upgrade costs a certain amount of resources and takes a certain amount of time to complete. As mentioned earlier, the amount of resources required for upgrading structures and units increases for each level of the upgrade. This applies to the completion time as well and is seen in most strategic games with completion timers. We believe this to be a common element of the progression of the strategy game genre in general.

From these four categories of functionalities for the building system, it is evident that the system is tightly connected to the two other primary systems of the three mobile games. This is further clarified in the

Figure 77: ***(Example from CoC) A defense building; the archer tower can be upgrades to improve its damage and health in combat.***

Figure 78: ***The four statistical values of the Zooka unit in Boom Beach. The unit has a very high damage and a long attack range, but has a very low amount of health and therefore dies very easily if taking damage.***

mechanic core-loops.

In Boom Beach the player can only build or upgrade one building at a time, whereas Clash of Clans and Dungeon Keeper give the player the opportunity to build two to six at a time.

Combat system

One of the main goals of Clash of Clans, Boom Beach and Dungeon Keeper is to become more powerful. The power level of a player is generally measured by how strong his attack and defense is. In the three games, the strength of a player's attack is measured by the size of his army and each army unit's level upgrades. The strength of a player's attack and defense results in a player's efficiency in combat and means that he can overcome bigger challenges (stronger opponents).
The same goes for the strength of a player's defense, but instead of size and level upgrades of the army, it is the amount and level of his defense buildings that measures the strength of his defense.

Unit and building statistical values

Both the attacking units and the defense buildings have a range of different statistics that has different values attached. These values are measured based on the type of unit/building and the level of said unit/building.

The range of the statistics for each unit type is almost identical across the three mobile games. It is only their values that are different. However the games differ from each other in the behaviour of the artificial intelligence (AI).

Unit Artificial Intelligence

The AI of each unit type in Clash of Clans and Dungeon Keeper acts in a specific way, where each unit type has certain priorities to which of the defender's buildings they attack. These priorities make different strategically compositions of an army possible in addition to the strategic depth of the unit types' different statistical values. The unit AI is an important factor to the combat system of the games, since the only control of the units the player has, is the deployment point for each unit group. After the deployment of the units in specific deployment areas, the player has no control of the units other than the priorities of each unit type. Boom

Beach's lack of priorities is accommodated by special player commands, the player has at his disposal during the attack.

Attack Commands

In Boom Beach the player has a certain amount of action points at his disposal to make different actions while attacking. Each command has a specific cost that increases for each use of the command. The cost increase encourages the player to use a combination of the different commands instead of only using one of the commands. The functionality of the attack commands range from giving units a new target to attack, healing damaged units in an area, to damaging and shutting defense structures down for a limited duration. Dungeon Keeper has a similar system with 'mana' instead of 'action points' and the 'attack commands' instead being 'spells'. However, all the attack commands in Dungeon Keeper have the functionality of dealing damage to the defense buildings.

The Win and lose conditions

What defines whether a player wins or loses combat depends on whether he is attacking and defending. The constitutive rule of the games, as mentioned in our theoretical section on game design, means that the attacking player has to destroy defense buildings of the defending player in a certain amount of time. Which defense building the player has to destroy is different in the three games. In Boom Beach, the attacking player only has to destroy the headquarter building in order to win, but in Clash of Clans and Dungeon Keeper the attacking player has to destroy over 50 percent of the opponents buildings in order to win.

In each of the games, the attacking player has three minutes to reach the winning objective. If all of the attacking player's units are destroyed the attacking player loses the combat. This rule applies to all three games, but during combat, attacking players also have the opportunity to retreat and end combat. This feature means that a player can minimize his unit loses if the defense showed to be too difficult or the attacking player made a poor attack strategy.

4.6.2 MECHANIC CORE-LOOPS TABULATION

In the following section, we explore the core-loops that the primary systems of the three mobile games cause to emerge. The mechanic core-loops facilitate the basic player interaction patterns that the player continuously repeats to reach the intended goals of the games.

The core-loops are explained through the actions of which the player takes and which systems are connected to each loop.

	DESIGN	INTERACTION
	MC	MC CL
	C	C CL
	MT	MT CL

Figure 79: ***Illustrates what part of the GDM this section contains.***

Figure 80 on page 119 present the systems that constitute the different mechanic core-loops that have been identified in each of the three games.

Build loops

The build loops of the games are very similar. They do however have some differences, which are elaborated through the explanation of identified actions throughout the core-loops.

Each build loop begins with a collection action. Here a player collects the produced resources of his resource

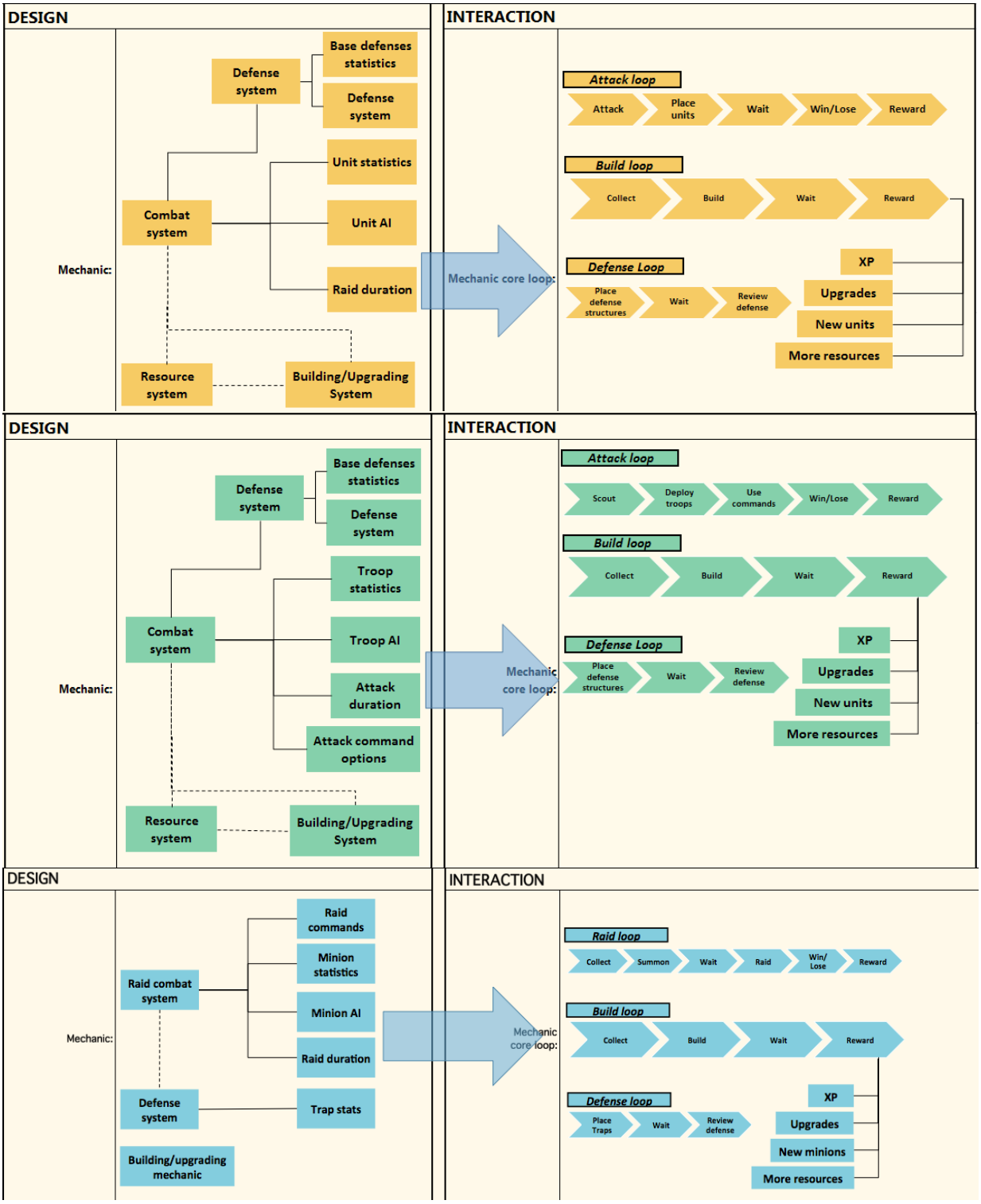


Figure 80: ***The mechanic design and interaction of Clash of Clans (yellow, top), Boom Beach (green, middle)and Dungeon Keeper (teal, bottom).***

buildings. Tapping on the touch screen collects the resources on the resource icon above the resource buildings. The icon only appears when the resource buildings have resources available to the player. When the player taps on the icon, the collected resources are added to the player's total resource count.

When the player has enough resources, he can choose

to use the resources to construct a new building or upgrade an existing building. Each building has different properties and gives the player different rewards. However, before the player receives the rewards, the player has to wait for the building to complete its construction. We have previously mentioned how the resource cost and wait time increases as the player progress through the game. The increase of wait time in Clash of Clans and especially Dungeon Keeper escalates a lot faster than in Boom Beach, meaning that the progression of each individual building is slower than in Boom Beach. This is connected to the build system of the two games, where the player can build several buildings at a time.

When the construction of the building is completed, the player receives a certain amount of experience points and gain access to new units, new buildings, attack commands or upgrades to these.

Through building loops, the games become progressively more complex, as the player gains more possibilities within the game.

Attack loop

In order to attack other players, the player needs to produce an army. The first step of the attack loop is therefore to produce units. The production of units follows the same pattern as the building loop, where the reward is the produced unit. All three games have a limit as to how big an army a player can have at a certain time. The army capacity is, however, increased as the player progress through the games, increasing the strength of the player's army.

When the player has produced an army, the next step of the attack loop is to find an enemy. The three games use an internal matchmaking system to decide which opponent the player is matched against. Boom Beach's matchmaking differs from the other two games by presenting the defending player on a neighbouring island to the player's home base. The player can see the level of the opponent beforehand, giving him an idea of how powerful the opponent is. The opponent stays on the player's map for 24 hours, after which the player has the option to find a new opponent for the given island.

The player can see the defending player's base before

Figure 81: ***The map where enemy player's appear.***

Figure 82: ***The Deployment phase in Clash of Clans. Here the player can see how many units he has at his disposal and where he can attack from.***

attacking; we call this the 'scouting' phase. Here the player looks for advantageous attack positions and is informed of the specific reward for defeating the enemy player. Here the player can form a general strategy for the attack, and decides whether he wants to attack the player or not. In Clash of Clans and Dungeon Keeper, the player can decide to not attack the defending player, and can spend a small amount

Figure 83: ***The victory screen after winning an attack in Dungeon Keeper. The player is informed of how many resources he has gained from the attack and the amount of units he used to gain it.***

of resources to find another opponent or to exit the combat for free.

Once the player attacks, he deploys his troops in any of the appointed deployment areas. Once the unit is deployed, the unit immediately moves forward and attacks. In Dungeon Keeper and Boom Beach, the player can use his commands as part of his strategy to win the combat. When combat is resolved, the units in Clash of Clans and Boom Beach that were deployed, but survived the combat, is again at the players disposal to launch another attack. The two games reward the player for taking as few unit loses as possible. In Dungeon Keeper, the deployed units are lost whether or not the unit survived, making the player aiming to win the attack with as few units as possible, since he has to replace the units used in combat and therefore returning to the unit production loop again before launching another attack. If the player wins, he receives a reward immediately. The reward consists of the resources the player was informed of in the scouting phase or a percentage thereof, based on how much of the opponent's base was destroyed. In Boom Beach, the player only gets the reward if he destroys the headquarter building. The player also gains a certain amount of high score points, which will be explained in the context design section.

Defense loop

Just as the player finds other players to attack, other players can find the player and attack him as well. An important difference between the raid loop and the defense loop is that the player only actively engages in the attack loop. The player through his placement of defense structures only influences the defense loop. Just as the attack loop, this is a common strategic element of the tower defense genre that lets a player personalize his own strategy and gives the player room for making different strategic choices.

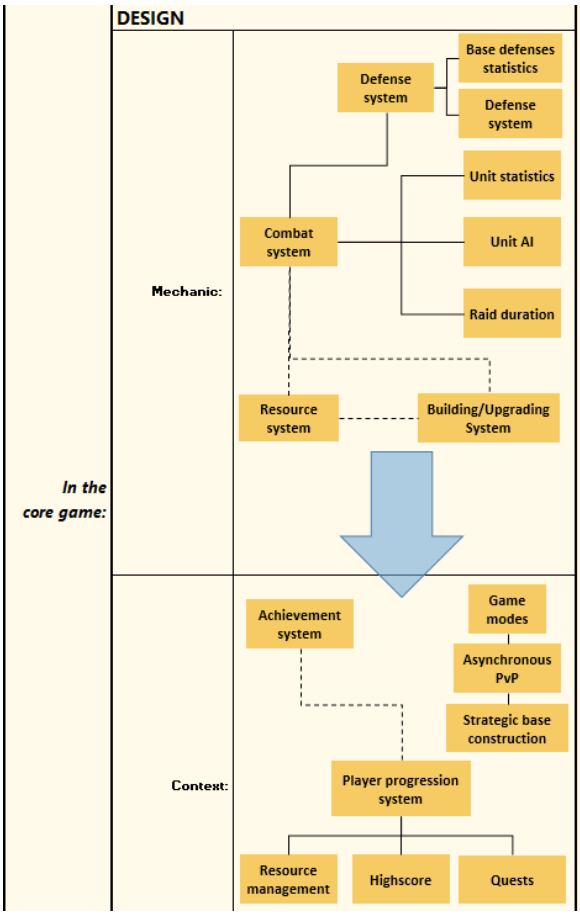
4.6.3 CONTEXT DESIGN TABULATION

In the following section, we explore the core loops in the context design. The context core loops are goals of the game, what challenges the games has, as well as

	DESIGN	INTERACTION
	MC	MC CL
	C	C CL
	MT	MT CL

Figure 84: ***Illustrates what part of the GDM this section contains.***

Figure 85: ***The mechanic and context design of Clash of Clans (yellow)***



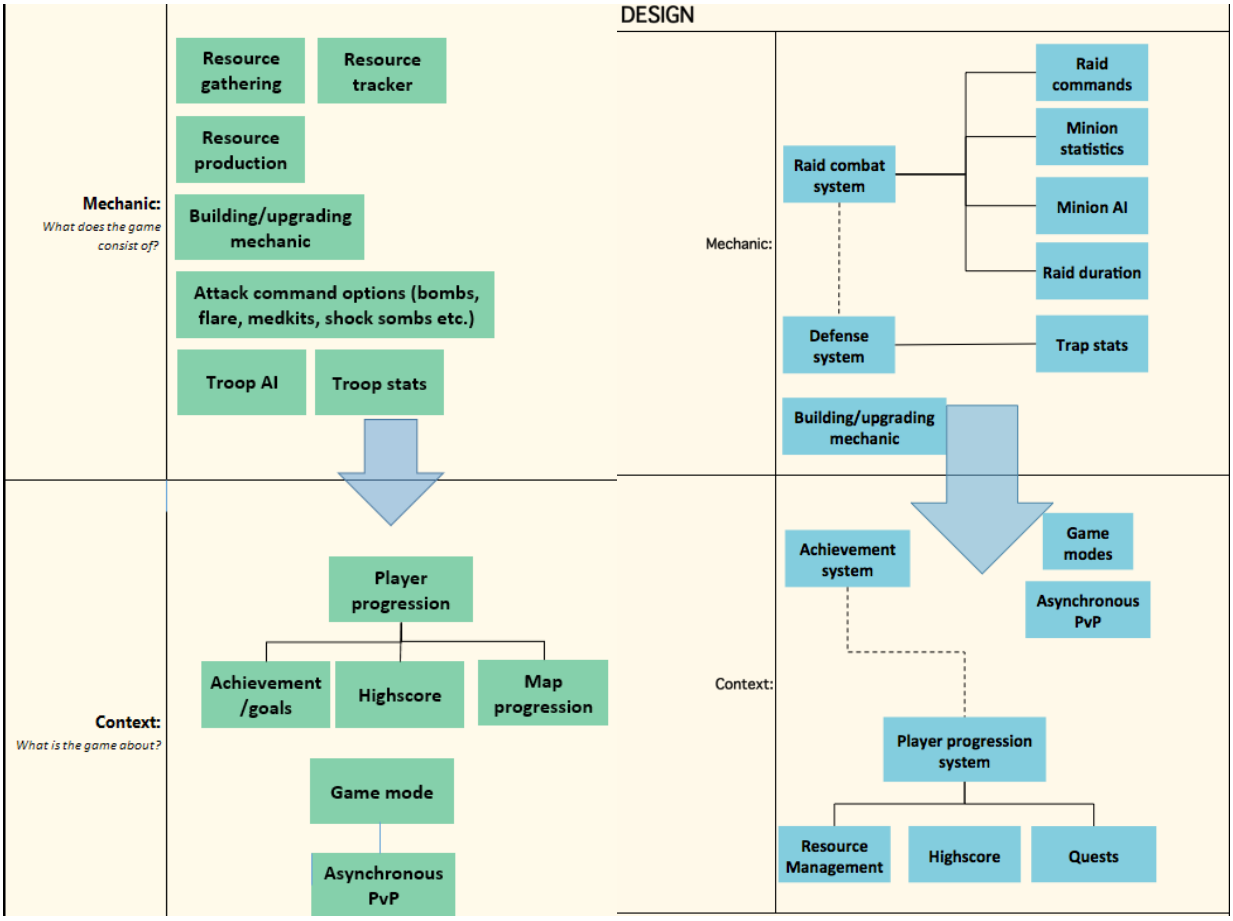


Figure 86: ***The mechanic and context design of Boom Beach (green, left) and Dungeon Keeper (teal, right).***

narrative elements in a game. The core loops are explained through the actions of which the player takes and which systems are connected to each loop.

Figure 85 on page 122 and figure 86 present the systems that constitute the different context core loops that have been identified in each mobile game.

Achievement System

TThis first section, concerning Achievement System, will give an overview of how this system works in all three mobile games, a more detailed describtion of how each games utilizes the system is dedicated to the respective games. All of the three games utilize an achievement system that is connected to Apples Game Center. The achievement system rewards the player with deluxe currency resource in the game. The achievement system can be considered as a goal system in the sense that the player is rewarded for completing an objective within the game. The system has a wide range of objectives that are connected with both the mechanic- and context design systems of the game. The objectives in the achievement system are all connected to an internal counter that tracks the player's progression to the specific system connected to each achievement objective, automatically keeping track of how far the player is from completing the achievement.

The objectives can either be connected to the resource, combat, building or progression system of the game; the player is rewarded gems for collecting 100,000 gold etc. or successfully defending his base five times.

Each achievement has different levels of completion. When a player completes one achievement, another achievement turns active that has the same objective

as the achievement he has just completed, but just requires more of the player, depending on which system the achievement is connected to. As the challenge increases, so does the reward.

As mentioned in the theoretical chapter on the meta level of the core-loops, the general idea behind an achievement system is to create a goal system where players can personalize their goals within the game. However, the analysis of the achievement system in the three mobile games shows a general lack of personalization for the player. Comparing the achievements to each other and across the three games, the rewards are almost identical and the objectives are normally completed through the natural progression of the player. The achievements are more of a way to reward the player for having played the game for a long duration than helping the player set goals within the games.

In Clash of Clans, there are two main systems that are essential for the core context of the game, the player progression system and the game mode system.

As seen in Figure 86 on page 123, the player progression system features a subset of systems that constitute the context of the game: the resource management system, highscore system and quest system. As a multiplayer free-to-play game, Clash of Clans does not have a specific point where the game ends as normally seen in games, but rather a subset of main goals; both intrinsic and extrinsic.

After completing the main goal, a subset of other game goals will take effect and the game can continue indefinitely. Returning to the progression system, players progress by completing quests, building the main base via the resource management system and ultimately increase the player's highscore on leaderboards. These systems are directly linked to the mechanic design of the game, as seen in Figure 86 on page 123. In order for the players to progress in the game and increase their highscore, they have to use the combat and resource system. An example of the progression system is to get a certain resource; players have to either engage with the combat system or resource system. Both will reward the player with specific resources.

The second main system, the game mode system, consists of two sub-systems; asynchronous player vs. player or clan vs. clan and strategic base defense. Since Clash of Clans is not a real time strategy game, like Command and Conquer, Clash of Clans focuses on game modes that are asynchronous. Meaning that only one player is able to interact and do a specific action within the game during an attack. The asynchronous system is reminiscent of other games like Sid Miers Civilization where players do a specific number of actions before ending their turn and giving it over to the other player or computer. The asynchronous game mode, comes into fruition when a player decides to attack another player.

The strategic base defense game mode, is the on-going mode within Clash of Clans. Through the use of Jane McGonigals four steps to what defines a video game, all four elements are clear. The goal is to build up a defense and attack others, do to the asynchronous game style rules prohibit other players for interacting with the game. The game gives players feedback for how well or poorly they are doing, by giving rewards like resources or gems.

It is important to note that in some mobile free-to-play games, there is a slight disconnect between game goals and achievements. An example of this in Clash of Clans is to attack ten bases and get a reward. This can be seen as a traditional achievement system, like that of Halo 4 for Xbox 360 that has players kill 20000 players in order to get an achievement. However, there is no actually function for the achievement in Halo 4 other than bragging rights. Getting a particular achievement in Clash of Clans is also a goal in the game, as it rewards the player with gems that can be used to progress in the game and is directly tied to the resource management system.

BBoom Beach has an almost identical context as Clash of Clans and features many of the same systems.

Figure 87: ***Boom Beach's map system, here players can through enough gold and correct radar level, reveal more islands and opponents.***

Namely a player progression system and a game mode system. The player progression system is divided into three sub-systems, achievement, highscore and map progression. In Boom Beach three layers shows how far the player is. One shows the current general level a player is, this is based on how much they have build. This system is directly tied to the mechanic of resource management, in that players first gather a substantial amount of resources before they can get experience points. A second progression system are Victory Points, representing success rates a player has in defeating none player characters (NPC) or real life players (RLP) in the campaign. Victory Points are used in the Boom Beach's matchmaking system, in order to find players that are of same power level or skills. Victory points are subtracted from players, if a player is attacked. The victory point system depends on the player's skills in controlling troops, and strategically using the attack command mechanics. In addition, the third and last progression system is the map system.

The map in Boom Beach can be explored depending on resources and what level the player's radar is. The radar in Boom Beach is used to expand the player's map, where users can explore the various islands and find new real life opponents. In order to explore a specific area, users remove clouds that hides the user view, reminiscent of fog of war seen in games like Command and Conquer.

Removing clouds cost gold, the game restrics how much exploration can be done as clouds have a specific level that needs to correspond to player's radar. Meaning, that users need to upgrade their radars in order to progress in the game, by finding more opponents. Boom Beach's dynamic map system, allows player to play more frequently by virtue of having access to more levels to play at any given time.

The achievement system in Boom Beach works the same way as Clash of Clans. Allowing the player to set intrinsic goals.

The last main system in Boom Beach is Game mode.

Boom Beach relies on a more traditional story structured campaign, where multiplayer is integrated into the main 'singleplayer' campaign. Meaning, players who play Boom Beach online can play the game as a singleplayer experience but the asynchronous multiplayer continues in the background.

Dungeon Keeper, by EA Mythic, has the same context designs as the previous two games. It also features a player progression system that has three subset of systems. A resource management system, highscore and questing system.

Dungeon Keeper, by EA Mythic, has the same context designs as the previous two games. It also features a player progression system that has three subset of systems. A resource management system, highscore and questing system.

In Dungeon Keeper, the users progress by gathering resources, through the resource mechanic, hereafter they build their base in a square layout dungeon as we have mention in the mechanics section.

The highscore system in Dungeon Keeper has much similarity to the other two mobile games. Players with the most victory and experience points are placed at the top of the leaderboards, and other players can view their bases.

The achievement system in Dungeon Keeper, is directly linked to a quest-like system that can be seen in the other mobile games.
The extrinsic goals in Dungeon Keeper can for example be the "Bring it!" achievement where the objective is to win one exclusive survival raid in order to gain a small amount of deluxe currency. But in order to complete this, players have to gather resources and amass a large army, making Dungeon Keeper a game that has multiple goals, sub goals and player chosen goals (intrinsic).

Dungeon Keepers last main system, game mode system, allows users to both play alone where they build up a stronghold and attack NPC's. Here players focus more on gathering resources and in general do not need to worry about other players, even though the only game mode is an online only multiplayer mode. Like in Clash of Clans and Boom Beach, the primary game mode of Dungeon Keeper is asynchronous PvP where players can attack each other based on the amount of victory points and experience level.

4.6.4 CONTEXT INTERACTION TABULATION

	DESIGN	INTERACTION
	MC	MC CL
	C	C CL
	MT	MT CL

Figure 88: ***Illustrates what part of the GDM this section contains.***

This section of the analysis will focus on how the three mobile games context come to action though the players interaction with the game, we define this as the context core loop; What are the players goals? These goals range from the basic core interaction a player has with a context system, as we previously showed in the analysis, to more complex reasons for why they should return to the core interactions with a game. Due to there being a large amount of 'steps', the analysis will be broken in to a step by step structure.

1. In Clash of Clans a game sessions starts when the player enters the games, here he or she has the freedom to choose what areas of the game they want to play with, making for a various of play styles.
2. Once the player starts the game, the core mechanic

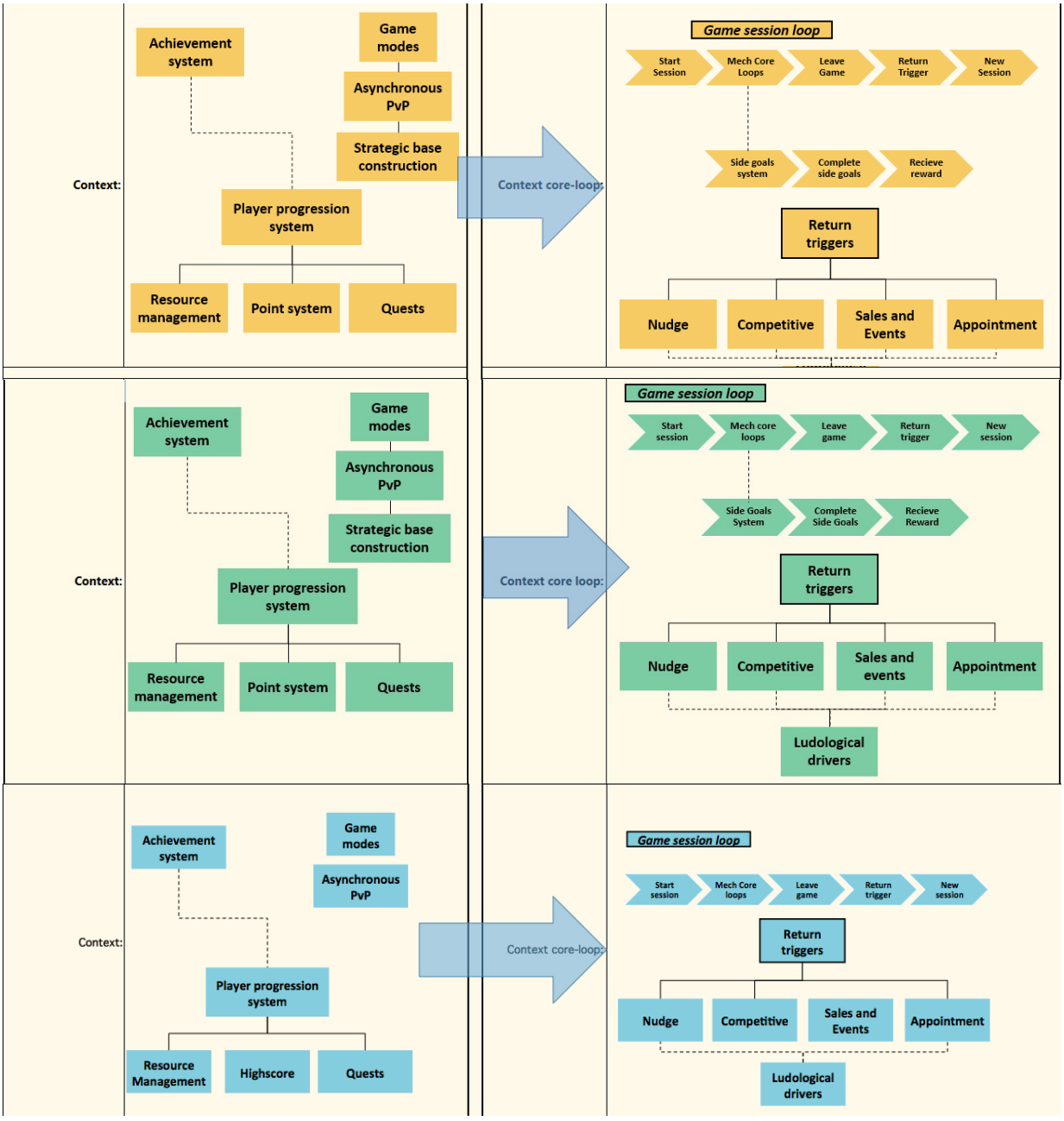


Figure 89: ***The context design and interaction of Clash of Clans (yellow, top), Boom Beach (green, middle) and Dungeon Keeper (teal, bottom).***

loops begin i.e. farming for resources and building or upgrading the base. As the model shows, once the mechanic core-loop is engaged, numerous side goals begin; known as the achievement or quest system in the context design. Here players can choose what extrinsic goals they want to complete in Clash of Clans, before they continue playing the main campaign.

3. The next step is to follow goals set by the player, finish them and get a reward or to leave the game.
4. If and when a player leaves a game, various forms of return triggers will appear in order to draw the player back into the game. We will explore these in the steps bellow.
5. When a player returns to the game, because of a return trigger, a new game session starts and the player is again free to set his or her own goals and the player game cycle continues.

Return triggers are in used to draw the player back into the game. Clash of Clans has many different return triggers ranging from the competitive return triggers to standard smartphone return triggers like push notifications, known as nudges (Luton, 2013, p. 66). The triggers help draw attention towards the game's core mechanics, such as the resource and building mechanics. This is known as the appointment trigger. Players are informed before and after a building have finished completion and quickly enable them to continue playing and build more. In the process the player is returned to the core revenue mechanic where they can purchase more functional goods like gems.

1. Boom Beach's game session loop begins when the player enters the game.
2. When the player starts to play, the mechanic core-loop also begins as well as the side goals. Side goals are, e.g. in Clash of Clans, intrinsically set by the player. He or she has the freedom to choose what parts of the games core mechanic they want to focus on.
3. Once the player has completed his or her goals, i.e. start construction on a building, they can leave the game and return triggers will start informing the player of various elements of what is happening within that particular game session they just played as well as inform of what is happening within the game.
4. If players return to the game, a new game session begins and the cycle continues.

Boom Beach has many of the same return triggers as Clash of Clans, but since the game does not feature a clan or guild system means that no social return triggers within the game can be found. Rather, players get information about bases they have conquered and if another player has retaken the base. Resulting in a very competitive focused return triggers centric style.

1. Dungeon Keepers core-loop starts with the players initial opening of a game session
2. When the player starts to play, the core mechanic loop begins. Here players can either focus on the resource management part, and increase their experience level or venture out and play multiplayer to increase their victory points.
3. Players can also focus on the intrinsic goals, based on the achievement system in the core design of Dungeon Keeper. Following these goals can result in various ways to play and progress through the game, but will always result in either single player (farming of resources) or multiplayer (asynchronous PvP)
4. As the player starts to finish his or her goals, leaving the game will result in return triggers informing players of what is happening within the game. Exactly like Clash of Clans and Boom Beach.

4.6.5 META DESIGN TABULATION

	DESIGN	INTERACTION
	MC	MC CL
	C	C CL
	MT	MT CL

Figure 90: ***Illustrates what part of the GDM this section contains.***

The purpose of the meta design systems is to facilitate a deeper level of engagement between the player and the game that keeps the game interesting for the player. All three mobile games contain these systems, however the analysis of the games identifies differences in the design of this 'long term engagement design'. The meta design is constituted by the lower levels of the games, which is depicted within the following figures from the thesis analysis framework.

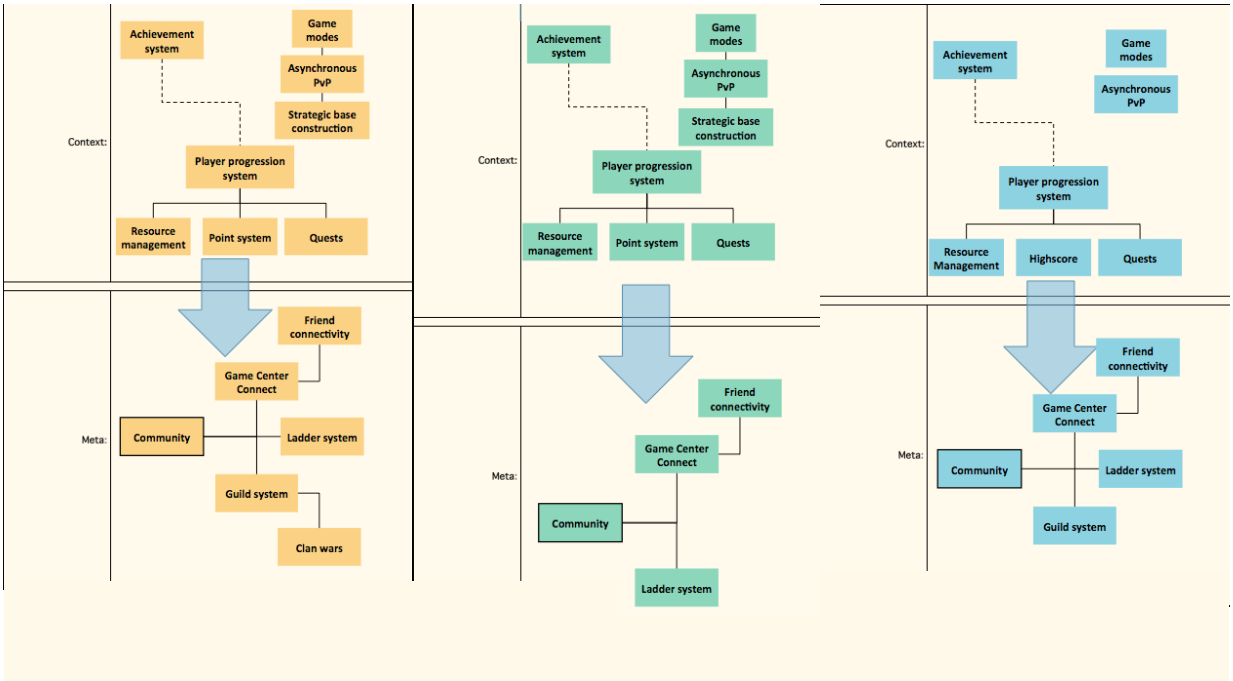


Figure 91: ***The context and meta design Clash of Clans (yellow, left), Boom Beach (green, middle) and Dungeon Keeper (teal, right).***

Guild system

The guild system is an exclusive aspect to Dungeon Keeper and Clash of Clans, containing many of the same features within the system.

In order to join a guild, the player has to build a specific guild building, which is first unlocked to the player later through his progress in the game. The guild system gives the players within the guild the opportunity to chat with each in game, which is not an option otherwise. Here the player is able to visit the other guild members' bases. Building the guild building is a natural part of the progression system in Clash of Clans and Dungeon Keeper as it unlocks several new features for the player.

The system offers advantageous benefits to the player. In both games, joining a guild gives the guild members the ability to donate units to each other. The units are donated to the guild and any guild members can use these units in combat, giving them a larger army capacity and thereby making them more powerful in combat. The player donating the units receives an experience reward for each unit donated. The guild system thereby encourages the player-to-player connectivity that the guild system offers by rewarding all the participating players. There are no disadvantages of joining a guild in the game and the advantages are huge, making it less of a choice for the player, as it would only hinder his progress within the game to not join a guild.

One could argue that the player's goal with joining a guild is not to be part of a community or to get a social experience, but rather a way to gain exclusive benefits. Clash of Clans features 'Clan wars' between guilds that

Figure 92: ***The guild building in Clash of Clans.***

Figure 93: ***The functional advantages of being a member of a guild in Dungeon Keeper increases as the members progress through the game, earning experience points to the guild.***

take place over duration of two days, where the players within the guild attack a limited amount of the enemy players bases, aiming to win as many of the battles as possible. The winning clan receives huge rewards for winning, while the losing guild loses nothing. Clash of Clans encourages players to be a part of a guild by having no disadvantages to the guild system. However, in order to win, the game requires each participating member to do well, making the clan wars a team effort. From this perspective, the 'Clan Wars' give a sense of community through certain guild-exclusive challenges that rewards the player with functional advantages.

Game Center and App Store connection

All three games are connected to Apples Game Center, which is a meta system across mobile iOS games applications. The Game Center connects the player's App Store profile to each game, keeping track of the player's achievements and points within each game. Game Center also allows players to connect with each other, functioning as a cross platform for player's to connect with each other. Players who are friends on Game Center can, in all three games, visit each other's base and see their progression in each games, but cannot interact further with each other through Game Center.

All three games are naturally connected to the App Store, as it is the primary distribution platform of the games. The games also feature an in game rating function, where players can rate the game on the App Store with one to five stars. The player's rating of the game is then shown under the 'Review' tab on the games' App Store site. However in Dungeon Keeper, the rating function separates reviews from one to four stars and five-starred reviews. The five starred reviews goes directly to the game's review tab, while the one-to-four-starred reviews directs the player to EA's support site where the player is asked questions toward what his rating is based on.
These results are not shown in the on the App Store. This filtration of reviews gives Dungeon Keeper a higher average review score than it would have otherwise. It is however possible to rate the game directly through the App Store, resulting in Dungeon Keeper having an average of 3,5 stars, which is low considering the

brand and developers behind it and would probably have been even lower where it not for the review filtration function.

4.6.6 META INTERACTION TABULATION

	DESIGN	INTERACTION
	MC	MC CL
	C	C CL
	MT	MT CL

Figure 94: ***Illustrates what part of the GDM this section contains.***

For this part of the tabulation, we will focus on the meta core loops which purpose is to generate long term engagement and social engagements, thereby prolonging retention for the game.

(Meta design and interaction models see Figure 95 on page 132)

Social engagement loops

The purpose of meta core loops are to create player engagement by giving the player ways to set long term goals within the game and a sense of community and activity within the game. In the three mobile games, the social aspect of the meta core-loops are inferior to the game engagement loop. Clash of Clans stands out from the two other mobile games through the 'Clan Wars' feature that results in social engagement loop being a bigger factor in the meta core-loop of Clash of Clans than identified in the two other games.
The friend connectivity feature of the Game Center and the ladder system lets players see each other's bases. This feature allows the player's to inspire each other to share defense strategies and see how more progressed players are structuring their base defenses (Faurholm, 2014). The feature results in the players being able to form new goals within the game by aiming towards specific defense structures that strengthens their defense.

Clan wars in Clash of Clans

This social engagement loop is also present in Clash of Clans, but is an inferior loop to the loop created by the clan wars feature. The feature is exclusive to the members of the guild and creates end goals for the players and encourages the players to keep playing the game. A clan war spans over two days and is divided into three phases; the preparation phase, battle phase and an end phase.

In the preparation phase, the guild members can prepare their defenses and send units to support each other in the upcoming attacks on the enemy guild. The preparation phase lasts one day, where after their defenses and support possibilities are 'locked'. When the preparation phase is done, the defense of each participating players are then available to the enemy guild for scouting and strategic planning. This starts the battle phase, where players each find an enemy to attack. The guilds have one day to battle each other and after the one day, the guild who have destroyed the most of the other guilds defenses have won and receives a common reward. This can then be shared by the guild leader with the other members. The reward is huge amounts of resources that would normally take a lot of time to acquire and points in the ladder system that ranks the guild as a whole. The reward for winning a clan war is the biggest reward available in the game.

However, it also requires the guild members to work together, creating a strategy and coordinate the battle. Overcoming such a difficult challenge can give the players a sense of community, since they would not otherwise be able to achieve such rewards in the game and aiming towards being the best guild in Clash of Clans.

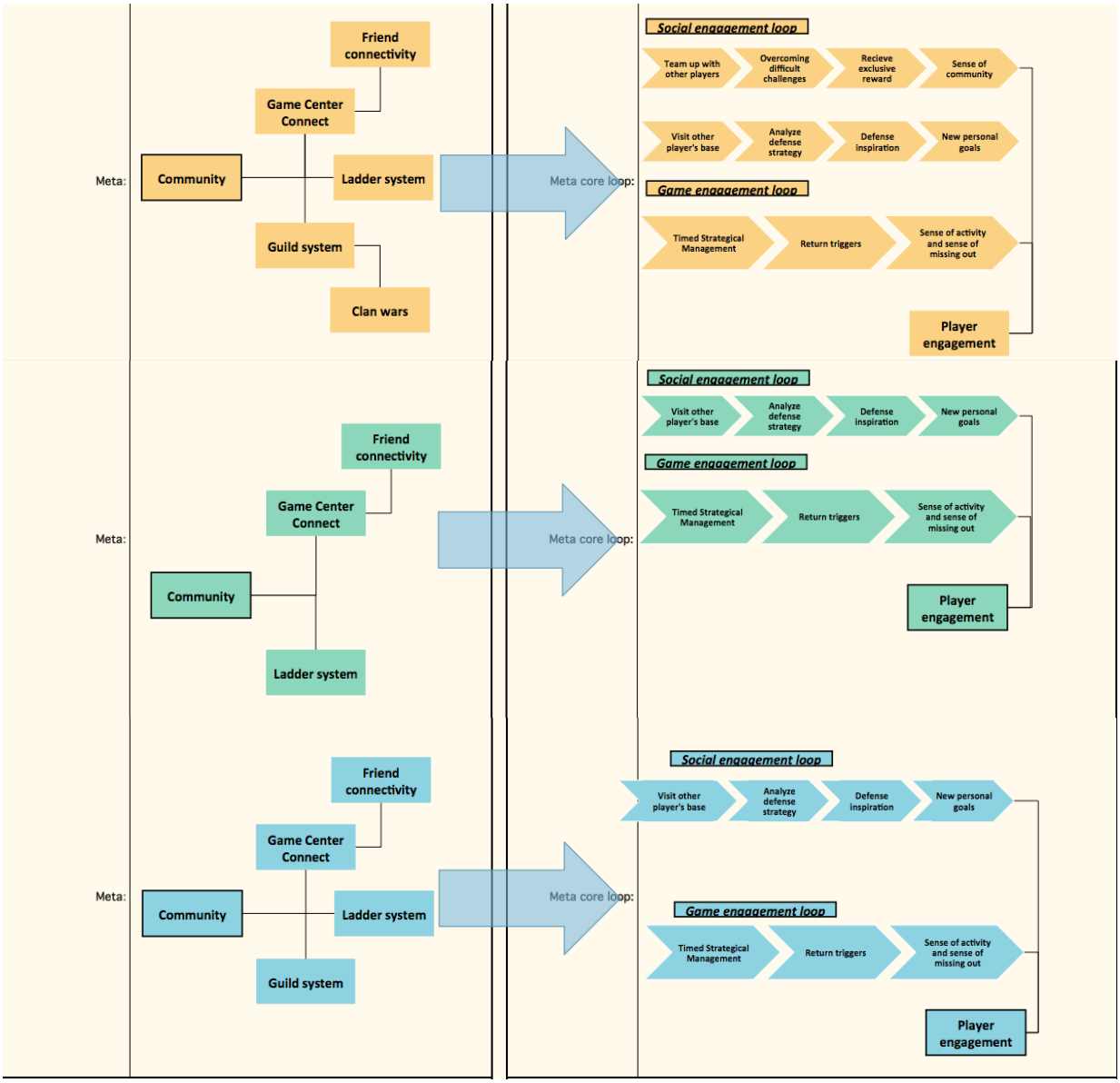


Figure 95: ***The meta design and interaction of Clash of Clans (yellow, top), Boom Beach (green, middle) and Dungeon Keeper (teal, bottom).***

The guild system of Clash of Clans is therefore more complex than the guild system in Dungeon Keeper and constitutes a new element of gameplay to the game on both a game- and social level.

This concludes the mobile games analysis, some of the key findings from this section where:

- Since the three mobile games, genre wise, many of the mechanic core loops have been identified to be identical in patterns.
- Clans of Clans features and Dungeon Keeper features social engagement that retains players into playing with each other. Whereas social engagement in Boom Beach is restricted, currently, to PvP.
- The three mobile games features experience point system and currency system, and allows players to purchase in order to progress.

Next, the PC analysis and tabulation will focus on how the three chosen free-to-play games are designed and how they have incorporated the free-to-play games business model.

4.7 MOBILE GAMES REVENUE MECHANICS TABULATION

The analysis of revenue mechanics in mobile games will focus on the relationship between the previous mentioned core loops and how revenue mechanics affect these and what this means for the player. Tabulation between, mechanic core loop and context core loop will therefore be made in order to fulfil the focus. It is important to note that mobile revenue mechanic tabulation will not focus on vanity features and Premium/VIP, as these features are not relevant to discuss in regards to the mobile games. However, these features will be relevant to analyse in the PC games tabulation, as they have a larger present in the PC games.

(Revenue mechanics models see Figure 97 on page 134)

4.7.1 CURRENCY

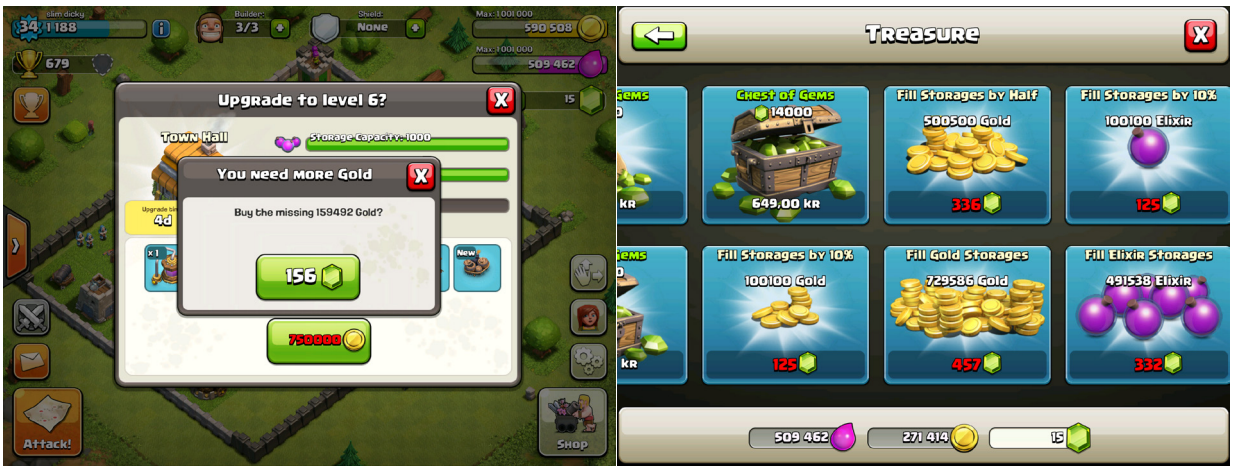
All three games have revenue mechanics that make it possible for the player to purchase currency within the game for real money. This currency can be used to purchase different items within the game. All mobile games allow users to not only purchase the aforementioned 'deluxe' currency, but also resources that are used on upgrading buildings.

Clash of Clans and Dungeon Keeper uses the same way of communicating where the purchases of these resources can be made, through either dedicated user interface buttons or an in-game shop.

Clash of Clans offers two options for purchasing these resources. A) The player buys a predetermined amount of resources in accordance to a given unit or building. B) The player buys an amount that is specifically determined by the current levels of the resource storage buildings. Option A is available when the player taps on a building and buys the specific amount of resource required to build a given building, without ever entering the actual store (See figure XX). Option B, is accessed by either tapping on the gem icon or the shop icon, in the game's user interface. This will then present the player with the options to fill up the storage building by either 10% or 100%. Depending on the 'size' of the storage buildings, and how much is already available to the player, these prices will vary.

Allowing players to purchase resources is a way to speed up the process of both Clash of Clans and Dungeon Keeper. It takes a substantial amount of time to get enough resources to build buildings and other defenses like canons and mortars. Boom Beach, on the other hand, only allows players to use option A when purchasing resources. However, Boom Beach is very subtle at informing the player of this feature. The player has to first touch a building he wants upgraded,

Figure 96: ***Screenshot of option A and B in Clash of Clans. Illustrating how the player can either buy resources through the in-game shop or when upgrading or building buildings.***



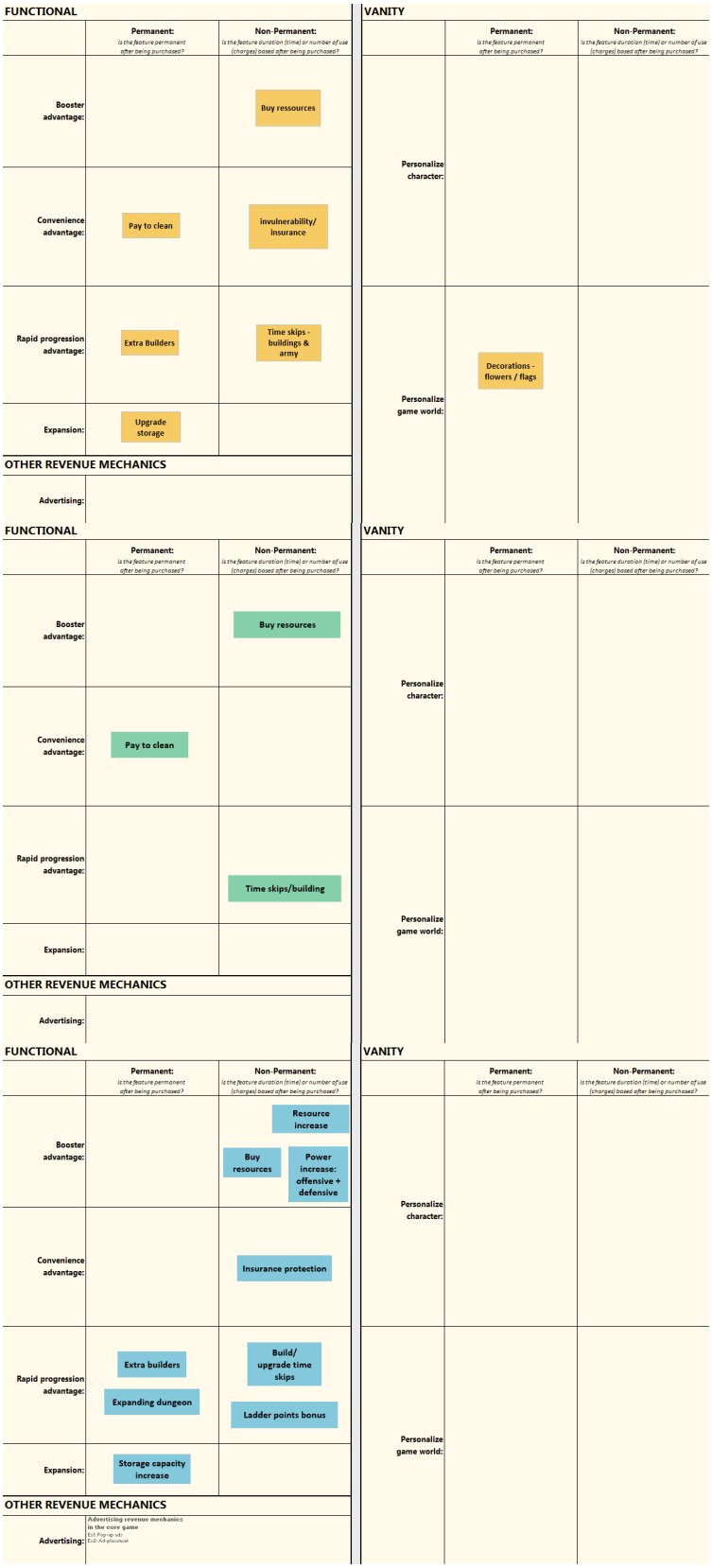


Figure 97: ***The revenue mechanics of Clash of Clans (yellow, top), Boom Beach (green, middle) and Dungeon Keeper (teal, bottom).***

and then press the upgrade button and a display will inform then amount missing in order to build it.

It should be noted that the resources in all three games are elements that the player gets on a regular basis. How much he or she gets, however, depends of what level the resource building is. Players also get resources for completing tasks and for defeating enemies. Even though it can take some time to get resources, each mobile game has a regular income of resources. In the three mobile games, players are not allowed to purchase resources if they do not have storage for it. This means, that in order to upgrade the 'Town hall' in Clash of Clans; players need to have the gold capacity required to make the purchase. In terms of the context core-loop and mechanic core-loop, this also means that players cannot wait for seven days and then harvest seven days of resources. The player has to come back to the mechanic of gathering and spending resources, by using resources to build armies and buildings. This is an essential part of the gameplay, and it makes player retention longer lasting. The same structure is applied in Boom Beach and Dungeon Keeper.

4.7.2 BOOSTERS ADVANTAGE

Some of the ways players can boost their progress in all three mobile games, is with purchases of non-permanent resources. Each purchase of a given resource, in Clash of Clans for example, is a one-time purchase. Boom Beach has a similar non-permanent advantage, which again are rooted in the purchase of deluxe gems and resources. Dungeon Keeper, on the other hand, has these exact same features but also has three tires of boost that increases gold and gem income for players, as well as increases the power stats of units. Seen Figure 98 on page 135 players

Figure 98: ***Overview of the different boosters in Dungeon Keeper, ranging from player insurance to boost that change unit and structure stats.***

Figure 99: ***The first strike booster advantages, directly gives a seven day statistic boost to all minions.***

can buy boosters for deluxe gems giving them a large advantage against other players.

In Dungeon Keeper, players are also able to insure that their wealth does not get robbed by other players, by buying fortification boosters. The booster, 'First Strike', gives the player a seven-day boost to all minions effectively increasing and giving the player advantages over other players. The last booster in Dungeon Keeper, 'Scouting', allows users to see any traps laid out by the opposing player. Since the games defense mechanism is to build traps, and place them strategically so other players will have to skilfully manoeuvre them. As such, the scouting boost diminishes a large portion of the core design.

This is where the rules of the game become so unclear that the game becomes more about paying for cheats, than skills. The main element of the context core loop of Dungeon Keeper is to upgrade troops, and thereby increasing their overall value in combat. This we see as a direct change of the rules in a game, with real money a player can purchase insurance that prevents other players for attacking the player´s base, but also increases stats on various gameplay elements that change the balance of a multiplayer match.

Both games from Supercell, does not feature any booster advantage where players can increase power stats for units.
However, Clash of Clans does have a feature that increases resource production. By paying a small amount gems per resource generating building, players boost the income of both gold and elixir for a day. This is an effective revenue mechanic, as it encourages the player to spend more time in the game, and therefore possibly spend more gems on wait timers, because of increased resource income throughout that period.

Boom Beach does not allow players to purchase boosters, as players can only rely on the chance to be rewarded with highly rare gems, by playing the game, which then be can used to buy statues that boost various elements within the game. This provides Boom Beach with an interesting feature both in regards to a game design and revenue mechanic standpoint, as the game requires the player to make an effort in order to achieve this feature.

As mentioned, in order to get the statues players need special gems that are even rarer than the deluxe currency in Boom Beach. This approach and with the mechanic core-loop of directing troops with flares, allows for a game that is much more skill based by design. Whereas Clans of Clans and Dungeon Keeper asks very little of a players skills to strategically move units, and rewards players for simply sending in units that can gather gold. Boom Beach only rewards the player if they fully succeed in completely destroying the enemies base, but also randomly rewards them with special gems that can be used to build statues that help the player in various aspects. This makes it a game more about winning, as it supports the mechanic combat system of the game by not only focusing on progressing through ranks, but also improving the players strategic skills.

4.7.3 CONVENIENCE ADVANTAGE

In regards to advantages that can be seen as a convenience, all three mobile games have elements of this; mainly, pay to clean. In both Clash of Clans and Boom Beach, small obstacles have been strategically placed around the map of where the player builds the base. These obstacles can for instance be stones and trees that hinder the player from building on a particular spot. In Clash of Clans, players need to spend resources on removing trees and stones. The bigger the obstacle, the more resources are needed in order to remove them.

Boom Beach has a similar system of strategically placed obstacles that can be removed for a price, but requires the player to have a specific headquarter level in order to do so. Dungeon Keeper is different, in that the entire

Figure 100: ***Screenshot of the statues and rare gems in Boom Beach.***

Figure 101: ***In Dungeon Keeper it can take alot of time to remove obstacles.***

game revolves around removing obstacles in order to build on a specific spot. Each time a player wants to remove a block, imps will rush and start to remove the obstacle. This usually takes around 15-20 second to over three hours, but players have the possibility to speed up this process with gems effectively making it a convenience, but a rather expensive one.

Another convenience advantage, in Clash of Clans and Dungeon Keeper is the invulnerability insurance. The function of invulnerability insurance is that other

Figure 102: ***The three different shields that players can purchase with gems, lasting a variety of days.***

players cannot attack the player's base for a given amount of days. However, if the player attacks another player the shield will cease to work and the player is open for attacks. This relates to the context of use, since many of these mobile games are a hybrid of singleplayer and multiplayer functionalities, Clash of Clans and Dungeon Keeper allows has integrated the invulnerability insurance as a way for players not to get attacked. If for example a player knows he cannot play the game for a long period, and has a substantial amount of resources, the purchase of these "shields" is a way to avoid losing them.

This revenue mechanic directly influences the core context of Clash of Clans and Dungeon Keeper, since both games are designed around gathering and conquering resources from other players. From a game design perspective, it allows for players to change the rules of how the game is meant to be played. However, purchase of insurance that strictly only insures the protection of a player's amassed wealth might not change the rules of a given game.

As seen in Figure 102, Clash of Clans has three different invulnerability insurance. Dungeon Keeper has both, as

well as fortification that increases damage and health of various elements. Boom Beach does not feature any such invulnerability insurance, as such making the players open for attack whenever they are not in the game. In Boom Beach, this means that an online player cannot be attacked, only when the player exists the game, is it possible for other players to conquer their precious resources.

4.7.4 RAPID PROGRESSION ADVANTAGE

Rapid progression is one of the most present revenue mechanics in all three mobile games. Players are able to buy the deluxe currency 'gems', which functions as one-time purchases that allows them to effectively skip all time walls in each game. In order for us to know all the various mechanics in the game, we had to buy gems with real money. By doing so, we were able to see, in for example Boom Beach that in a matter of minutes, we were able to progress from a rank nine to a rank sixteen. Something that otherwise would have taken days to achieve.

In Boom Beach, it is very important to reach a high level headquarter in order to clear the map of trees. Clearing trees and obstacles allow buildings to be placed more strategically. With the combination of purchasing resources with gems, and skipping time walls with gems, players can rapidly progress in the game and get an advantage over other players. Clash of Clans and Dungeon Keeper also builds on this concept, where players must clear territory in order to optimize their base.

4.7.5 ADVERTISING

In regards to advertisement, all three mobile games have very little to none in-game advertisement, that are seen in some free-to-play games. In general, there is a tendency for mobile games publishers to advertise for their own intellectual properties within a game. None of three selected mobile games does this. Rather, the three mobile games tend to use traditional advertisement such as commercials on other mediums like YouTube and Television. These commercials range from in-game footage to high production value computer generated images (CGI) videos.

4.7.6 INTERPLAY

Interplay features are only obtainable through user-to-user interactions. At present time, Boom Beach does not have any social connectivity, and therefor does not feature interplay. However, Clash of Clans and Dungeon Keeper features interplay, allowing for a wide range of added features that are tightly connected to the respective games guild systems. In Clash of Clans, if a player is a member of a clan he or she can send and receive gold and elixir from other clan members. Dungeon Keeper also has a clan system that allows players to send and receive units to each other, which can help in combat situations.

4.7.7 KEY FINDING AND PART CONCLUSION

The analysis of the revenue mechanics in all three mobile games, have given us a better understanding of how developers use revenue mechanics at specific areas in the core-loops of both context and game design mechanics.

What we have discovered are many similarities, of what and where developers monetize. Common for all three games is the ability to boost the progress; this is done via the deluxe currency that all three games operate with. This has small to larger consequences for how the games are played. Ranging from convenience boosters that make it impossible to get attacked, to more game changing elements, such as Dungeon Keeper's boosters that have a directly affects how the game is meant to be played making.

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4.8 STATE-OF-THE-ART PC GAMES OVERVIEW

In the following pages, the selected PC games for analysis is presented after which the analysis of the three PC games is conducted. The analysis is structured to firstly present a combined Business Model Canvas-analysis of the PC games, which is followed an analysis of the design elements using the Game Design Model constructed on the basis of the presented design theory in the theory chapter. Afterwards, an in-depth analysis of the revenue mechanics in the PC games is conducted using the Revenue Mechanic Framework, which is constructed from presented business theory regarding revenue streams.

World of Tanks:

Developer:

Wargaming.net.

Release date:

First released in Russia 2010 (China 2011, Europe 2011, north America 2011, Singapore 2012, Vietnam 2012, South Korea 2012 and Japan 2013).

Game description:

World of Tanks is a free-to-play MMO (Massively Multiplayer Online) game, where the player can choose between first person and third person view. The game is available for PC and X-box 360. In World of Tanks, an essential part of the game is advancing in levels and getting new tanks, as it provides new and different player experiences. This is done by playing the game and by acquiring the four types of currency, “battle xp”, “free xp”, “credit” and “gold”.

Active users:

Several millions.

Estimated revenue:

No data.

Revenue model:

Free-to-play with microtransactions. The game is playable without the use of payments, as it is possible to earn currency through playing the game. However, some aspects of the game is only achievable with real-world currency.

Team Fortress 2:

Developer:
Valve.

Release date:
2007.

Game description:
Team Fortress 2 is a fast-paced first person shooter that has a strong emphasis on humour and team play, the game is only available through the PC Steam platform. Different game modes and character classes allow for a wide variety of plays styles. With a unique costumer co-creation aspect, where players can create in-game items that can be sold and bought for real money. Team Fortress 2 features only real world currency.

Active users:
59,181 (09-05-2014) 50,000 to 60,000 concurrent players.

Estimated revenue:
139 million dollars (2013).

Revenue model:
Free-to-play with microtransactions. The game is playable without the use of payments, as the game drops random items when sessions is done.

Loadout:

Developer:
Edge of Reality.

Release date:
2014, January 31.

Game description:
Loadout is a third person shooter, where you team up or play solo against other players and/or bots. Loadout shares many play-style similarities with Team Fortress 2, and focuses on humour through wacky outfits and provocative animations. Blutes is the main currency in the game and is earned through game sessions. Furthermore, the game has a deluxe currency, “Spacebux”, which can only be purchased with real-world currency.

Active users:
3,296 (09-05-2014)

Estimated revenue:
No data.

Revenue model:
Free-to-play with microtransactions. The game is playable without the use of payments, as it is possible to earn currency in-game that allows the player to purchase upgrades for weapons. Real-world currency purchases is restricted to things that does not give a direct advantage on the gameplay.

4.9 PC GAMES BUSINESS MODEL TABULATION

As previously described, the business model tabulation will only focus on the product, customer interface and financial aspect of the revenue streams of each PC game. In this section a short introduction to each PC game will be presented in order to provide a quick overview, before conducting the tabulation analysis.

4.9.1 CUSTOMER SEGMENTS

World of Tanks, Team Fortress 2 and Loadout all aim at a broad PC market audience, and arguable males being the primary demographic due to the genre and theme of the games. It is difficult to find the exact numbers of the male/female ratio in the three PC games, but a study found that as many as 30% of women play more violent types of games like Halo, but other FPS games like Call of Duty only counts around 20% females (Graser, 2013).

One of the primary customer segments of all three games is the players that find the tactical aspect of shooter games enjoyable. Another common customer segment is players that like immersive action packed games.

Furthermore all three games aim toward attracting players that like to compete against other players in teams or individually and to socialize with your fellow comrades.

Figure 103: ***"As-is" model of World of Tanks' Customer segment, Value proposition, Customer relationship, Channels and Revenue Stream. The shapes outline colors illustrates the linkage between the different elements in the model (for full resouletion see apendix 17-18-19).***

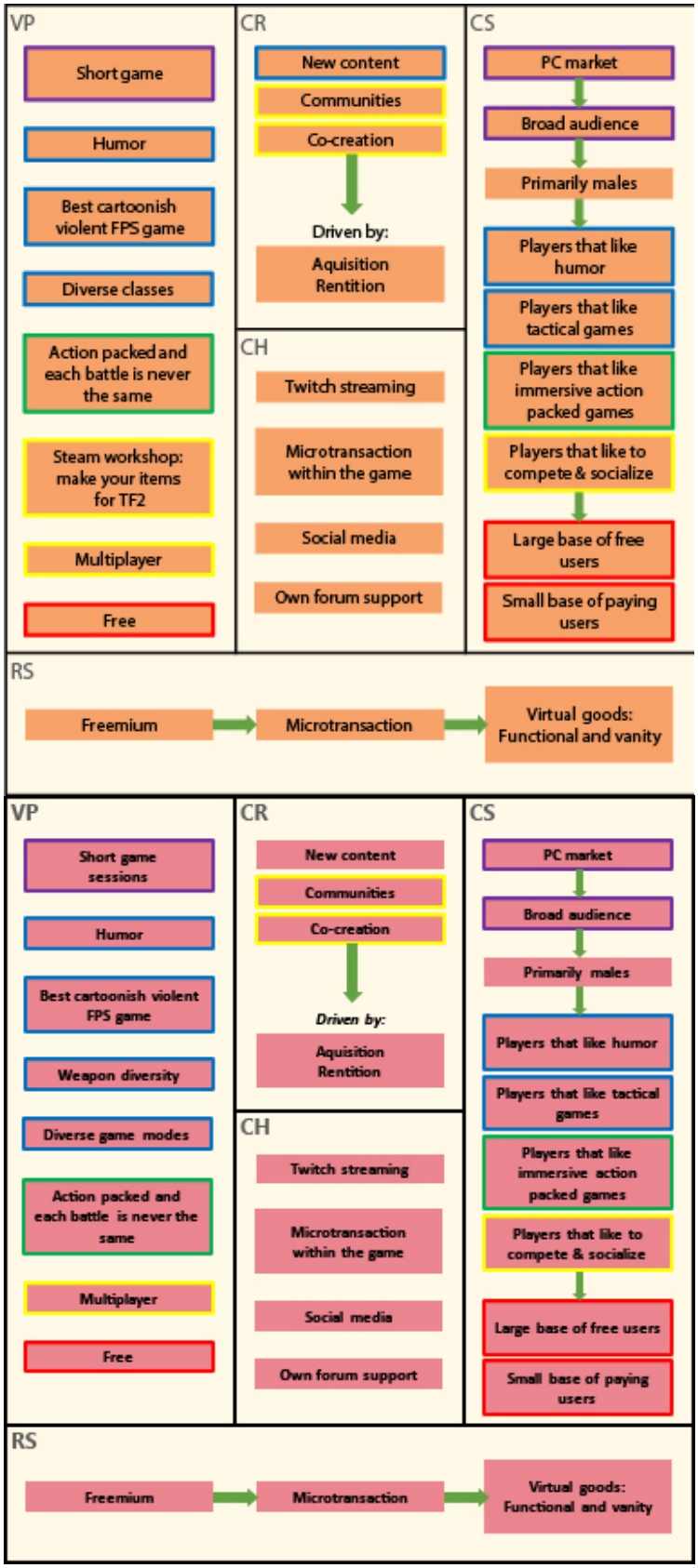


Figure 104: ***"As-is" model of Team Fortress 2's Customer segment, Value proposition, Customer relationship, Channels and Revenue Stream.***

One of World of Tanks' primary and unique customer segments is all the WWII military aficionados, players that simple love military equipment, armoured warfare and all the details that comes with it. Furthermore, World of Tanks aims at MMO players that are tired of the long game sessions of the more traditional MMO's. Team Fortress 2 and Loadout both aim towards players that like a cartoonish violence in a more light and humorous tone.

4.9.2 VALUE PROPOSITION

World of Tanks, Team Fortress 2 and Loadout is built upon a freemium business model meaning they all offer a free-of-use value proposition to the user. World of Tank also offer the option of a premium subscription feature as the only of the three making it a combination business model; this is a strength both in relation to the value proposition and the potential extra revenue generated.

One of the primary value propositions of all the three games is customization. Customization gives the player value, because it presents them with a wide variety of options to choose from and heavily affect the gameplay experience. The customization features are further elaborated through the section 'State-of-the-art PC games tabulation' in both the context and meta section.

World of Tanks, Team Fortress 2 and Loadout all aim towards creating an action packed challenge based immersion, where each battle or match is never the same and the player has to make hard tactical choices in order to prevail. Team Fortress 2 and Loadout as opposed to World of Tanks is two games full of humor, both of them aims to create the best cartoonish violent FPS game on the market. World of Tanks also tries to get in on the value proposition of being one of the best action packed shooter games on the market and is therefore a competitor to Team Fortress 2 and Loadout. However, World of Tanks also tries to target a specific audience that like a new take on war games, where reality and fiction are mixed together. In World of Tanks the details are extensive and the different time periods are mixed. Therefore, they are able to catch some of WWII military aficionados as previously mentioned.

All three games are multiplayer player versus player and therefore set the condition to give the player a very diverse gaming experience, as no match is ever the same. Furthermore it also creates a great basis for social connectivity both in-game and on each of their community forums. As each of the games is within the multiplayer shooter genre, there is a competitive element to it.
World of Tanks shares this emphasis on the competitive element, but have an even stronger focus on this. World of Tanks have on their website a whole section dedicated to the e-sport. Furthermore, Wargaming.net arranges different player versus player events with prices. Being an e-sport game means that the game have enough users and the game play to support it.

4.9.3 CUSTOMER RELATIONSHIPS

In regards to the customer relationships of World of Tanks, Team Fortress 2 and Loadout they follow a similar model. All of them tries to establish a customer relationship by providing communities and to co-create value with the customers.
The communities is facilitated through their own website and forum. It utilizes the user communities in order for them to become more engaged and exchange knowledge about the games. This could potentially create the basis for users to help each other with various problems. Here users can address their concerns and problems about the game and give the developer's useful feedback on the game that can help them to better understand their customers (Osterwalder 2010, p. 29).
Many PC games usually feature co-creation in some degree and these three games are no exception. All games feature suggestion forums, where the players can come with game related suggestions to new content.

The common goal of the companies' customer

Figure 105: ***Screenshot from Loadout's download website, here the customer quickly creates a new user, download, install and play the game free of charge.***

relationships is to create a foundation for customer acquisition and customer retention in order to boost sales (Osterwalder 2010, p. 28).

4.9.4 CHANNELS

All three companies try to reach their customer segments and communicate their value proposition through their own website, social media and streaming services in order to create awareness and therefore

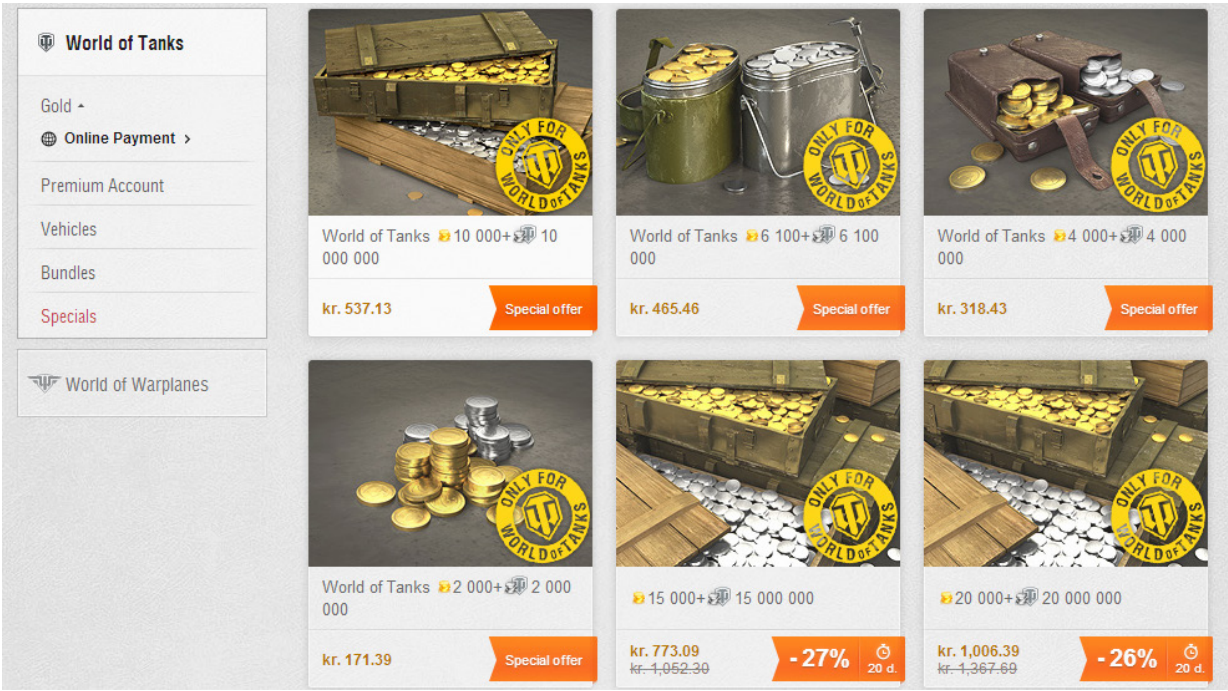


Figure 106: ***Screenshot of World of Tanks' premium shop, where the customer can buy in-game currency for real money.***

help the customers to evaluate the value propositions.

The primary channel for obtaining the games is primarily done through their own website. In the case of World of Tanks and Team Fortress 2, another channel would be Xbox live Arcade, AppStore etc. Both games support multiple platforms. Normally the channel where the customer obtains the product, the company generates revenue in the same moment, but as this is free-to-play, no real revenue is generated from the install alone. Therefore, the primary channel to purchase specific products and services in freemium games are done through in-game microtransaction features that are either handled directly in-game or redirected to a website constructed to handle the customers transactions.

4.9.5 REVENUE STREAM

All three games sell both functional and vanity virtual goods. However, World of Tanks offers a premium option to their customers, essentially making it a combination model. This is a strength compared to Team Fortress 2 and Loadout and it presents the customer with another value proposition and furthermore creates the potential for more revenue than the other two companies generate.

Team Fortress 2 does however, facilitate the user with the option to sell in-game virtual goods to his peers for whatever price the other user is willing to pay. This creates both value for the customer as they have the potential to earn real money by playing the game, therefore generating engagement and motivation of play, and furthermore generates revenue for Valve as they cash in a percentage of the transaction. Valve collects a 5% transactions fee Community Market FAQ each time a trade is completed between two users in any game on Steam. The developers of the individual games such as Dota 2 or Team Fortress 2 then collects additionally 10%. Since Valve developed those two games, it gives them the total sum of 15% as a transaction fee for completed trades in these two games. This is obviously a huge strength for Valve as a company, because they are able to monetize on games they have not produced themselves. Looking strictly on Team Fortress 2 as a business, they have already developed the item, drop and trading systems that facilitate this revenue stream. The operational costs are minimal, making the cost-benefit ratio substantial. Additionally, since the users themself set the desired price, the risk of negative publicity often related to these substantial micro-transactions, is either reduced or avoided completely.

As briefly mentioned in the previous section, World of Tanks and Team Fortress 2 supports multiple platforms, which is a strength compared to Loadout's single platform, because it have the potential to reach a broader market and therefore get more customers resulting in more revenue generated. A detailed exploration of each of the three games revenue mechanics will be explained in the section 'PC games revenue mechanic tabulation'.

4.9.6 KEY FINDINGS AND PART CONCLUSION

- All three games share the customer segment of players that like the tactical aspect of shooter games and action packed challenge based immersion.
- World of Tanks tries to capture a part of the MMO customer segment, by presenting the value proposition of getting high value for time spent compared to the long game session of traditional MMO's.
- Team Fortress 2 and Loadout are in close competition for players that like cartoonish violence and humorous games.
- World of Tanks is the game that offers the most features in regards to the more competitive player and is an official E-sport game.
- All three uses a freemium revenue model. World of Tanks, Team Fortress 2 and Loadout all generate revenue both on functional and vanity virtual goods.
- World of Tanks, and Team Fortress 2 both uses multiple platforms, which is a big strength to Loadout, which only uses one.

As a part conclusion in all of the cases, the games seem to follow the same overall pattern in their business model. All of them focuses on creating long term engagement and a strong customer relationship (acquisition and retention) through community building (forum, streams, events etc.), continuously releasing new content, high level of customization options and co-creation in order to make their freemium model work.

4.10 STATE-OF-THE-ART PC GAMES TABULATION

In the following section we analyse the game design of the three PC games that constitute their core loops and how the three games incorporate revenue mechanics into the design the influences the core loops. The tabulation uses the game design model earlier presented in the thesis and focuses on the core design components and the components influenced by revenue mechanics. The core loop tabulation analysis is divided into three sections that each focuses on the three different levels of core loops.

Firstly the tabulation examines the mechanic core-loops that are connected to the most common player interactions within the three games. Here the tabulation focuses on the core systems, mechanics and revenue mechanics that constitute each games core gameplay.

The second part of the tabulation examines the context core-loops of each game which focuses on how each game sets up goals that gives the player a reason to come back for multiple game sessions. Finally, the tabulation examines the meta core loops of the three games, focusing on how the games makes the player value the games.

Through the three sections, the three games are compared to each other. Since the three PC games are very similar in their design, the tabulation mainly emphasizes the differences between the three games in order to avoid repetition.

4.10.1 MECHANIC DESIGN TABULATION

	DESIGN	INTERACTION
	MC	MC CL
	C	C CL
	MT	MT CL

Figure 107: ***Illustrates what part of the GDM this section contains.***

World of Tanks, Team Fortress 2 and Loadout in the core design of the mechanic level are very similar in key systems and related mechanics.

The reason for the almost identical key systems and mechanics can be found in the genre of the three games. All shooter games will have similar key systems and mechanics in their core, but the difference lies within how the constitutive rules are coded/designed and how the operational rules are designed (Salen & Zimmerman, 2004, p. 130). For instance, the rules that define the player movement and physics of moving a human versus moving a heavy tank define the difference in the user experience of the mechanic level.

The core design of the mechanic level of all three games consists of three primary systems that constitutes every other system and mechanic in the games. The three systems are shown in Figure 108 on page 152.

These key systems and mechanics have mutual influences on each other and together provide the frame for the mechanic core-loops of World of Tanks, Team Fortress 2 and Loadout. The core-loops will be

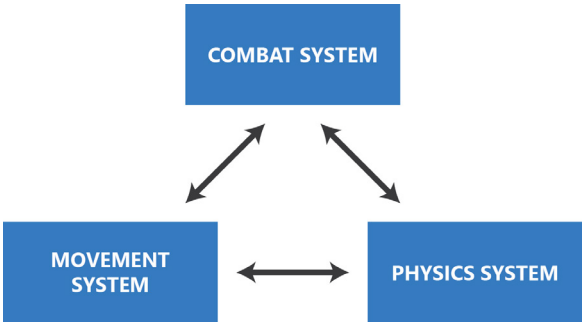


Figure 108: ***Illustrates the three primary systems of World of Tanks, Team Fortress 2 and Loadout.***

explained after a tabulation of the primary systems and their related mechanics and sub-systems.

A main goal of the mechanic level in all the three PC games is to become better at playing the game; mastering the three primary systems. The mastery level of the player is measured by how well the player is at controlling his in-game character and the interaction with other players and objects.

Combat system

The combat system of the three PC games consists of an attack mechanic, defense mechanic, health system and specifically in World of Tanks and Loadout also a resource system.

Aim and attack mechanic

The functionality of the aim and attack mechanic makes the player able to move the crosshair to a desired target and perform an attack with a weapon on an enemy player. Each time the player performs an attack command in World of Tanks, Team Fortress 2 or Loadout it requires the use of a unit source in the form of bullets and timer that is present in between each bullet.

Furthermore, the attack mechanic links to a weapon or item swap mechanic in all three games, making the player able to switch between different weapons or bullets with statistical variety that therefore have an impact on the attack mechanic. In Team Fortress 2 and Loadout there is a multitude of different weapons, ranging from pyro weapons, rocket launchers, riffles, guns and many more. In World of Tanks the player can swap through different types of ammunition in game gaining specific advantages or disadvantages.

Defense mechanic:

In Team Fortress 2 and Loadout the defense mechanic

Figure 109: ***In-game screenshot of World of Tanks in first person mode, where the player has aimed at his opponent and is ready to use the attack mechanic.***

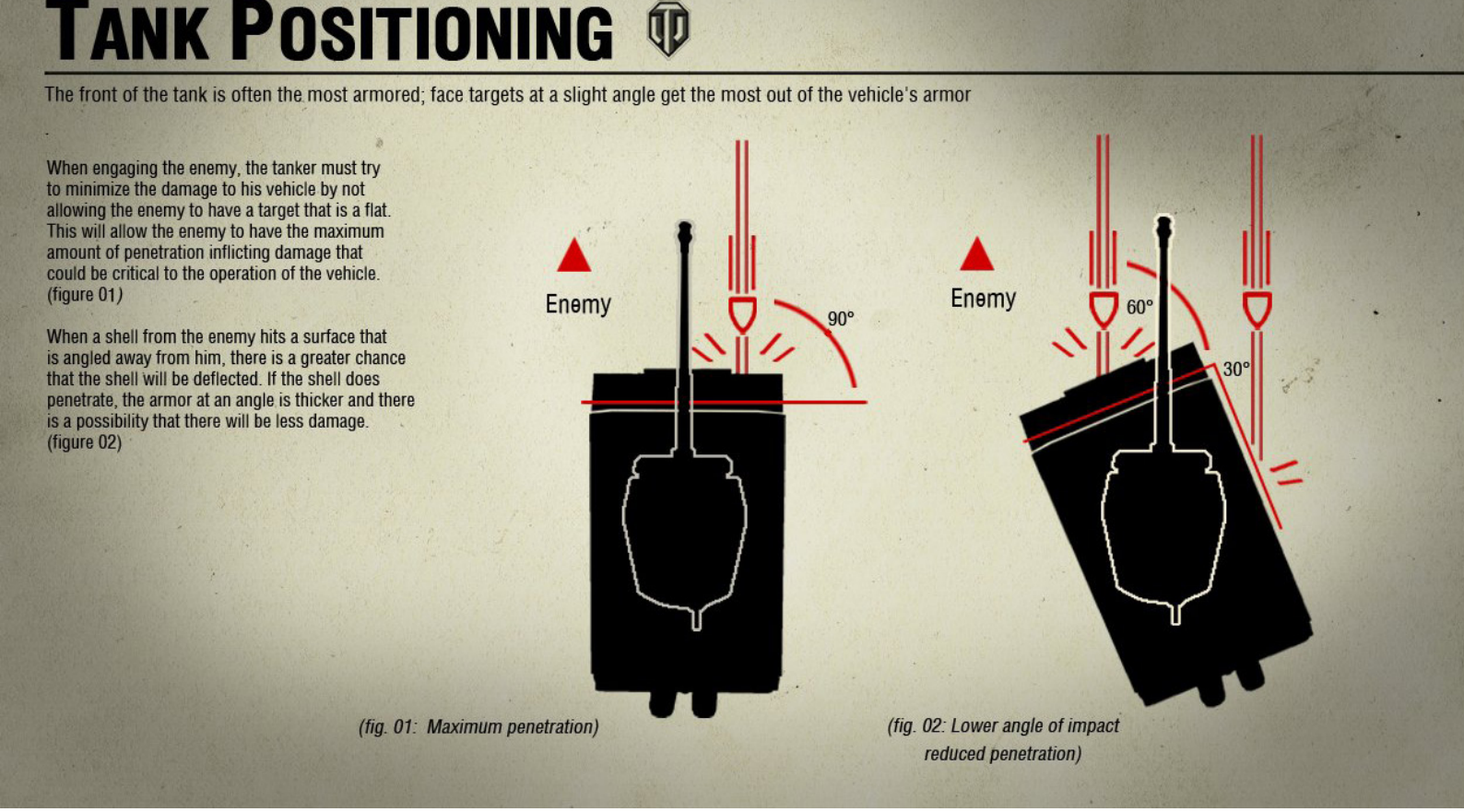


Figure 110: ***Shows the defense mechanic of World of Tanks.***

mostly consists of dodging enemy attack commands by using the movement mechanics to move your character; for instance, forward or jumping. Additionally, Loadout's defense mechanic also contains a roll feature specially intended to dodge attacks.

A part of the defense mechanic in World of Tanks, is the players ability to positioning the tank when getting attacked by enemies. Not only in a strategic manner, but also in regards to angling the armor of the tank, in order to receive as little damage as possible. The tanks have different weak spots on their armor, therefore positioning the tank with its stronger sides is key for surviving attacks. (see figure Figure 110 for the tank positioning system).

Health system

The health system consists of a set number of hit points, determining how many times a player can be damaged before dying. Each game has a health system and other sub health systems with different statistics for each of the different classes or tanks.

The three games' health system all contains some form of a healing mechanic. In World of Tanks it is possible to upgrade your tank to remove fire faster and thereby arguably healing your personal health pool. But in the more traditional sense of actively healing your teammates, it is only Team Fortress 2 and Loadout that features this. In Team Fortress 2 it is the 'Medic' class that has the primary objective of healing teammates in battle, therefore providing the team with healing a clear advantage, but other classes such as the 'Heavy' can also heal allies. In Loadout the player can modify

Figure 111: ***Shows two friendly players in Loadout where one of them is using his customized gun to heal his brother of arms.***

their weapon to heal friendlies instead of doing damage, essentially changing the role of the player the same way as the medic does in Team Fortress 2. By having a healing mechanic like Team Fortress 2 and Loadout provides opportunities for more different ways to play the game compared to World of Tanks in regards to the core mechanics.

Movement system

The movement systems of World of Tanks, Team Fortress 2 and Loadout consist of a movement mechanics that makes the player able to move the "camera view" (in eyes or 3rd person view) around and move the position of their character. The different movement possibilities is a big part of what defines the three games and therefore have large impact. The movement is very much depended on the physics system as each movement is influenced accordingly to that system.

In World of Tanks the player can't jump or change direction of the tank as fast and in the same way as the other two PC games.

As mentioned Team Fortress 2 and Loadout movement is more fast paced, because of the movement possibilities, players can easily choose to jump or change directions whenever they want to, creating a basis for a more constant flow of action compared to World of Tanks.

Physics system

The last primary system is the physics system. It is related to both the combat and movement system. It dictates each movement that changes the position of the character or other in-game objects such as the travelling line of bullets. Furthermore the physics system of World of Tanks somewhat simulates realistic physics, at least if it is compared to Team Fortress 2 and Loadout's. This creates a slower paced gameplay for World of Tanks, but fits well into the design and vision of the game.

These key systems and mechanics have a mutual influence on each other and together provides the frame for the mechanic core loops of World of Tanks, Team Fortress 2 and Loadout.

4.10.2 MECHANIC INTERACTION TABULATION

	DESIGN	INTERACTION
	MC	MC CL
	C	C CL
	MT	MT CL

Figure 112: ***Illustrates what part of the GDM this section contains.***

As the core design of the mechanic level is almost identical of the three PC games and because these systems create the basis and frame for the interaction between the user and computer, it results in similar mechanic core loops as the three models illustrates below.

As previously described, the mechanic core-loop is the pattern and method of play (Clark, 2014, p. 55). In World of Tanks, Team Fortress 2 and Loadout it is the combat loop, which is as follows:

1. The first step in the mechanic core loop is for the player to locate an object. For example to locate an enemy target or a control point in World of Tanks.
2. The second step is for the user to perform the action as in using an item. In Team Fortress 2 e.g., the player can heal an ally or attack with a weapon.
3. The third step (Reload/wait for timer) can both happen before and after the fourth step that is to either win or lose the action. This is because

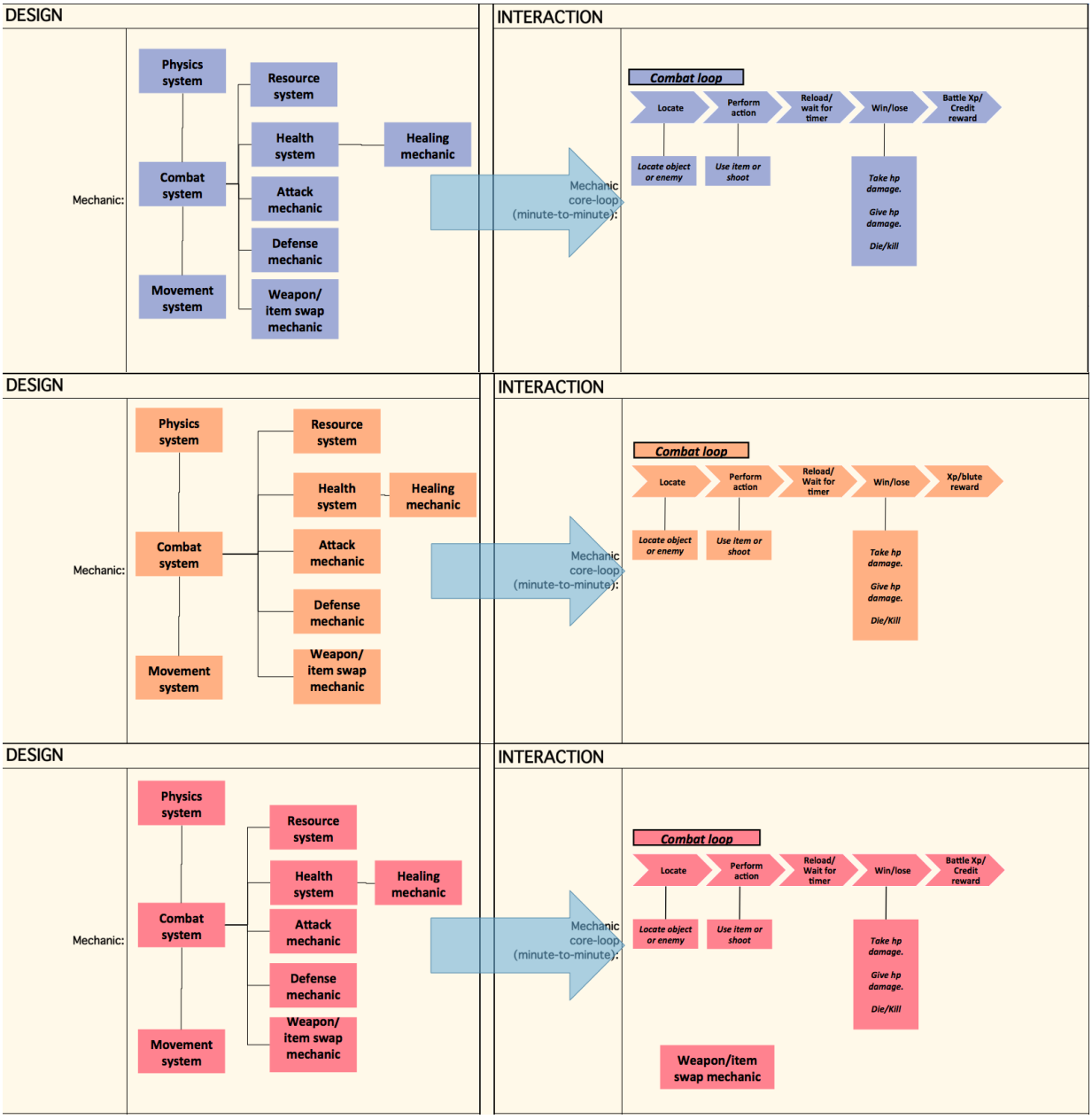


Figure 113: ***The mechanic design and interaction of World of Tanks (purple, top), Team Fortress 2 (orange, middle) and Loadout (red, bottom).***

it is not definite that the player will have to wait for a reload or another item timer to successfully perform an action.

4. The fourth step entails that the performed action is either a win or lose scenario. The player either managed to successfully take over a control point or deal more damage to the enemy than received.
5. 5The last step of the mechanic core loop provides the player with a reward, before the pattern of play is repeated again. In World of Tanks the player gain experience, high score stats (kill/death ratio etc.) and credits as a reward. In Loadout the player is rewarded with experience, high score stats and blutes (currency).

The element of winning a match is one that is related to the context loop of the three games, but it is the mechanic core-loop that dictates who is wins or loses a match. Winning in World of Tanks, Team Fortress 2 and Loadout is really about mastering the mechanic core-

loop by out smarting and out aiming your opponents. This requires intimate knowledge of the game (stats, classes, map layout etc.), tactical abilities and motor skills in order to succeed in mastering the mechanic loop.

4.10.3 CONTEXT DESIGN TABULATION

	DESIGN	INTERACTION
	MC	MC CL
	C	C CL
	MT	MT CL

Figure 114: ***Illustrates what part of the GDM this section contains.***

This section of the analysis will focus on how the three mobile games context come to action though the goals set by the game.

The three PC games shares two main systems in the context design; the player progression system and game mode system. The player progression system consists of the three sub-systems in each game, however these vary from game to game. The player progression system in World of Tanks and Loadout is the same, as they consist of a Tech tree system, Highscore and XP system and Customization system. Team Fortress 2 does not have a Tech Tree system, however it features an achievement system.

In all three games, there is a highscore and XP system that allows the player to track the number of kills and deaths the player has received during a game session. The player can evaluate his progress when looking at

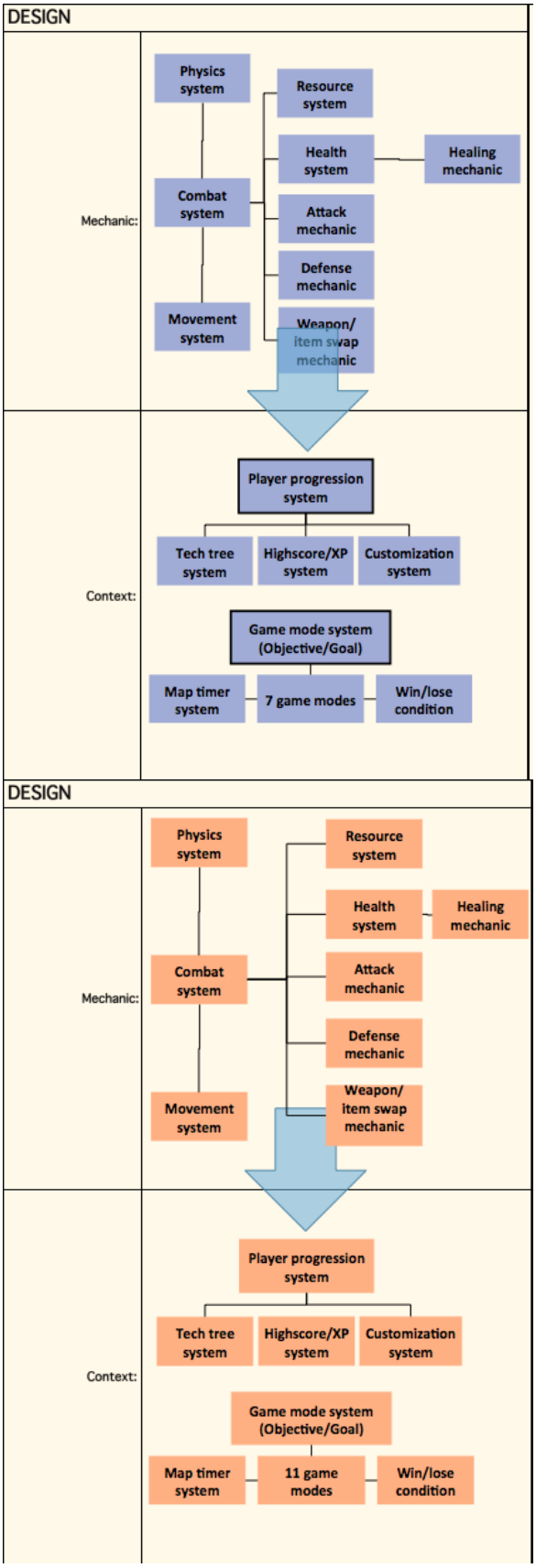


Figure 115: ***The mechanic and context design of World of Tanks (purple), Team Fortress 2 (orange)***

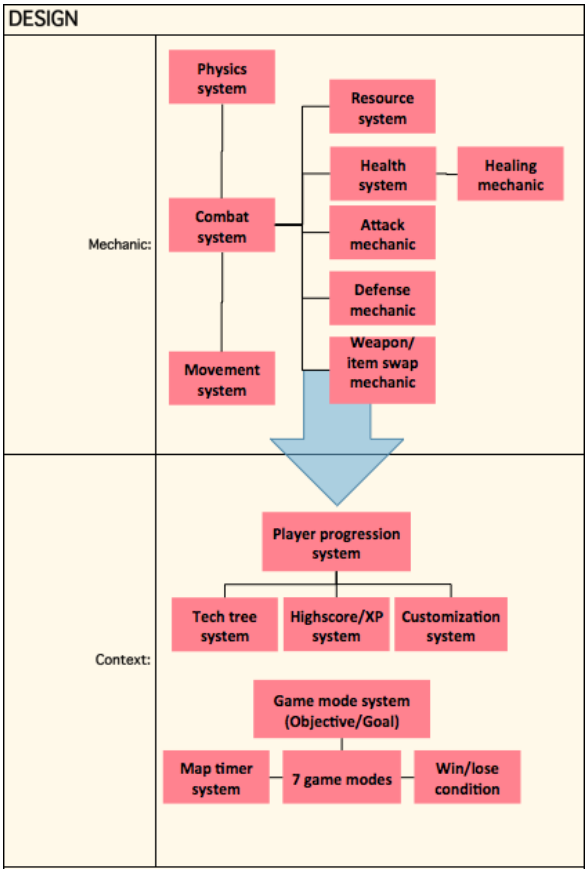


Figure 116: ***The mechanic and context design of Loadout (red, bottom).***

the highscore and XP system, at the end of each game, as it reveals information about his performance. As the player becomes familiar with classes, maps and opponents, the play will learn to prioritize and make better decisions in the game, and thereby improve on his highscore.

In World of Tanks and Loadout, this system allows the player to see how much XP and currency (Blutes and Credits) is rewarded, at the end of a game session. In Team Fortress 2, the player is not guaranteed to receive a reward.

In World of Tanks and Loadout, the earned currency is assigned to different aspects of the game. In World of Tanks the credits, battle XP and free XP all functions as a resource for acquiring new items. In Loadout the XP is used for progressing in levels to a max of 40, which will unlock new features and continuously improve the percentage of blutes gained in-game. Blutes, as with the different currencies in World of Tanks, is used to purchase new things that can be utilized in-game.

Both World of Tanks and Loadout have a Tech tree system, which allows for customization, upgrading and unlocking of features in the two games. In World of Tanks, this allows the player to track his progress in the game, as unlocking new modules, tanks, items etc. in the tech tree- and customization system, is an implicit indicator of how much the player has achieved and played the game. The same is applicable for Loadout, as a new player will have a limited Tech Tree as opposed to a more experienced one. The Tech Tree system in Loadout allows the player to research specific branches of the four different chassis types: rifle, launcher, pulse, beam and the equipment section. Each of the four chassis types contains between six and nine branches, which allows the player to research different aspects of the featured weapon e.g. barrel and scope.

If the player receives an item drop, in Team Fortress 2, it can be utilized in the customization system. These drops can be weapons, tools, action items, Mann Co. supply crates or cosmetic items. In the customization system, the player may choose to use the item or not. In this sense, the player can track his progress by viewing the amount of items available in his backpack. However, as items are purchasable through the shop, it is not conclusive.

In World of Tanks and Loadout, the Tech Tree system is tied together with a part of the customization system. Customizing and improving weapons and tanks in the two games are vital parts of the player's progression. Furthermore, World of Tanks and Loadout feature a cosmetic customization system that deals with the appearance of the characters and tanks in the game, these are not important for the player progression. In Loadout, these items are only achievable through real-world payment methods and in World of Tanks the amount of cosmetic changes that can be made is limited.

In Team Fortress 2 and Loadout, the player can watch

his progression in the game through an achievement system that is connected to Steam's achievement system. Through this system the player can earn item and weapon drops. An example of an achievement in Team Fortress 2 is the "Hard to Kill" achievement that requires the player to get five kills in a row without dying.

The game mode system consists of two sub-systems that are shared by all three games: game mode and win/lose condition. World of Tanks has seven game modes, in Loadout there is also seven game modes including the custom game mode, and in Team Fortress 2 there are 11 game modes including the training- and co-op mode.

These game modes have different win and lose conditions, which are key to understand if the player is to succeed in a game session.

4.10.4 CONTEXT INTERACTIONS TABULATION

	DESIGN	INTERACTION
	MC	MC CL
	C	C CL
	MT	MT CL

Figure 117: ***Illustrates what part of the GDM this section contains.***

This section of the analysis will focus on how the three mobile games context core loops come to action though the players interaction with the game

All of the three PC games consists of a game session loop, and utilizes different return triggers in order acquire the player back to the game.
These loops contain a different number of phases, which the player goes through in order to either stop or repeat the loop.

1. In World of Tanks, the game session loop begins with selecting a tank and the desired equipment. The choice of tank and equipment is vital for the player's performance in the game, and is important to coordinate with teammates when playing co-op modes. In Team Fortress 2 and Loadout, the first phase is to select game mode, this will start the game session.
2. The second phase for World of Tanks 2 must be considered in accordance to the first phase, as the choice of game mode is important for the choice of tank and equipment. The different game modes have different goals and objectives, where the efficiency of one specific tank will vary. The second phase in Team Fortress 2 requires the player to select his preferred class for the particular game mode. This can be either one of the nine different classes, who all have different strengths and weaknesses in the different maps and modes. In Loadout the player must select his preferred 'loadout' for the particular game mode. Selecting the 'loadout' means choosing weapons for the game session. The loadouts consists of two player customized weapons and a hand grenade.
3. The third phase of all three games is to either follow the extrinsic goals set up by the game, or make personal intrinsic goals/objectives for the game session. An intrinsic goal in Loadout could be collecting both red and green vials in order to both score points and deny kills in the game mode, "Death Snatch". An intrinsic goal could for instance be focusing on a specific enemy tank/ player in the "Tank Company Battle", where players team up against opposing teams.
4. The fourth phase of all three games is to either win or lose the game session, which in World of Tanks and Loadout will determine the amount of XP and currency (credits and blutes) the player is rewarded at the end of a session. In Team Fortress

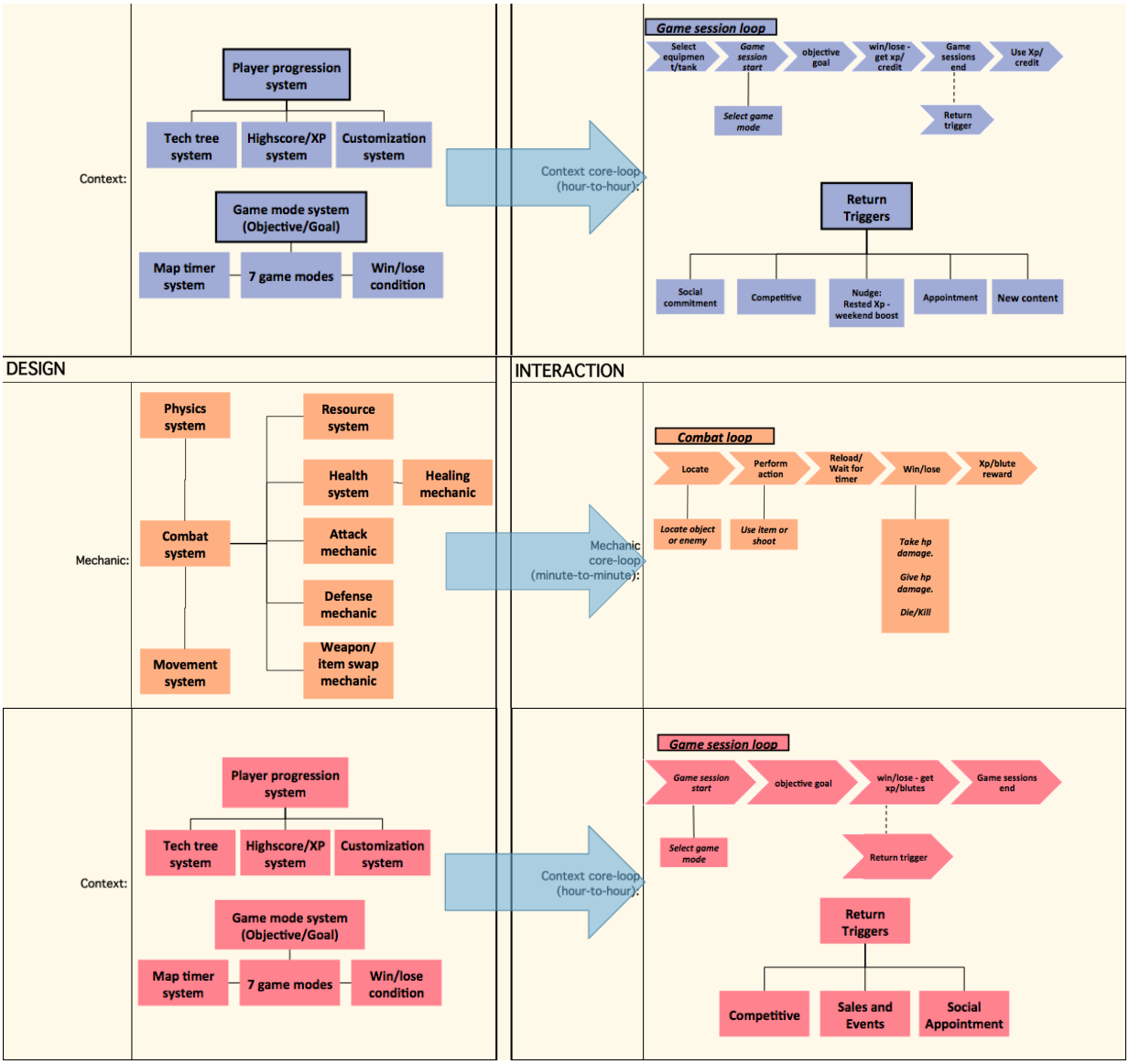


Figure 118: ***The context design and interaction of World of Tanks (purple, top), Team Fortress 2 (orange, middle) and Loadout (red, bottom).***

2, this will trigger the item drop system, which will provide the player with a chance of receiving a random item. When the player has either won or lost the game session, he will have different reasons for wanting to return to the game. These reasons will be described after the last phase.

5. The fifth phase ends the game session for all three games, which will either result in the player being directed to the main menu. This will provide the player with the option to start the game session loop again, quit the game or proceed to sixth phase.
6. The sixth and last step in the game session loop is using earned XP and currency on the different features in each game. In World of Tanks and Loadout, the player can unlock or upgrade weapons and tanks, which can be used for a new game session loop. In Team Fortress 2, the player can either equip the new items or use it to craft or trade for other items, if he was lucky enough to get a drop.

There can be several reasons for returning to the games. These choices depend on the preferences of the player and the type of engagement established. The player can have a social commitment with a

friend, who expects the player to fulfil some sort of agreement of playing the game at a certain time. This social commitment trigger is facilitated by systems in each game that allows friends to team up and play together. This means that the player can utilize a bigger aspect of the game as it allows the players to better coordinate and set up strategies, which will give the player a deeper level of engagement and experience.
The player can also choose to return to the games as they facilitate competitive play, which caters to players who enjoy player versus player encounters. This means that the player can challenge and test his own skills and abilities against other players. The player can choose to return to the game as it provides in-game boosts in certain periods.

In World of Tanks, the player gains rested XP, which is a system that boosts the player income in-game if the player have not been active for a while. Loadout offers daily prizes, where players have the opportunity to earn additional blutes after a game session. In Team Fortress 2, the player can choose to return to the game due to special arranged double drop-rate weekends.

Another reason for returning to the game could be if the player is very close to completing a goal in the game, or just a few credits short of unlocking a new item. This is especially seen in World of Tanks and Loadout, as they allow the player to earn and save up currency or xp, which allows the players to create goals for achieving specific items, consumables, tanks etc.

4.10.5 META DESIGN TABULATION

Around the core game we find the meta design of World of Tanks, Team Fortress and Loadout. As previously described the meta design is connected to both the mechanic and context design.
The meta design and its related core-loop is constituted by the "frame" of the mechanic and context design and very much the context of use. As such, the meta design and core-loops details the culture and mentality around the game.

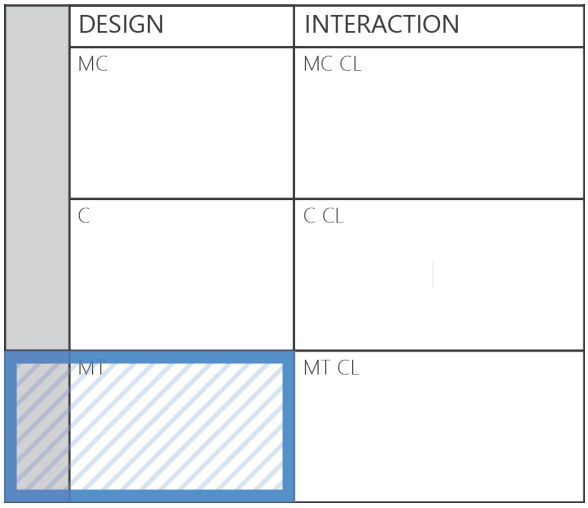
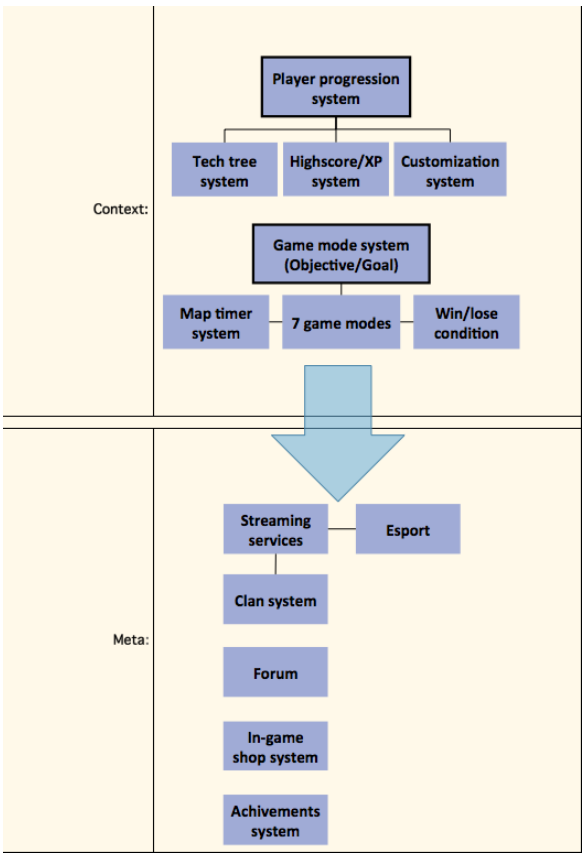


Figure 119: ***Illustrates what part of the GDM this section contains.***

Figure 120: ***The context and meta design of World of Tanks (purple.***



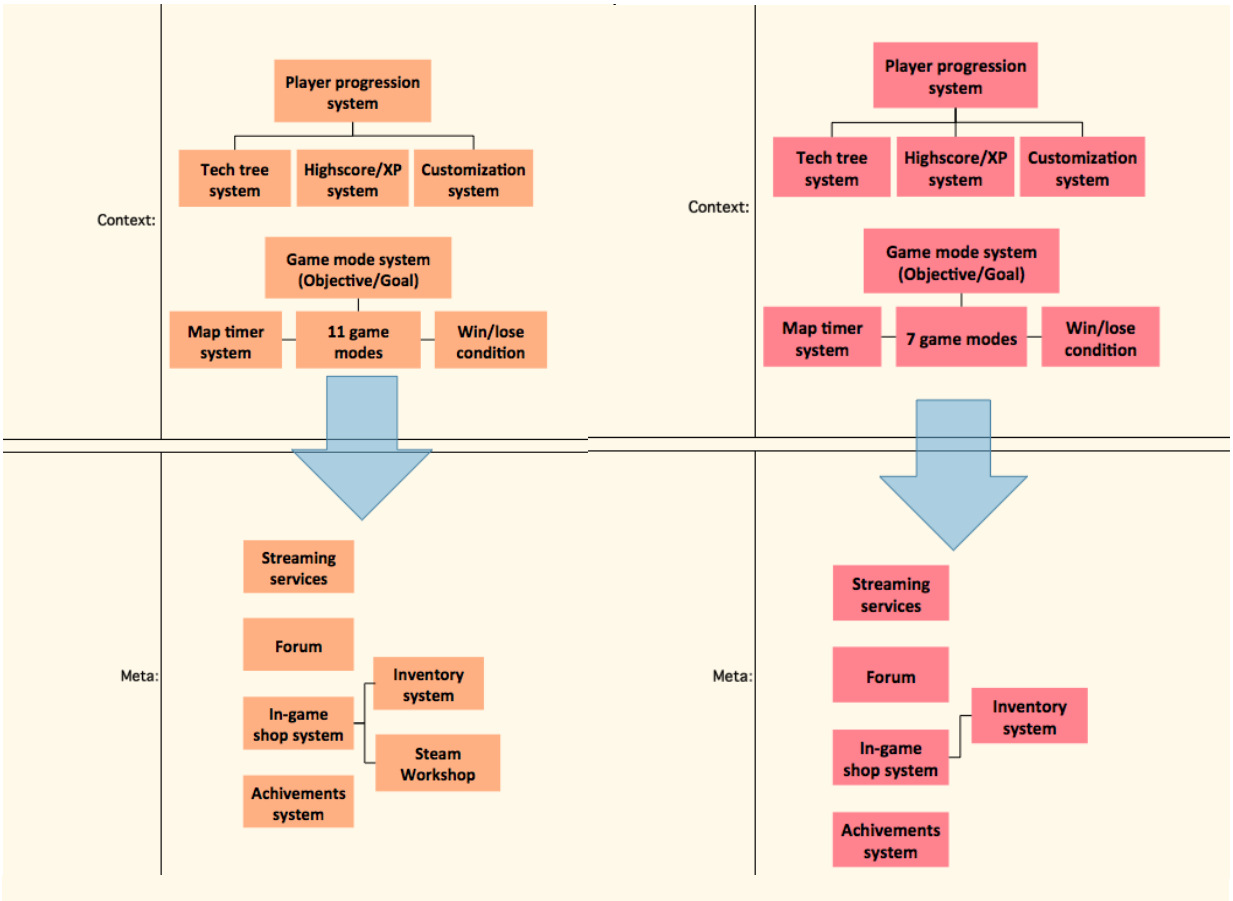


Figure 121: ***The context and meta design of Team Fortress 2 (orange, left) and Loadout (red, right).***

Forum

World of Tanks, Team Fortress 2 and Loadout shares a need to bring their users to their forums. This facilitates both company-to-user and user-to-user interactions of all three mobile games. Company-to-user is in regards to giving customer support, but also user feedback on upcoming patches or current content. The user-to-user interaction is often about game balancing issues, new content, asking for help (bugs, guides etc.), clans/guilds looking for new members or any other topic relating to the features of the specific game.

In-game shop system

The in-game shop system in World of Tanks, Team Fortress 2 and Loadout facilitates the user transactions of items. In Team fortress 2 players have options for upgrading their inventory space through their inventory system.

As previously mentioned, Team Fortress 2 allows players to create their own vanity items through the Steam Work shop.

Clan system

World of Tanks is the only of the three PC games to feature an in-game clan system. The clan system allows the players to form a community, chat with clan members, use the clan game mode, and progress through the ranking system and it makes teaming up against other players very accessible. On their official website, they even facilitate a recruitment station for active clans looking for new members to join their ranks.

World of Tanks also features unique clan match events hosted by Wargaming.net, where it is possible to win special prices such as gold or an in-game tank. As previously mentioned, World of Tanks have a clan only game mode, where each clan tries to control as much

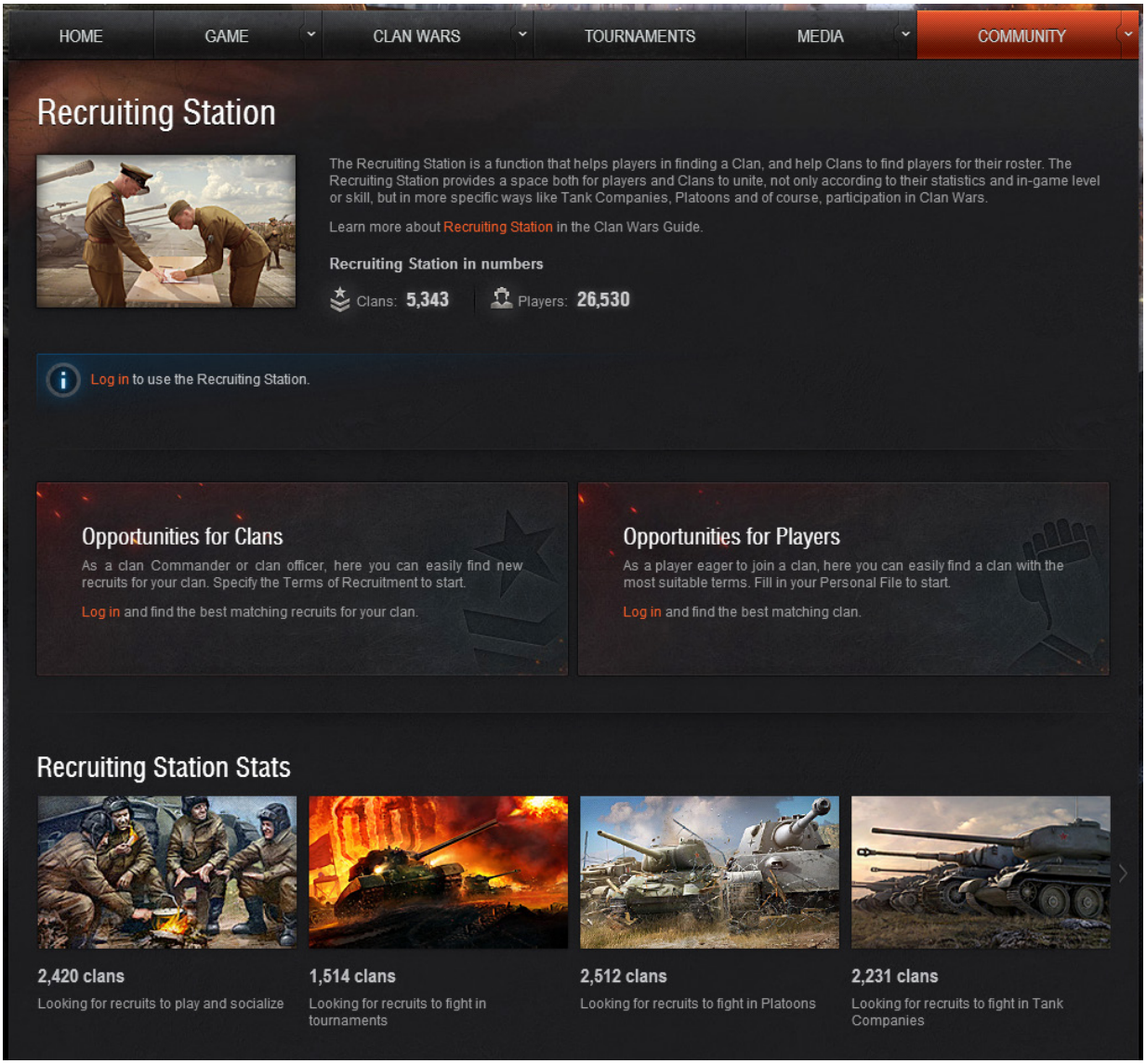


Figure 122: ***Screenshot from World of Tanks of their recruitment station service***

land as possible on the global map either defending or attacking against enemy clans.

Besides the unique in-game events, Wargaming.net also host their own Wargaming.net Esport League for the best and most serious clans/Esport teams.

Here each clan battle each other to conquer as much territory as possible of the world map.
Clan matches do happen in Team Fortress 2, but are done in a more traditional way, where everything to setting up the clan and matches are done outside the game. It is possible to team up with your friends in Loadout, but have yet to implement an in-game clan feature.

Streaming services

Streaming services such as Twitch or YouTube are used a lot of in regards to PC games both by the developers and by the users and we believe it plays a part in generating some of the meta core-loops in PC games today. The role of streaming services are especially present in World of Tanks as it is an E-sport game, but Loadout also manages to utilize some the medium's potential.

Figure 123: ***The left screenshot: The 2014 Wargaming.net League Grand Finals where the professional Esport team Natus Vincere won the first place.***
The right screenshot: The global clan vs. clan map in World of Tanks. Here each clan battle each other to conquer as much territory as possible of the world map.

4.10.6 META INTERACTION TABULATION

	DESIGN	INTERACTION
	MC	MC CL
	C	C CL
	MT	MT CL

Figure 124: ***Illustrates what part of the GDM this section contains.***

The meta core loop purpose is to create a long term engagement of the user. As previously mentioned the mechanic, context and other services/systems around the game creates the foundation of the meta core-loops But one element that is unique to the meta core loop is when the human computer interaction happens new maybe unforeseen meta core-loops are created.

Social engagement loops

The first social engagement is present in all three games and is about users teaming up with their friends or forming clans/gaming communities to set longer term goals for them self and their respective group. It is long-term goals that supersede the more mathematical part of winning the match and getting a better high score. It is goals that are personal and follows the following steps:

1. Here the users team up with likeminded individuals forming a shared bond and goal of the game.
2. The difficult challenges that is only possible to beat as a team is overcome in the second step.
3. The third step the team/clan get acknowledgement from the other players participating in the match or the community surrounding the game.
4. The winning team/clan gets an exclusive reward for their accomplishments.
5. It has a sense of purpose to it; the feeling of reaching a higher goal together, by performing complicated strategies or interesting combinations of classes, it all connects the players, as they are co-dependent on each other's success and failure.

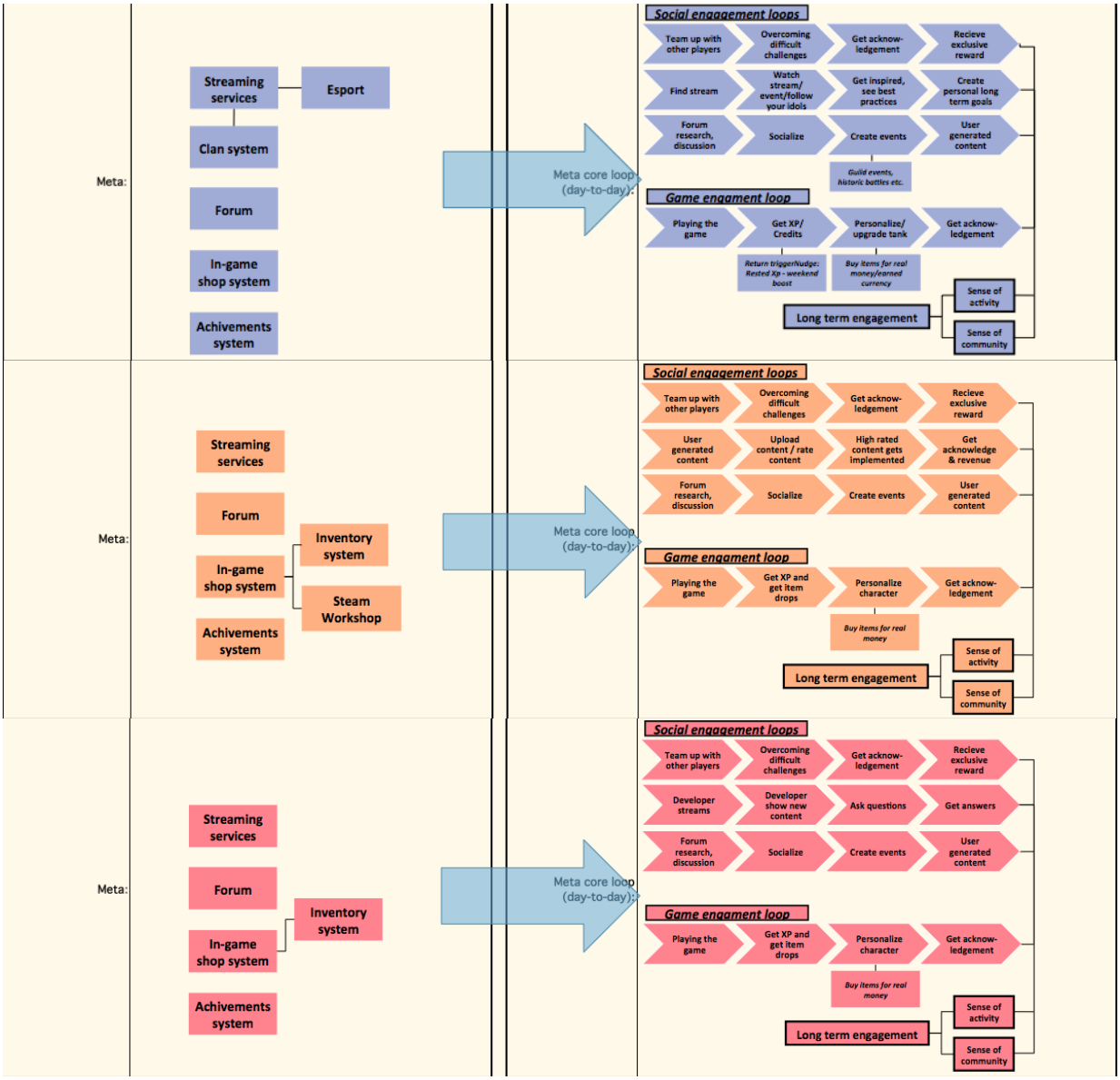


Figure 125: ***The meta design and meta interaction of World of Tanks (purple, top), Team Fortress 2 (orange, middle) and Loadout (red, bottom).***

The second social engagement is present in all three games, it entails social connectivity through the games respective forum activity and community building between the users and from the developers/company to the customers. The second social engagement loop follows the following steps:

1. In the first step the user navigates the respective game forum to find specific topics such as best strategies or converse on different item usage.
2. The second step is the active participation itself, social connectivity between the users.
3. The third step is to setup the discussed event or arranged clan match. To use the same World of Tanks example this step would entail that the users here would plan how to setup user generated scenarios simulating these famous historic events.
4. The last step is to live out the discussed event or arranged clan match.

A forum therefore works as a communication channels for user-to-user and company-to-user, as such it leads to community building, a basis for the users to

share knowledge and possible generate events that transcend the frame build by the developers.
The third social engagement loop is one Loadout really emphasis on. The developers of Loadout live stream about new content coming to the game in new patches or other game topics.

1. The first step of this meta core-loop is for the users locate the live stream.
2. The users have found the live stream and is now watching the developer's present new content.
3. In the third step, the users can ask questions directly to the developers.
4. In the last step, the users get answers from the developers.

The fourth social engagement loop is present in Team Fortress 2 and is a big part of how they engage the user to contribute to the game and its culture by letting them use the Steam Workshop to create their own vanity items.

1. First, the user uses the Steam Workshop feature to create their own vanity items.
2. In the second step the users upload the content / rate content available on the Steam Workshop.
3. The highest rated content gets implemented into Team Fortress 2.
4. In the last step the users that successfully got their content into the game, gets acknowledgement from the other users and get revenue whenever it is sold.

One of the features that set World of Tanks apart from Team Fortress 2 and Loadout is its focus on being an Esport game.
All the meta loops result in the user feeling a sense of activity (Clark, 2013, p. 53) and sense of community (Clark, p. 268) of the game, which have a high chance of increasing the long term engagement level of the user. This will make it more likely for the user to return to the game and increase the life time cycle of the game and its players. This social connectivity and sense of community between the users and from the developers to the users strongly benefits to shaping the culture and user mentality surrounding World of Tanks, Team Fortress 2 and Loadout.

4.10.7 KEY FINDINGS AND PART CONCLUSION

The mechanic core-loops in all three games are almost identical in pattern and mastering it requires that player becomes proficient with the three primary system that makes up the mechanic core-loop: combat system, movement system and physics system.

What makes them unique within their genre in relation to the mechanic level is the way the attack mechanic works (rate of fire, reload timers), character movement possibilities and the physics.

World of Tank and Loadout's features a comprehensive progression system and therefore have the potential to give the largest feeling of progression and extend the player life time cycle (retention).

Team Fortress 2 is as mentioned the only game of the three not to feature an experience system or a currency reward system.

All three games mechanic and context design plus other relevant features or services around the core game like community for a, streaming or other, has created a frame/foundation that has made it possible to built a culture around the game that have allowed the creation of meta-core-loops. Arguably, these meta have loops have a high impact on the long term engagement of the users in all three games.

4.11 PC GAMES REVENUE MECHANICS TABULATION

In this section, we will tabulate between the three PC games, in order to compare the usage of revenue mechanics. This is done with the focus of how the games create revenue and how this affects the game design.

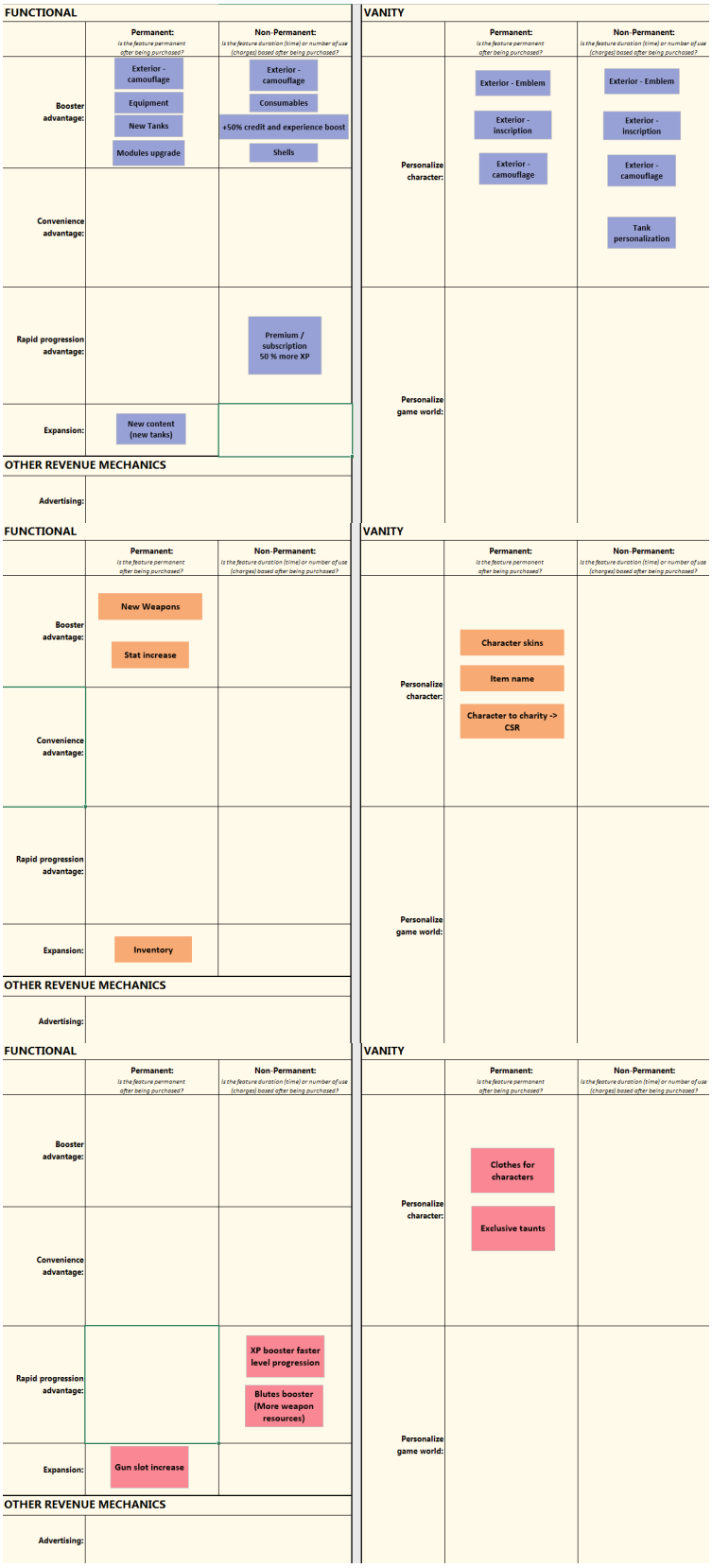


Figure 126: ***The revenue mechanics of World of Tanks (purple, top), Team Fortress 2 (orange, middle) and Loadout (red, bottom).***

4.11.1 CURRENCY

All of the three games makes it possible to use some sort of currency in order to buy different items in their respective shops. However, Team Fortress 2 stands out from the two other games on this matter. In Team Fortress 2, the player can choose to either just play the game and rely on the random item drop, in order to receive new items or make purchases through real-world currency. This means that the only currency available in Team Fortress 2 is the real-world currency of the player.

World of Tanks and Loadout rewards the players with currency for every game session they play. In Loadout, there are two currencies, Blutes are the main currency and is earned by playing the game, and Spacebux is the deluxe currency that can be bought with real-world currency. In World of Tanks, there are four different currencies, battle XP, free XP, credits and gold. Gold is the deluxe currency and can be gained through Clan Wars and payment methods like PayPal or credit cards. The player earns credits, battle XP and free XP when playing the game, however the amount of free XP earned depends on the amount of Battle XP earned.

The different currency systems is seen in the game session loop of the context interaction, as they are a part of the sixth phase that allows players to customize their game experience. The currency system in World of Tanks is the most complex of the three, which means that the player will have to use some time on figuring out how the different currencies are earned and what their specific purpose is. As all of the three currencies are achievable through gold conversion, it is very lucrative to purchase a premium account or an elite tank that can help boost the income from each game session, as the player will easily fall short from one of the currencies. This behaviour encourages players to buy improvements that will give them an advantage in-game. This can make game sessions unbalanced, as players with large amounts of currency, can boost their performance and acquire an edge against players who has not made such purchases.

In Loadout the currency system is rather simple, as the Blutes can only be used to purchase and unlock new parts for weaponcrafting, whereas the Spacebux can only be used to buy xp/blute boosters, cosmetic items, gunslots and loadouts. This mean that the player cannot as directly pay to win, as it is possible in World of Tanks. This provides Loadout with a more “honest” brand, as the game signals that its main monetizing source focuses on parts that will not affect the game balance. As such, the game encourages the player to play the game in order gain Blutes and thereby new options and better weapons, but if the player wants to express himself personally, it will cost him money.

In Team Fortress 2, the player only uses real-world currency to purchase specific items. If the player chooses to do so, it can give him an advantage in-game, as some items can counter different classes. Relying on the random item drop system can be a lengthy method for achieving a specific item. The choice of currency in Team Fortress 2 is very frank, which at the same time can seem a bit greedy. The choice tells people to either make a direct payment or play the game a bunch of times and hope that you will get the desired item. As such, the player has no certain way of obtaining a specific item by only playing the game, however Valve tries to make up for this by letting the player collect crafting items, which can be used to make specific items.

4.11.2 BOOSTER ADVANTAGE

In World of Tanks, the players can boost their performance by purchasing new modules, equipment and consumables. The modules are applied before the battle to improve stats, and is usually seen in the form of a new engine, gun, suspension etc. The equipment is also applied before the battle, and will improve the performance of the player in-game, picture XX shows some of the equipment available in the game. Consumables are a way of boosting the performance of the tank crew, for instance the player can buy a case of cola that boosts the crew skill with 10% during the battle. Boosting the performance of the tank crew, will give the player an advantage in battles. These boosters are purchased through the context design systems,

Figure 127: ***A screenshot of the shop in World of Tanks, showing some of the equipment available in the game.***

but will have a great impact on the mechanic core loop, as they are tied to the performance of the player in the game.

In Team Fortress 2, the player has the opportunity of acquiring new guns and weapons with either better or new abilities, through the usage of real-world money. This will give the player and edge versus unsuspecting opponents, as seen in figure 52 the Beggar's Bazooka allows the player to load up three rockets as opposed to the standard of one rocket. This kind of purchase will affect the mechanic core-loop, as it will influence the outcome with enemy encounters in-game.

In Loadout, it is also possible to obtain better stats

Figure 128: ***A screenshot of the in-game shop in Team Fortress 2, highlighting "The Beggar's Bazooka".***

and abilities, but as mentioned, this is only achievable through the usage of Blutes, as such; this means that the player does not have an as direct way of purchasing booster advantages as the other two games. However, the player has the possibility of purchasing XP and Blutes boosters, which will increase the rate of how much Blute and Xp the player earns during game sessions. This means that Loadout offers a way of gaining an advantage in the game, but in order to do so, the player must make an effort to achieve the maximum output of his purchase. The player can boost his performance by upgrading and unlocking weapons in the Weaponcrafting menu or in the Tech Tree.

Customizing weapons in Loadout will a have big impact on the mechanic core loop, as it will provide new ways of playing the game. For instance, it is possible to change parts of a gun that reduces the firing range, but makes the projectiles bounce. This changes how the player would act in combat, as the customized weapon now could be more efficient in close combat as opposed to a more ranged style of combat.

As described under the currency section, these purchases are a part of the game session loop in the context interaction.

4.11.3 RAPID PROGRESSION ADVANTAGE

In World of Tanks, the player can buy a non-permanent Premium account, which gives the player both an XP and Credit boost when playing the game. This allows the player to gain faster access to items and tanks, and in this sense progress faster in the game. Furthermore, the player can also buy “elite” tanks, which is a special kind of tanks, only purchasable through the deluxe currency gold. These tanks will also boosts the percentage of how much XP and Credit the player gains in game sessions. Purchasing a premium account will act as kind of return trigger in the game, as the player will waste his purchase by not playing the game. Furthermore, purchasing elite tanks or premium accounts will also affect the context core-loop, as it will increase the amount of XP and credits received when the game session is either won or lost.

In Loadout the player can buy XP and Blute boosters, this will allow the player to gain levels faster in order to unlock new play modes and features in the game. Furthermore, the increase in Blutes will also let the player unlock and upgrade weapons more frequently, and as such boosting the player’s progression in the game. These features are tied to the context core-loop in the game, as they will affect how the player will select and prepare for matches.

In Team Fortress 2, the player got no options for progressing faster in the game.

4.11.4 EXPANSION

In World of Tanks, there is a garage at the player’s disposal to store tanks and vehicles. The garage has a limit of five slots available to store tanks or vehicles when the player signs up for the first time, however extra storage space is purchasable for gold. Depending on to what degree the player utilizes the storage functionality, this will make it easier to select and buy tanks, as the need for logistic planning will diminish. This will make the context core loop more comfortable for the player, as he will be able to buy new tanks and vehicles more freely, as he can be less concerned about using all of the storage room in the garage.

In Loadout, the player can create and customize his own guns. If the player decides that he is done customizing a weapon, it can be saved into a “gunslot”. The player has three available gunslots at level one, and can unlock three more when advancing further in levels. However, if the player is not satisfied about deleting his customized guns in order to free up space to create new ones, he can purchase more gunslots with Spacebux. Customizing weapons and saving them to gunslots, are a part of the context core loop of the game. The number of gunslots available to the player therefore limits the context core loop, as he will not be able to freely create and customize new guns, without destroying old creations. Buying more slots will make the context core loop more comfortable for the player,

	Free	Premium
Backpack:	50 slots	300 slots (expandable up to 2000)
Items:	Standard	Standard, Rare and Cosmetic
Crafting:	Limited blueprints	All blueprints
Trading:	Limited trading	Full trading
Gifting:	Can receive gifts	Can give and receive gifts

EVERYTHING ELSE IS EXACTLY THE SAME!

Figure 129: ***Differences between a free-to-play account and a premium account in Team Fortress 2.***

as he can assemble a variety of different weapons, which can be selected prior to battle.

In Team Fortress 2, the same thing goes for storing items in the "backpack", which stores both cosmetic items and weapons. The player starts with a 50 slots backpack that is automatically upgraded to a 300 slots backpack when upgraded to premium account. The backpack can be further upgraded to a maximum of 2000 slots. Purchasing extra storage space in Team Fortress 2 will also have a positive effect on the context core-loop, as the player will not have to worry about items being deleted if the backpack is full.

4.11.5 ADVERTISING

As Team Fortress 2 is only available through the Steam platform, players will automatically be met by offers and news about other games. As such, we see this as a kind of offer wall, as Team Fortress 2 is advertising for other games on the Steam platform and thereby strengthening the revenue stream of Valve. Furthermore, Valve has a history of making deals with other game companies on steam, in order to promote the respective games through Team Fortress 2. If the Team Fortress 2 players agree to try and play the games, they will receive unique promotional items that are only achievable through the different games on Steam.

4.11.6 PREMIUM/VIP

As mentioned under rapid progression advantage, the player can upgrade his account to non-permanent premium account In World of Tanks. A premium account gives several advantages in the game, XP and credit boost being of most significance. The player has eight choices when purchasing a premium account through the premium shop: a day, three days, a week, two weeks, one month, three months, six months or one year of premium. In this sense, the premium account acts similar to the subscription model, where the player can pay for periods of time. Buying a premium account will have a significant impact on the context core loop in World of Tanks. The extra 50% XP and credits after each game session, will allow the player to research stronger tanks faster than before. This will give the player a bigger selection of vehicles before entering battle.

In Team Fortress 2, there are two types of accounts: free-to-play and premium. As long as the player has not used any money on the game, the account stays free-to-play. However, if the player chooses to spend any amount of money in the game, the account will automatically upgrade to a premium account. The premium account unlocks a couple of extra features for the player, as seen beneath in figure XX. Upgrading to a premium account in Team Fortress 2 will affect both the context and meta core loop of the game. As described in the expansion paragraph, gaining more storage space in the backpack will make the context core-loop more comfortable for the player, however it will also allow the player to get new types of drops, which is also tied to the context core-loop. The meta core loop will also be affected, as the premium account

will allow players utilize the full trading system. The limited trading system only allows free accounts to trade tools, items given by a premium player and items received through a Steam Promotion. In Loadout, premium accounts is not an option.

4.11.7 PERSONALIZE CHARACTER:

In World of Tanks, it is possible to customize the looks of the player's tanks. This is done through non-permanent emblems, inscriptions and camouflage. The player can choose between different settings in order to determine the specific amount of time for the effect to last. The higher amount of time, the bigger the cost. As the tank is what the player controls in-game, it becomes the avatar of the player, and is therefore categorized as character personalization. These personalization options are a part of the context loop, but will also influence the mechanic core-loop, as they will give the tanks a distinct look that will either increase or decrease their visibility in-game.

In Team Fortress 2, the character personalization has become one of the traits of the game, as it has a large emphasis on hats. Therefore, a large part of the cosmetic items deals with hats or other items related to the head-area. However, suits, ties and other items are also available in the game. Acquiring these items is also a part of the context loop, and will in some degree be able to affect the mechanic core loop in the game, as the players will be able to tell you a part from the rest. However, as stealth and hiding is not essential parts of the game, this is only a minor effect.

In Loadout, the player can choose between three characters, and customize them from top to bottom. The game is equipped with a big arsenal of cosmetic items that allows the player to express himself many different ways. As with Team Fortress 2, this is also a part of the context loop, and will also influence the mechanic core loop to some degree. An example of this could be that the player gets killed by another player with a pink thong equipped on his character, this could provide a motive for the player to focus down this exact player when he respawns again. The cosmetic item makes it easy for the player tells the enemy player a part and to pursue his vengeance.

4.11.8 KEY FINDINGS AND PART CONCLUSION

Team Fortress 2 makes it difficult for players to obtain items, as it is not possible to earn and save up currency, like World of Tanks and Loadout.

Loadout offers the least direct way for players to pay to win, which can have a positive influence on the game's reputation. World of Tanks offers more options for players to pay to win, in comparison with the other two games, as the game consists of several monetization features that allows players to boost their performance in-game. This can create an imbalance between players that plays the game without spending money, and the players that does. Furthermore, World of Tanks has very little emphasis on purely cosmetic features, in comparison with the other two games. Team Fortress 2 also allows players to get advantages in-game, but because of its crafting materials and implementation of the steam workshop, the game is less likely to have ungratified players.

Team Fortress 2 has chosen to limit the free-to-play accounts a great deal, as such making it very lucrative for the player to make any kind of purchase, and thereby upgrading to premium.

The progression system in World of Tanks (tank tech three) serves as great foundation for implementing revenue mechanics and as such strengthening the revenue stream.

The three games have almost identical game session loops, these loops allow players to make tactical decision before they engage in battle (selecting tank, class or weapon). Furthermore, all three games offers different game modes that allows for different ways of playing the games. All three games have highscore systems that allow players to track their progress during game sessions. This caters to competitive player

types, as it provides an overview of who is leading with most kills. This can strengthen the desire to obtain advantages in the three games.

4.12 MOBILE AND PC CROSS TABULATION

This section is divided into two parts, where the first part covers the revenue mechanic patterns, and the second part covers how design and core loops are connected to revenue mechanics.

4.12.1 REVENUE MECHANIC PATTERNS

Through our analysis of mobile and PC games we have identified several revenue mechanics. This section compares these patterns with each other, its comparisons work across different genres.

The Figure 131 on page 173 illustrates the usage of the different revenue mechanics in the six selected games. On the left side, the six games are listed with each of their individually connected revenue mechanics. On the right side, the different types of revenue mechanics categories are listed. Each category

Figure 130: ***Screenshot of the customization possibilities in the 'outfitter menu' in Loadout.***

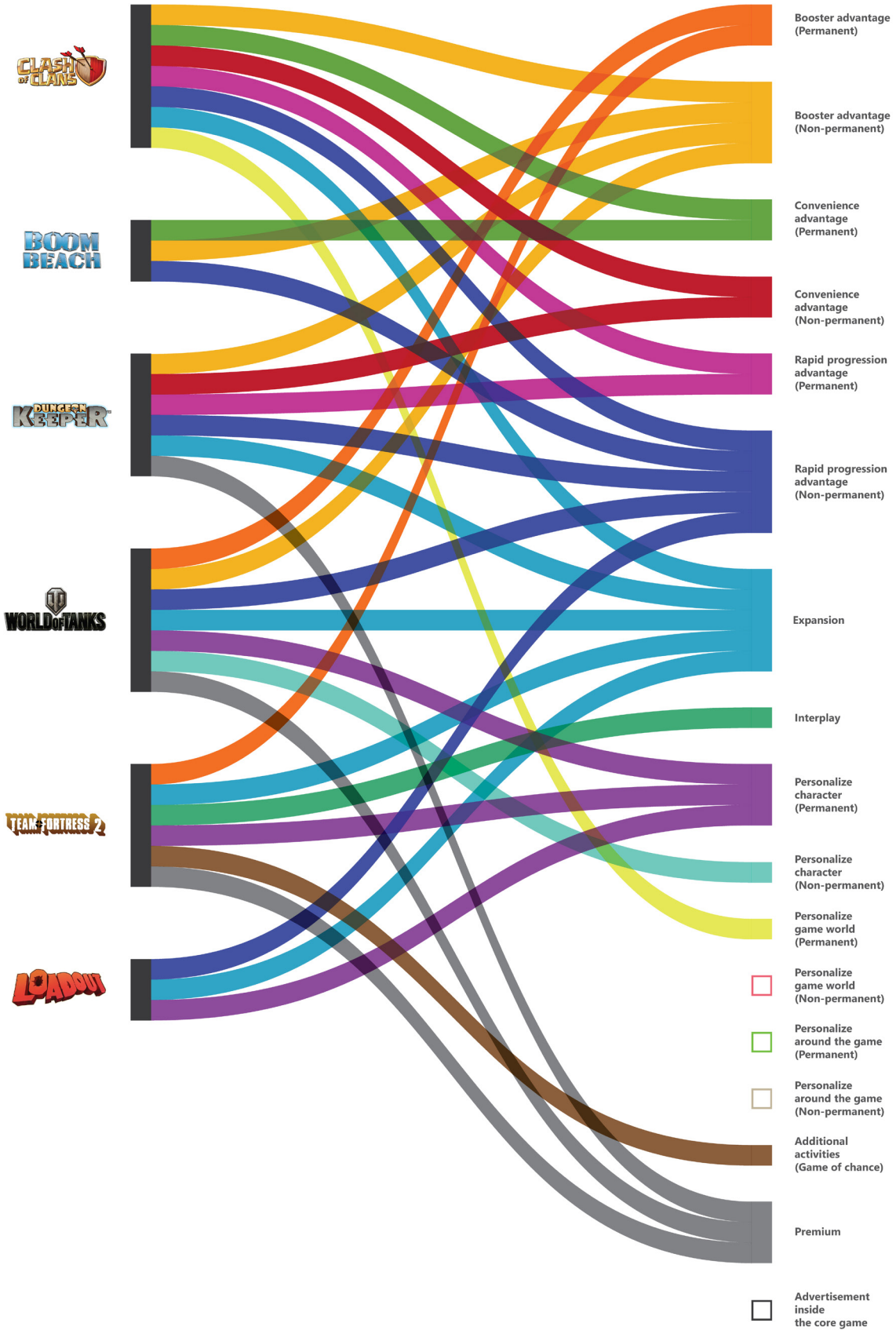


Figure 131: ***Illustrates the identified mobile and PC revenue mechanics pattern of Clash of Clans, Boom Beach, Dungeon Keeper, World of Tanks, Team Fortress 2 and Loadout.***

shows the total amount of the selected games that use a specific revenue mechanic. The larger a "block" is the more prevalent the use of a given mechanic is.

4.12.2 PATTERNS BETWEEN THE GENRES AND PLATFORMS

Mobile

The tendency within the games on the mobile platform is that they all contain some sort of booster, convenience and progression revenue mechanic.

The mobile games are asynchronous. An important detail to note is that other players influence the state of an individual's game even though that individual is not online in the game. When the player has finished a game session and exits the game, the state of the game will still be active independently of the player's presence. The players of Clash of Clans and Dungeon Keeper have the option of buying immunity against the influence of other players. Thus the convenience mechanics is linked to the player's context of use: if the player is prevented from playing the game for a while this option might be desirable.

As the genre of the mobile games revolves around building, upgrading and producing more and more powerful units and buildings, the goal of these games is to progress. This design relates to the genre of the games, and it therefore becomes natural to implement and teach the player that certain revenue mechanics allows for faster progression. This makes up for an easily communicable revenue mechanic; the player will be able to quickly assess the value of the purchase.

The non-permanent booster advantages have two distinct traits that make them beneficial to implement in mobile games. The first is the fact that because the mechanics are non-permanent, the players will be able to purchase the booster several times. The second has to do with game balancing, as non-permanent booster advantages will make the player's power-level more even in regards to the challenges the player will meet. Continuous implementation of permanent booster advantages may result in an unbalanced gameplay, as players would be able to stack up an unreasonable amount of boosters.

PC

The tendency on the PC platform shows that the three games contain permanent booster advantages, expansion and character personalisation revenue mechanic.

Permanent character personalisation: Vanity goods in the form of character personalisation are only present in the PC games.

In the PC games, the player is represented by an avatar, which can be customized in appearance. In the mobile games, the players are represented by the design of their base or dungeon. Monetizing on character personalization is thus more relevant in the PC games as it provides the player with the possibility to stand out from the other players in synchronous, competitive games.
Avatar appearances provide value to players because having a special look often results in acknowledgement, i.e. prestige. This is possible due to the strong social connectivity the games facilitates, where players are constantly able to interact with each other, both on a gameplay level and a communicative level (in and outside of the game). This type of sociality is not as equally supported in the mobile games, because the player-to-player interaction is asynchronous. The PC games are more apt to benefit from vanity based revenue mechanics.

This revenue mechanics supports the design of each PC game, as they all contain elements that allow for storing items or weapons in the player's inventory. This makes it natural for the player to make purchases that increases the storage capacity. This revenue mechanic therefore relates to the permanent booster advantages.

Both World of Tanks and Team Fortress 2 allow the player to buy new and better weapons. This function is also present in Loadout, but is tied to an indirect,

rapid progression advantage revenue mechanic that increases the income of currency in game sessions, thus allowing the player to buy better weapons and upgrades more frequently. As Loadout does not monetize directly on this feature as a permanent booster advantage.

In the three PC games, the achieved weapons and upgrades are the main measurements of the player's progression. Here we find an important connection between the permanent booster advantages and the expansion revenue mechanics, seeing as the player needs more room for storing the different weapons and items.

PC and mobile

All the games, with the exception of Team Fortress 2, monetize on non-permanent rapid progression revenue mechanics.

All the games, with the exception of Boom Beach, monetize on expansion revenue mechanics.

All the games, with the exception of Loadout, monetize on either permanent or non-permanent booster advantages revenue mechanics.

Permanent and non-permanent booster advantages: The booster advantages are very tangible to players as the value of the purchases is easy to understand and creates perceptible advantages. The booster advantages are therefore easy to introduce at an early point in a player´s life cycle.

Non-permanent rapid progression: These revenue mechanics have a clear value for use in the respective games, which makes them easy to understand for the player. This makes for a strong revenue mechanic in regards to the context of use for each player. This must be seen in regards to the individual purposes players have for purchasing these revenue mechanics. As it is, there are a variety of reasons for using the features (independent to the game itself). On reason might be not having the necessary time to achieve a certain goal in the game, another to become more powerful in the game. This adds flexibility to the games, which enables them to reach a broader audience; it allows more player types to engage in the games.

Expansion: Expansion revenue mechanics are a more long-term orientated mechanic. This is a mechanic that will only generate proper value to the player when, after a certain point, the need for more storage space is present. This is a way for the free-to-play games to introduce meaningful and valuable revenue mechanics later in the player life cycle, in a given game.

When looking across the two different genres and platforms, we have seen and identified similarities in the revenue mechanic patterns. In regards to the amount of revenue mechanics featured in each game, it does not indicate a specific pattern. However, we have noticed that the two most recently released games (Boom Beach on mobile and Loadout on PC) have the lowest amount of revenue mechanics. On one hand, this may be indicative of the current tendency in usage of revenue mechanics. On the other hand, this tendency might also be a result of several factors unrelated to their release date, such as customer segment concerns and/or what type of revenue mechanic that is most suitable/optimal for the individual game design.

4.12.3 REVENUE MECHANICS IN THE DESIGN AND CORE LOOPS

On what loop do the revenue mechanics in the two platforms monetize and are there any specific revenue mechanics that are more used in a specific loop than others?

On the mobile platform the very act of purchasing a functional virtual good is on the mechanic core loop level (see Figure 132 on page 176). On the PC platform the purchase is made in the context core loop.
The function of the purchased revenue mechanic affects the mechanic design in both the PC and mobile games (see black arrows in Figure 132), consequently affecting the mechanic core loops.

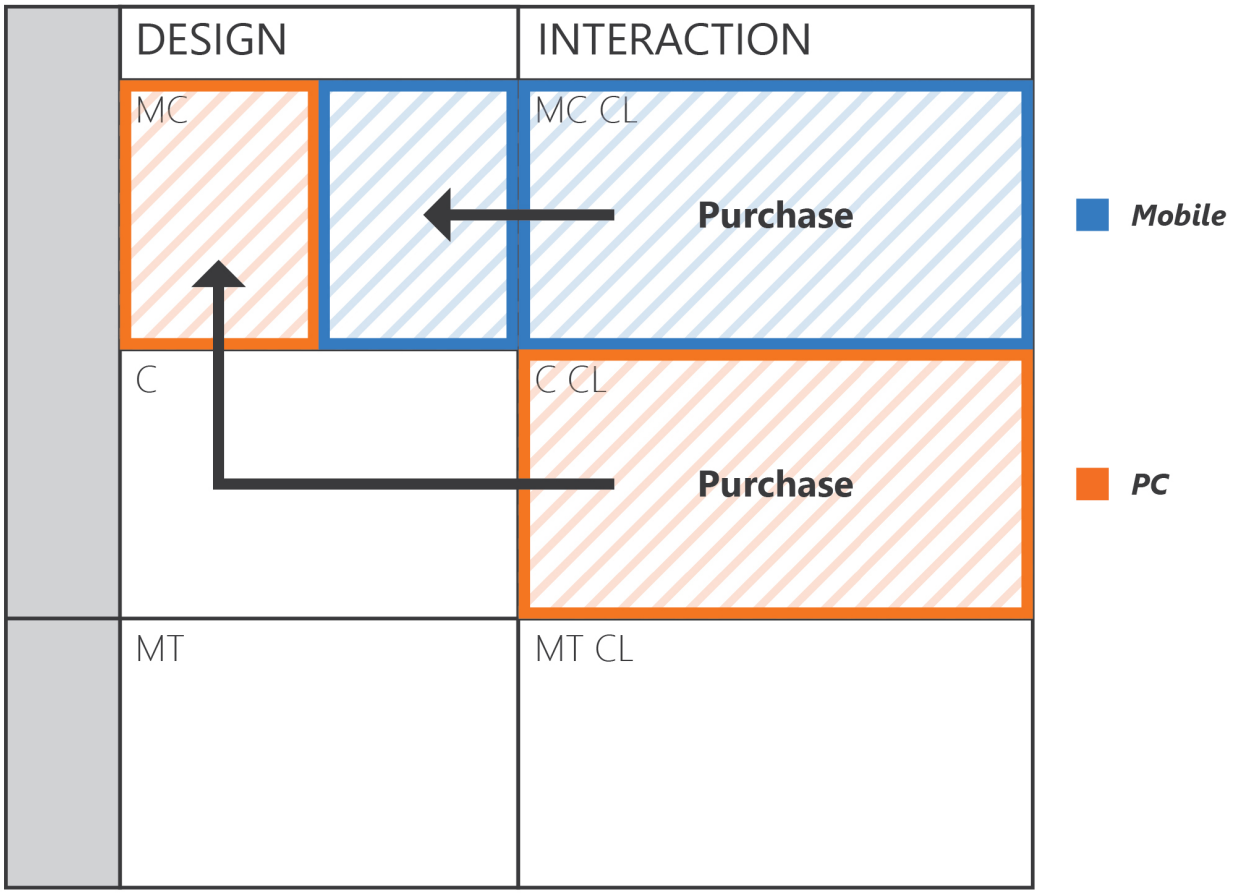


Figure 132: ***Illustration of where each genre facilitates their purchases, and which design system it affects***

This means that the player has the opportunity to make purchases when playing in the mechanic core loop of the game, whereas the PC games only facilitate purchases from an in-game menu- a menu where the player is not engaged in a game session.

We believe this tendency is connected to the types of revenue mechanics that are used in, respectively, PC and mobile games. Where the mobile games make use of non-permanent revenue mechanics to a much larger degree, the PC games utilize permanent revenue mechanics. The mobile games present the player with the possibility of making more frequent purchases, and doing so without forcing them to leave their current game session. Furthermore, the revenue mechanics are also presented at relevant points during the player life cycle: this clarifies the purpose(s) of the different revenue mechanics.

In regards to the three PC games, the designs of the games force the player to strategically consider each purchase. Each purchase will have an impact on the next game session: they will provide new advantages and possibilities for the player, and as such, also alter the player's current play-pattern. Purchases within the game sessions would diminish the pleasurable element of strategic preparations for the games ahead.

Chapter 5

SYNTHESIS

In the synthesis chapter, we introduce the results of our analysis in cohesion with the empirical data collected through the conducted respondent interviews.

"If you don't have a really good game that is fun to play in itself it's very hard to add on any kind of monetization and think you're going to make money"

- Jonas De Freitas, Business Performance Director on Candy Crush Saga, King (annex 1)

5 SYNTHESIS

In this reflective chapter the knowledge gained through our theoretical and empirical research is pieced together. More specifically, the chapter focuses on the revenue patterns and key design components identified through the analysis tabulations, which are in turn compared to the theoretical framework and the knowledge from literary sources and expert interviews. The chapter is divided into six sections identified as our principal findings, which plainly connect to the research question of the thesis. The six sections are:

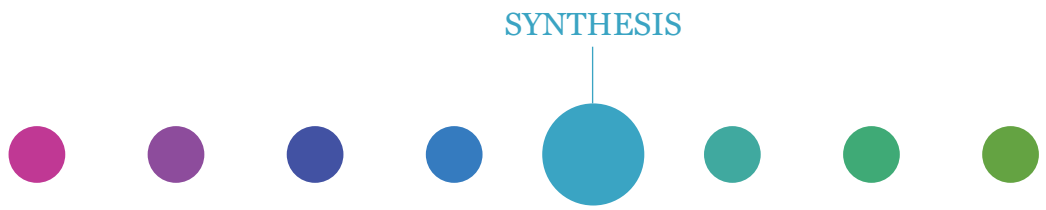
5. The important elements of the mechanic design
6. The context design and goals
7. The facilitation of the meta core loop
8. The three levels of engagement
9. The qualities of the revenue mechanic categorizations
10. The creation cycle and the implementation of game features and revenue mechanics

5.1 THE IMPORTANT ELEMENTS OF THE MECHANIC DESIGN

The mechanic design of the selected games consists of three primary systems. The three primary systems are genre dependent, where the three mobile games, all freemium strategy games that use the same systems (for resources, building and combat).

PC games consist of a movement, physics and combat system, and these three 'primary systems' are commonly the systems that are somehow monetized. Thus they are affected by functional revenue mechanics.

Each of the six games shows that revenue mechanics influences their primary systems, which affects 'game balance'. Especially on PC platforms this repercussion may turn out as counterproductive in regards to players mastering the primary systems of a given game.



5.1.1 GAME BALANCE

The essential factor of game balance in this context is: how big of an influence does a player's mastery of the game have on the 'successful game experience'?

> ***"I have no problem with monetization mechanics that affect game balance as such, but of course they can ruin a game if it just removes all skill, and especially if it does so in a competitive game."***
> - Rune Vendler, Game Director at Haptico (annex 3)

The empirical study shows how multiplayer aspects are more dominant in the PC game genre; here the direct interaction between players is the focal point of the primary mechanic systems. A key component of competitive games is a player's sense of mastery. Therefore, the functional revenue mechanics have a bigger impact on the individual player experience. This is the case because a player's improvements in game mastery are crucial to the player's engagement in the game. Thus a use of functional revenue mechanics—one that diminishes the importance of player mastery—is very likely to hurt a player's engagement in competitive multiplayer games.

The mobile games do feature a competitive aspect as well. However, it is generally secondary to the importance of player progression. While functional revenue mechanics in less competitive games have the same impact on game balance it is thus, for the most part, possible to claim that the value to player progression that functional revenue mechanics are able to grant outweighs the consideration of negative impact on player mastery in favour of the player's ability to progress successfully. This statement is supported by two of the qualified respondents on the subject of game balance:

> ***"Obviously it's hard to state an answer that goes for all games, but in general I believe that as long as people are well entertained and not ruining the game for other players, they should be allowed to pay to progress as much as they want."***
> - Rune Vendler, Game Director at Haptico (annex 3)

> ***"..I think that if players pay to progress to complete levels that's totally fine if that's a choice they want to make. I think it much more problematic in a multiplayer game, where you risk making your most valuable customer hate the community so a pay to win mechanic is definitely detrimental there"***
> - Jonas De Freitas, Business Performance Director on Candy Crush Saga, King (annex 1)

Another of our respondents directly states that rapid progression mechanics is a requirement for every free-to-play game:

> ***"...A free game must be instantly available and allow you to progress with payments to speed it up."***
> - Paul Barnett, Creative Game Designer at Mythic Entertainment (annex 4)

The empirical study indicates that there is a connection between game balance, player mastery and functional revenue mechanics, where the importance of a player's mastery diminishes along with the decrease in the importance of the competitive aspects of a game—this, in turn, further increases the potential value of functional revenue mechanics for the player's engagement. However, there still is a limit to how big of an impact revenue mechanics can have on a game. Arguably, there still needs to be an element of mastery in the game to keep the gameplay enjoyable.

Our empirical research shows that mastery is a big part of each and every game, despite the prevalent use of functional revenue mechanics. It is thus important to emphasize that these revenue mechanics are also applicable to competitive PC games. We have observed that the types of functional revenue mechanics in competitive PC games try to mitigate their impact on the game balance by also making them obtainable without the use of real-world currency. Problems

typically occur when the functional revenue mechanics breach this tryst and become exclusive, meaning that they are restricted to real-world currency purchases, and can no longer be obtained solely by playing the game.

> ***"but its also about making sure you don't make the game boring by introducing a pay to complete button, we can do that and just sell quick you know pay a dollar and you progress through the next level, that's not fun either. So you should try to still make the game...make the users play the game, have fun but you can still pay to get ahead if you'd like."***
> - Jonas De Freitas, Business Performance Director on Candy Crush Saga, King (annex 1)

5.1.2 WAIT LOOP

A key component to the mechanic core loop of the mobile games is the wait loop. Wait loops in the mechanic core loops have a huge impact on game session durations. It constrains the player's freedom to play the game without using deluxe currency to skip the wait loops. The constraints set by wait loops thus have the potential to become a hindrance to positive player engagement. However, the mobile games are specifically designed to have short game sessions where the wait loops function as an exit point, effectively ending the player's current game session. This specific function of the wait loop is elaborated on in the next section: context.

5.2 CONTEXT

The six games have revealed that the context core loops are constituted by the primary systems of the mechanic design. The purpose of the context design is to give meaning to repeated player patterns in the mechanic core loop. The study further indicates that the context design focuses on three factors: player progression, game session length and extrinsic goals (goal of the game). The design of the three factors is further influenced by the context of use and technology of the specific game.

5.2.1 GAME SESSIONS

The mobile games are designed around short game sessions, ended by wait loops, promising a player-reward upon return. This connection between a wait time and reward constitutes one of the most essential return triggers to mobile games: the appointment trigger. One of our respondents confirm the importance of appointment triggers:

> ***"Make sure the player has something concrete to look forward to when they end a session."..."setting things in motion that the player know will be waiting for him or her when they start their next session. Appointment mechanics (timers on buildings, harvests, etc.) is a classic example, as is energy/life refills."***
> - Rune Vendler, Game Director at Haptico (annex 3)

The mobile game sessions focus on the time between game sessions through several return triggers that emphasizes short but frequent sessions of play compared to the PC games. The PC games focus alternately on the content of the game sessions. Here the goal is to create player engagement from within the game, through generally longer game sessions. The primary return trigger is instead the competitive experience inside the game.

5.2.2 PLAYER PROGRESSION AND THE EXTRINSIC GAME GOALS

The empirical study shows that the primary player goal of the mobile games is progression, and this even though the games feature PvP features which advocate competitive aspects. However, it is important to note that the multiplayer part of the games is still a key factor for the player engagement albeit diminished. The player's ability to compare his power level to other players gives a lot of value to the importance of

progression and enjoyment.

An example where it becomes evident that progression is more important than competing, and winning, against other players, is in Dungeon Keeper. In Dungeon Keeper it is a common strategy to lose battles against other players. The intrinsic goal of the strategy is to steal as many resources from the opponent without reaching the 50 percent base destruction point that decides whether you have won or lost the battle. The reason behind said strategy is to avoid getting match points. Since the match points decide who the player can attack and who can attack the player, the risk of being invaded and losing a lot of resources grows alongside the increase in player match points. Winning a lot of matches thus becomes counterproductive to the players ability to progress. The fact that this play style is a common strategy indicates a prioritization of game progression.
This relational value between progression and competition in mobile games is mentioned in one of our expert interviews:

> ***".. there is definitely a very strong connection between players that compete and I don't think we have fully tapped into it with the game [Candy Crush] where it is right now. I know in the office we compete all the time in terms of how far along you are and what type of score you have and where you are in the top list. But yeah, I don't think it's the primary thing, not for acquisition not for progressing in the game, I could be wrong though. But our studies show that its primarily about progressing"***
> - Jonas De Freitas, Business Performance Director on Candy Crush Saga, King (annex 1)

5.2.3 THE USE OF RETURN TRIGGERS

Our empirical study shows a difference in the use of return triggers on the two platforms. The mobile games use more direct return triggers, whereas the PC games are more indirect. The mobile games utilize the properties of the mobile platform by using the push notification feature available in the operating system. The player is presented with push notifications on the operating system's start interface, whereas the PC games convey return triggers through the Steam platform (Loadout and TF2) or emails.

The fact that the mobile games have an ongoing player progression independent of the player being online is connected to the contextual use of mobile devices: the mobile device is generally available to the player (we carry our phones around), and therefore mobile games "support" the ongoing player progression, since it is easy for the player to start and end short game sessions. When a wait loop is over, the player can immediately start the game and continue progression; the return triggers inform the player when a wait loop is over. The return triggers give the player a purpose to come back to the game at a specific time. Our argument is that this "purpose" explains the effectiveness of the return

Figure 133: ***Nudge return trigger in Clash of Clans***

triggers in the mobile games. They are so effective because they are aligned with the player's own desire to progress and, ultimately, succeed in the game.

5.3 THE FACILITATION OF THE META CORE LOOP

The empirical study of PC and mobile games indicates that the PC games have a stronger meta core loop than the mobile games. The complexities of the mechanic and context core loops constitute the possibilities for the meta core loop. The mechanic and context core loops of the PC games create a higher complexity than that of the mobile games. The consequence of the PC's stronger meta core loop results in a better chance of creating long-term player engagement and social connectivity.

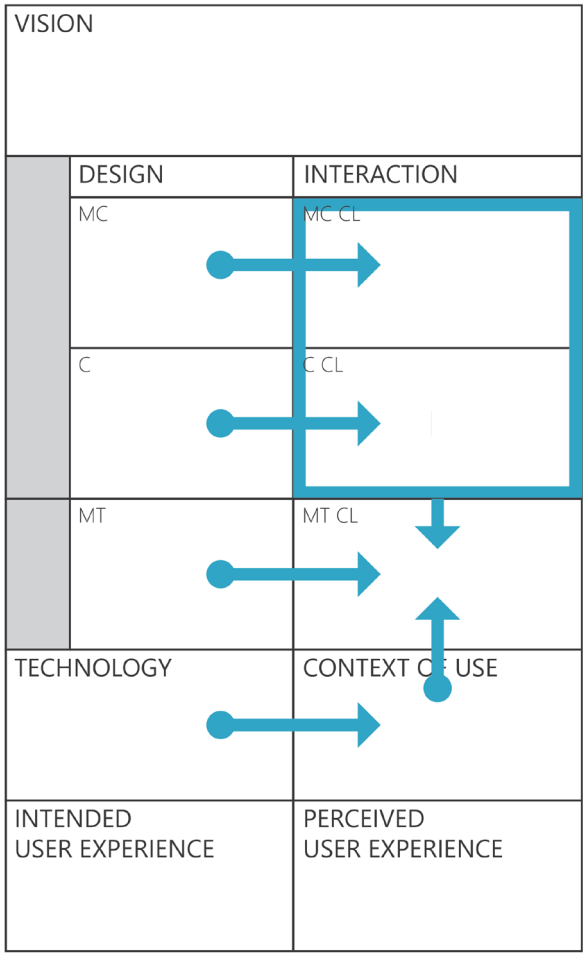


Figure 134: ***Illustrates what components constitutes the meta core loop***

These are further supported through the facilitation of game community forums, streaming services, game developer competitions and user-generated content. Furthermore, the context of use affects the meta core loop as well.

5.4 THREE LEVELS OF ENGAGEMENT

Through conducted empirical study we have discovered an indication of three levels of engagement in regards to the three levels of design and interaction in the GDM: the mechanic, context and meta level. We argue that it is important to understand how a specific game can engage the players on each of the three levels in order to develop a complimentary design and implement revenue mechanics that suit the different engagement levels.

One of our respondents highlights how to create engagement on the three levels the following way:

> ***"Make sure the player is entertained and achieves something with every session. Make sure the player has something concrete to look forward to when they end a session. Try to involve players with other players on a social level."***
> - Rune Vendler, Game Director at Haptico (annex 3)

The first sentence refers to the entertainment value of the 'act of play'. This is translated to the mechanic level, which is the bottom foundation for creating an enjoyable game in the GDM. The second sentence refers to creating extrinsic player goals for the player and creating a purpose for the player to keep playing, which creates a progression-based engagement. However, our empirical study indicates that a competitive engagement is also present through the context design. The third sentence refers to the social connectivity between players that creates long-term engagement. We have thereby added three different

levels of engagement to the levels of the GDM:

1. Game interaction engagement on the mechanic level.
2. Competitive & progression-based engagement on the context level.
3. Social engagement on the meta level.

We are aware that multiple types of player engagement exist and some of the engagements identified cover more than one type of engagement. We therefore refer to these engagements as engagement categories present in free-to-play games.

> ***"I think the primary thing to keep in mind is that the game always comes first and that's were it's hard to get lost. If you don't have a really good game that is fun to play in itself it's very hard to add on any kind of monetization and think you're going to make money, so you need to have a great game that is sticky and that people play and then you can figure out a way to monetize it."***
> - Jonas De Freitas, Business Performance Director on Candy Crush Saga at King (annex 1)

Game interaction engagement emerges from the player's interaction with the mechanic primary systems of the six games, which creates the mechanic core loop. Game interaction engagement is the basis for the engagements on context and meta levels. This makes sense since the player has to find the mechanic core loop enjoyable for the design of the two levels and the connected revenue mechanics to gain transparent importance.

The context level is centered on competition, progression and content. A respondent clarifies the importance of new content:

> ***"if you think of the game as a big funnel where people install the game and continue through the game, at one point or another your most dedicated players will migrate towards the end of the game, and if you don't cater to that audience you're going to miss out on your most dedicated players. So we try to cater to those, by providing new content and new things to experience and also go back and tweak the existing content"***
> - Jonas De Freitas, Business Performance Director on Candy Crush Saga at King (annex 1)

The empirical study shows that the development of free-to-play games is iterative, constantly adding and changing their designs and content to improve quality. This is a way of maintaining player interest and it also communicates a sense of activity. However, since the games cater to a large group of players, a part of the player segment might respond negatively rather than positively to certain changes. Therefore, developers have to take precautional measures to avoid the consequences coming with negative player experiences.

The meta level is formed from social engagement. Here, the social appointments and user generated content/co-creation are some of the main factors that contribute towards achieving the player's social engagement.

> ***"And as the game matures, elements are sorted out they are sticking around, you move on to another case of how can we make sure that people can connect with friends their first couple of sessions. Back to the social bond, that they have some friends in the game that they can send lives to and so on"***
> - Jonas De Freitas, Business Performance Director on Candy Crush Saga at King (annex 1)

One of the key factors to creating long-term engagement is through social connectivity. Interaction between users lets players create social bonds, compete with each other and generate intrinsic goals. This notion is sustained in the following quote:

> ***"(Point 3) Try to involve players with other players on a social level".. "Point 3 is about building social ties through the game. Players will lift each other up, help out, battle, or some other type of interaction. Human interaction is a strong motivator for most people."***
> - Rune Vendler, Game Director at Haptico (annex 3)

Furthermore, another of our respondents described the following in regards to long-term engagement:

> ***"..the key to longevity is, first off you need to have a really fun game and the second is, of course, content, you need to keep updating the game with new levels, new game modes, new mechanics anything to keep it fresh"***
> - Jonas De Freitas, Business Performance Director on Candy Crush Saga at King (annex 1)

5.5 QUALITIES OF THE REVENUE MECHANIC CATEGORIZATIONS

Through our analyses of the selected state-of-the-art games, we have observed a difference between the two platforms in regards to which core-loop the games utilize for purchase implementation.
To illustrate this tendency, we have constructed the model in Figure 135.

Figure 135 seeks to explain in what core loop the player purchases things (i.e. revenue mechanics), and the system design it affects, in regards to the two genres.
In the mobile games the player makes purchases in the mechanic core loop, which means that purchases are made during a game session. These purchases will affect the primary mechanic systems, which also means that player will see the effect instantaneously. This is often seen when time skipping in, for example, Clash of Clans: here a finished building will change both in appearance and in functionality right away.

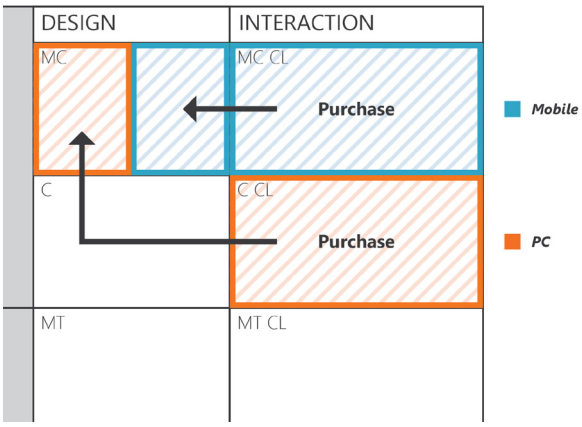


Figure 135: ***Illustration of where each platform and genre facilitates their purchases, and which design system it affects.***

In the PC games the purchase is made in the context core loop, which means that the purchase happens through a sort of in-game shop menu, and not during a game session. As described in the cross-case tabulation this supports the strategic element of preparing for each battle. The player is presented with a larger selection of choices, in regards to revenue mechanics, which forces the player to consider options before making a purchase. The purchase will affect the primary mechanic systems and, subsequently, have a noticeable influence on the player's current play-pattern. As the purchase is made in the context core loop, and it affects the mechanic core loop, it is possible that the player does not fully grasp the implications of the purchase until a game session is engaged.

In Loadout this is accommodated through a test-mode, a mode wherein the player can test the customized weapon on NPC's before making the purchase. Though this is a convenient tool for understanding the applied parts, it does not provide the player with an all-encompassing knowledge of how to use the weapon as the various maps and player encounters provide different scenarios with different outcomes.

As most of the purchases concern new things for the player's inventory in each of the games, the context systems are also affected to some degree. However, as this latter condition is more of a side-effect, and not

the purpose of the respective items, it is not illustrated on the above model.

To briefly expand the consideration that the usage of the inventory becomes more evident and relevant as the players progress in each of the three PC games, we may observe that the need for additional storage space increases as the player gathers bounteous items. As such, the use for purchasing extra storage room increases exponentially with time. This observation is interesting when considering the player life cycle in a game a point that industry quotes emphasize:

> ***"What retains people will also vary depending on how far they have made it into the game. Beginners need a different set of things than veterans in their experience."***
> - Rune Vendler, Game Director at Haptico (annex 3)

> ***"...so you can't just add on or show what you can buy without explaining to them, what it is how to use it ...it makes for a poor experience. It is more important to make the user engaged in the game, playing it, liking it and holding off those types of mechanics until you actually have the user, coming back and playing the games. So I don't think you can say there is an optimal point, but rather a bit lately then a bit to early"***
> - Jonas De Freitas, Business Performance Director on Candy Crush Saga at King (annex 1)

What this means is that the individual revenue mechanics will be more relevant to introduce as the player moves between the different phases of the play cycle.

This observation is also valid for the mobile games as the players will learn, from an early point, that time skips are relevant to progress faster in the game.
Arguably, it is suboptimal to use an extensive amount of revenue mechanics from the beginning of the player's life cycle. An observation supported by the following quote:

> ***"You'll never want to overwhelm the player, I think. It shouldn't feel like walking down a busy market with salespeople pulling at your arm all the time."***
> - Rune Vendler, Game Director at Haptico (annex 3)

In order to gain value for the player, the player needs to learn the use of each revenue mechanic, by increments, as the mechanics are introduced unobtrusively throughout the player's "life cycle". Therefore by having too extensive revenue mechanics it becomes harder to "invisibly guide" the player and accept the revenue mechanic. However, a respondent elaborates that free-to-play games should not need to explain the value of certain revenue mechanics, since the value should be self-explanatory and appealing to the player:

> ***"Good revenue generating games never need to bother explaining the value proposition because the player is happy playing and paying."***
> - Paul Barnett, Creative Game Designer at Mythic Entertainment (annex 4)

5.5.1 THE ROLE OF THE DELUXE CURRENCY

The deluxe currency facilitates purchases in the games, which enables the player to use real-world currency.
The value of deluxe currency is highly connected to the axiom of time in each game. This is especially evident in the mobile games, where the time it takes to build a structure, correlates with the price for skipping the build time. As the time for building construction increases, so too does the price for time skips.
In the PC games, the player must decide on the amount of time he/she is willing to spend on the acquisition of a certain item. The price remains the same whether the player buys the item now or later, and will therefore

provide value relative to the sooner or later the player makes a given purchase.

However, the importance of deluxe currency is not equally as important in the beginning of the games. The longer the player stays in the game, the more attractive it becomes to make use of deluxe currency. This observation is two-sided: as an example, the reasons for making purchases in World of Tanks compared to doing so in Loadout are quite different. In World of Tanks the action is connected to the expenses for repairing high tier tanks, and in Loadout it relates to the amount of time a player has spent in the game, which influences the desire to purchase vanity items.

In the mobile games the goal is to progress, which becomes increasingly time-consuming. However, the growth of time walls is avoidable through the usage of time skips. In a typical usage situation the player commences a 10-hour building upgrade, before going to work, for example. When the user gets home and returns to the game, the upgrade might still be missing 2-3 hours to completion. However, dinner needs to be prepared soon, which forces the user to skip the remaining hours, in order to make the available time more effective.

In the PC games, we mainly see how Tech Trees are used to gradually introduce more and more expensive upgrades, which results in the player needing to use more money or time to gain the later rewards in the game. Here, it is important that the games does not monetize too extensively and/or aggressively in the beginning of a player's life cycle.

The functionality and value of the deluxe currency must be "taught" to the player from the beginning. This has been illuminated through our interviews, and analyses of our state-of-the-art games.

The games provide the player with a sample of the deluxe currency, which is done in order to teach the player the value of its functionality. By playing the game, the player can earn small amounts of the deluxe currency (chests, events etc.).

A general theme of our expert interviews is the priority of creating an enjoyable experience for the player. It is not beneficial to monetize on a dissatisfying player experience. It is therefore important to create a balance whereby the game features and the revenue mechanics keep the game enjoyable in unison.

> ***"Make sure the player is entertained and achieves something with every session."***
> - Rune Vendler, Game Director at Haptico (annex 3)

5.5.2 FUNCTIONALITY VS. VANITY

A certain tendency was observed in regards to what revenue mechanics were deemed suitable to the different platforms. This tendency was further supported by our expert interviews.

Each of the three PC games contains vanity features that allow the players to change the appearance of their in-game avatar. Of the three PC games, Loadout and Team Fortress 2 disclose the biggest emphasis on vanity features, which is consistent with the cartoonish violence theme in the two games, which caters to users desiring more creative interpretation of a character's appearance. As World of Tanks aims for a more "realistic" experience, the player is restricted to a limited selection of customization possibilities, which are monetized. However, World of Tanks allows players to make and implement aesthetic modifications, which results in the community creating their own content of aesthetic augmentation for the game.

> ***"There is a lot more [complexity] on the PC, if you are able to get a good retention because you have good gameplay, it is possible for you to go vanity only. And this works for a lot of people, there is tons of examples where it functions great for free-to-play PC games."***
> - Thomas Lund, CEO and Game Director at Fullcontrol (annex 2)

In the three mobile games the only vanity items available to the player are the decorative items in Clash of Clans. The difference between the two genres' use of vanity items is relatable to the user interactions in each game. As the three mobiles games only

have an asynchronous user-to-user interaction, the players cannot as easily show their decorative items to other players. In Clash of Clans the player can only display the decorative items when an enemy player is either scouting or attacking their home base. Thus it is the case that even if the enemy player wants to "acknowledge" the player's base, the game does not support such observation-to-communication feedback between players. This indicates that it is not favorable for the three mobile games to implement monetization on vanity features. They are asynchronous and have a lack of social engagement, which obviates matters of vanity altogether. This is quite different in the PC games where players interact directly with each other, in each game session. Our respondent, Rune Vendler, supports the statement:

> ***"A single player social game is likely to have some asynchronous interaction with other players, but it rarely makes up the bulk of the gameplay. Creating "human vs. computer"-style entertainment is typically quite different from "human vs. human"-style. As I mentioned, since there are much weaker competitive interaction in our games, monetizing difficulty is much less of an issue.***
> ***On the other hand, monetizing personalization/vanity is much harder if you can't show off what you bought to other players."***
> - Rune Vendler, Game Director at Haptico
> (annex 3)

In regards to the use of functional revenue mechanics, all of the six games have features that allow the player to be more effective. However, the analyses show a tendency when looking at the games' uses of functional revenue mechanics, permanent and non-permanent.
On the PC platform, the three games utilize both permanent and non-permanent functional boosters. World of Tanks and Loadout both contain non-permanent functional boosters, which is seen in the form of XP and currency boosters of varying temporality. In Team Fortress 2 this is not an implemented feature; this relates to the fact that the game has neither an XP nor a currency system.
In regards to the permanent functional boosters, all of the three PC games make use of such features. This is seen through weapons, upgrades and new tanks, all of which allow the player to become more powerful and/or effective in the games.
In the mobile games, there is clear emphasis on the non-permanent booster advantages, as the player learns the benefits of progressing fast at a very early stage in all three games. To get access to more features, gain a higher income, obtain larger storage capacity, etc., the player must constantly advance in terms of building and resource levels. To streamline this progression the player can skip time walls, and buy additional resources without having to wait for obstacles (i.e. items) to be produced.
As the player progresses in the mobile games, other needs will appear in order to progress more efficiently.

> ***"The key question is what a player's needs are. A person who has just started out might be looking for a starter pack special offer to get going quicker, repeat players who are comfortable with the mechanics might be looking for ways to personalize their experience, and very experienced players might be more into clan mechanics, for example."***
> - Rune Vendler, Game Director at Haptico
> (annex 3)

As the above quote describes, these needs are related to the player life cycle. This is seen in Dungeon Keeper and Clash of Clans, two games wherein the players can buy permanent functional boosters. These permanent functional boosters are seen in the form of additional workers, which allows the player to take more actions, expand a dungeon faster and upgrade more buildings all at once. As these features are permanent they will have on-going effect on the gameplay in each game, and are therefore a good investment. However, as additional workers will give the player a notable advantage, the feature is expensive and increases

exponentially for each new worker. In Boom Beach it is not possible to buy permanent booster advantage—here the player is only allowed one worker.

By allowing players to buy additional workers, we would argue that there is a risk of creating a negative player experience. Because of the above-mentioned incremental costs of the added worker feature, it may eventually feel more like a constraint than an option to players. The reason for this is the increasingly long waiting times in the mechanic core loops that slow the player's progression immensely coupled with the fact that a feeling of true progression may indeed considered as fast progression—exactly what the mechanic taught the player, while it was still cheap, to begin with—which indirectly forces a player to buy additional workers at a price that feels inequitable. Thence follows criticism that the game is extorting money. The long wait timers and lack of progression might finally result in the player leaving the game altogether feeling unwilling to pay the price of the worker, and unwilling to accept slow progress.

5.5.3 PERMANENT VS. NON-PERMANENT REVENUE MECHANICS

From our state-of-the-art games analyses we have observed that the use of permanent revenue mechanics is more present in PC games, as opposed to the mobile games, which are more likely to utilize non-permanent revenue mechanics.

This means that the users in the mobile games can make more purchases of non-permanent revenue mechanics- these are ably repeated.

However, the functional permanent revenue mechanics provides more value for the player, having an, often, bigger influence on the gameplay. Arguably, this means that these revenue mechanics may constrain the game design since the developers cannot easily modify an already purchased item without also causing a bad player experience to ensue. An extensive use of functional permanent revenue mechanics is also more likely to create game balancing issues because it might create gaps between the player's power-level and the difficulty level of challenges in the game.

Furthermore, each of the PC games has several permanent revenue mechanics, functional and vanity, which when accrued and combined, function together and generate further player value-for-money.

This also means that the price of the permanent features is often significantly more expensive.

> ***"...the first game we worked on was called Bubble Which Saga and was one of the biggest games on Facebook at the time"... "...and in that game we had something called "Charms" and charms were a booster but you kept it forever"... "...so after having been live for a year we had you know 17 different charms"... "so when we launched Candy Crush we had charms in that as well but we phased those out and we removed them and we had the boosters, where you buy one, use them and if you want to use them again you buy them again but you buy them for a much smaller amount then what the original charms costs."***
>
> - Jonas De Freitas, Business Performance Director on Candy Crush Saga, King (annex 1)

5.6 THE CREATION CYCLE AND THE IMPLEMENTATION OF GAME FEATURES AND REVENUE MECHANICS

The empirical study shows the importance of outlining the business model from the beginning of the creation cycle in order to synergize with the game design. Since there is a strong correlation between the game design and business model of a game, the consequences of not considering the business model from the beginning of development, have vast potential negative impact from the quality of the game design, to potential revenue, development time and development costs.

One of our respondents highlighted one of the consequences of changing the business model in the development process:

"It [changing the business model in development] meant redesigning parts of the game to work with the new model, and incorporating a new monetization model to the game. It was a lot of work, as the game was quite far into development."
- Rune Vendler, Game Director at Haptico (annex 3)

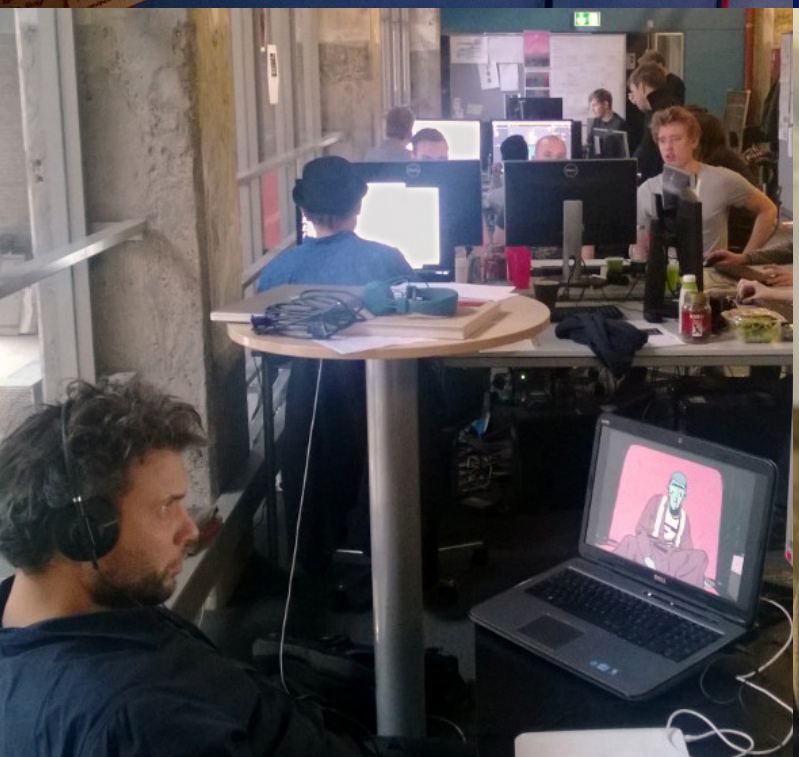
Furthermore, one of our respondents mentions a consequence of not outlining a business model from the beginning of the development process:

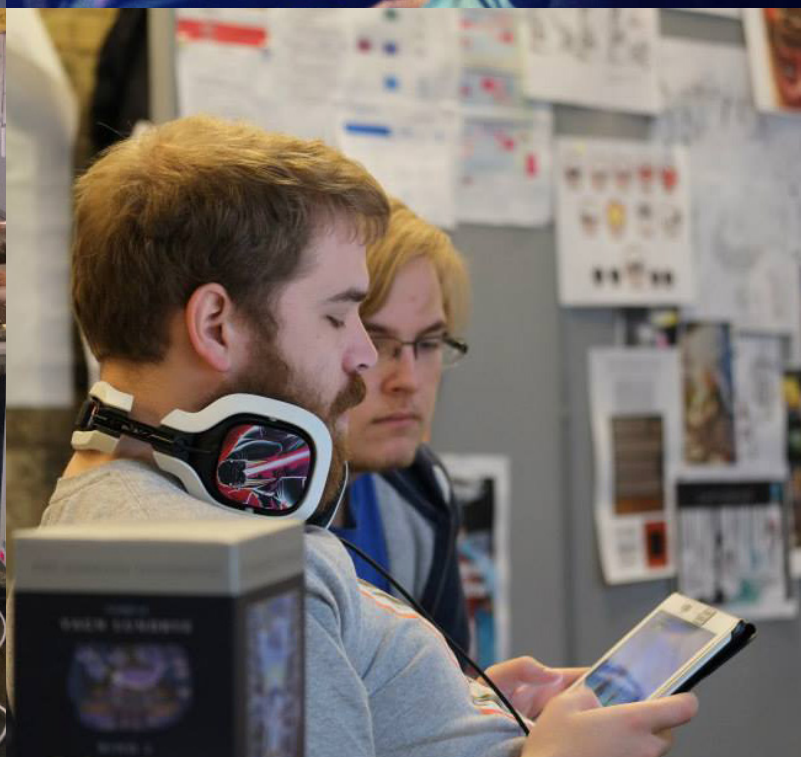
"... For Frontline we didn't choose a business model before very late in the development and one of our biggest teachings from that experience was that we should have thought it in from the beginning"..."...We had almost build all the content and when we chose a free-to-play model, we couldn't go back and start reconstructing the things so that they would fit better progression-wise, and some of the mechanics and retention there is in the beginning "to ease people in.""
- Thomas Lund, CEO at Fullcontrol (annex 2)

The above quote reinforces once again, that the game design and the business model are tightly correlated. The consequence of changing the business model becomes more severe through the creation cycle. All the key game design elements of the game are specifically designed to fit a specific business model. Suddenly changing it to a free-play-model, creates heavily negative impact on: development costs, prolonged development time and incoherent game design in relation to the business model.

The synthesis outlines the key findings of the empirical study of the thesis, explaining the reason and consequence of the identified findings. The next chapter derives from these key findings in order to present a set of guiding principles to help developers in praxis.

Product





Chapter 6

GUIDING PRINCIPLES

The following chapter presents a set of Guiding principles concerning the conclusive subjects of the research. The chapter explains the following guiding statements:

- ***Consider how big an impact a player's mastery of the game has on his ability to succeed, i.e. progress in the game.***
- ***Let the benefits of virtual goods be obtainable through playing the game.***
- ***Consider what length a game session should have and what impact it has on the intended style of play.***
- ***Learn the advantages of wait timers.***
- ***Make return triggers a helpful service to the player, not a way to get the player's attention.***
- ***Engagement is key to increasing revenue.***
- ***Prioritize the short term engagement in the mechanic core loop, the other levels can wait.***
- ***Consider the time of which the player is introduced to new revenue features.***
- ***Revenue features should be considered as rules of the game.***
- ***Permanent revenue features constrain the design, but they can be very powerful.***
- ***Incorporate the business model from the beginning.***

The purpose of the guiding statements is both to summarize the key findings of the master's thesis and to provide developers with a set of useful advices in accordance with the Game Design Model and Revenue Mechanic Framework.

6 GUIDING PRINCIPLES

The purpose of this chapter is to convert the key findings of our research into a list of principles that heightens the practical value of our research. Through the previous synthesis chapter, we presented the key findings of our research on free-to-play games by comparing our theoretical and empirical findings. On the basis of these findings this chapter presents advice in the form of a list of considerations concerning the area betwixt game design and business models in free-to-play games. The principles are created with the intention of compiling some main points that developers should address when developing free-to-play games.

Game balance

Consider how big an impact a player's mastery of the game has on his ability to succeed, i.e. progress in the game.

If player mastery is a key motivational factor there are limitations as to what virtual goods should be available as purchases to players. Virtual goods can have a huge impact on game balance and be a decisive factor as to whether or not a player is having fun. We suggest that developers with a mastery-focused design focus on how vanity-based virtual goods may have social appeal (status) to players. This applies especially to PvP-oriented games wherein competitive aspects typically require player mastery to be a key motivator for the players.

Exclusivity

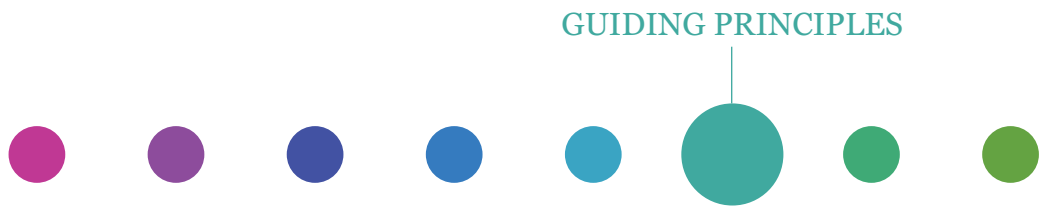
Let the benefits of virtual goods be obtainable through playing the game.

Players should be able to obtain everything in the game by simply playing the game. Purchasing virtual goods should be a faster way of obtaining a wanted benefit, but not the only way to do so. However, this mainly applies to functional virtual goods, as opposed to vanity items. Since a lot of the vanity items' values derive from player's feeling a sense of uniqueness or status, it is certainly something best maintained by an item's exclusivity.

Game session length

Consider what length a game session should have and what impact it has on the intended style of play.

The platform of the game is of huge importance when considering the length of game sessions. The context within which a developer evaluates creative directive is heavily platform-dependent. Mobile games are often used as an "in-between"-activity, where the player will only be playing the game for a few minutes at a time. It is therefore important for the design and revenue model for the game to fit these short game sessions.



The main priority for a design is therefore to create a fun experience and let the player feel that he/she accomplished or got something from playing the game. It is therefore important to create goals that can be completed in a very short amount of time, optimally allowing the player the ability to complete several worthwhile goals in a short game session. The revenue mechanics of a game have to make it easier for the player to obtain goals within the game sessions, which leave the player with a "time saved" impression. This is arguably the best reason for a player to spend money on a game, especially in games with short game sessions.

Learn the advantages of wait timers.

Wait timers constrain the possible length of a game session, seeing as a player has to wait for the timer to finish in order to continue to play. In games designed for short game session the wait timers function as natural exit points for players, which is important to keep players interested in the game. Typically, making the player wait might diminish the player's engagement, but by giving the player a reward as a direct result of the wait timer completion wait loops can create a 'joy of anticipation' and actually improve player engagement in a game. The longer the player has played the game, the more engaged he/she will generally be, which makes it possible to increase the wait of the wait timers. However, wait timers can also be too long, which results in a diminishment of player engagement. It is therefore important to not create "wait-walls" whereby the wait time leads to frustration.

Make return triggers a helpful service to the player, not a way to get the player's attention.

Return triggers ought to be helpful tools to the player such as information-deliveries on when a wait timer is over, so that a player may claim his/her reward and start something new in the game, making it a positive experience to get notifications from the game. Return triggers can easily feel invasive and just a way for developers to promote the game and get attention. This might hurt player engagement in the game and it may result in players that do not come back, i.e. lost revenue. It is therefore important to always consider what the return trigger offers the player and not first and foremost what it might offer developers.

Engagement

Engagement is key to increasing revenue

In order to make players spend money in a game they have to be engaged in the game. The more engaged they are, the more likely they are to spend money on virtual goods. In order to increase engagement a game can attempt to offer players a variety of different types of engagement: game interaction engagement, progression & competitive engagement and social engagement. However, in order for the game's progression and competitive aspect to engage the player and lead to purchases (i.e. revenue) the mechanic level related to game interaction per transaction has to engage the player. Social engagement is the most powerful engagement, but also requires the player to be engaged on both a mechanic and context level to be successful.

Prioritize the short term engagement in the mechanic core loop, the other levels can wait.

It might be simple, but still important: Playing the game itself has to make the player engaged. This is generally achieved by creating a play pattern that is enjoyable even when repetitive. This pattern is what will get the player interested in the game and keep coming back the first (decisive) times during the player life cycle. It must thus follow as a priority for the developers that they optimize the mechanic core loop before focusing on how the context and social core loops may create engagement. When the mechanic core loop successfully engages the players, the context engagement can begin.

We argue that the common way of creating context engagement is by imbuing the player experience with a sense of progression in the game: primarily a 'power-based' progression.

The final level is social engagement, which is perhaps most difficult to design, since the social engagement emerges from both the mechanic and context core loops, but also from the real life meta-gaming context in which the player plays his/her game. However,

facilitating the opportunity for players to interact with each other a potential main key for social engagement, e.g., community forums, streaming services, arranging competitions. Forums additionally allow for a regulatory process for developers to screen and evaluate player desires for further implementations.
A healthy sign of successful social engagement is user-generated content.

Revenue features

Consider the time of which the player is introduced to new revenue features

Different revenue features appeal to different players, depending on where a given player is in his/her life cycle; experienced players might find a certain revenue mechanic more appealing than it would to a beginner. Therefore we advise developers to determine their revenue features on the grounds of the three levels of engagement: mechanics, context and meta. A developer must then consider the revenue feature that appeals, in a given context of production, most adequately to the imagined player. Good revenue features never lose their value and appeal to the player, but some of them might not have much appeal until the player is sufficiently socially engaged in the game. Some revenue features generally appeal to players from the beginning though, such as time skipping features in builder-games.

Revenue features should be considered as rules of the game

By teaching the player the value of the application of a given revenue feature, the player understands the use of the revenue feature. In many ways, revenue features can be considered as having the same requirements as the ordinary rules of a game. In this case, the most important requirement is that all players accept the rules. This is one of the common reasons to why some players criticize free-to-play games. There are abundant examples of players blaming defeat on the fact that the other players "bought their way to victory". This is an example of how not all players accept the rules so-to-speak, i.e. the revenue features that the game sets up. We therefore propose that developers consider how they might most aptly ensure that all players accept the rules of play. Here, one of the first steps is to introduce and teach the players the reasons for the revenue mechanics being in the game. In other words, why something is "fair" must be made transparent.

Permanent revenue features constrain the design, but they can be very powerful.

When implementing revenue features, it is important to consider the impact each revenue feature has on the game, not just now, but also in the future. Will the feature diminish the appeal of other revenue mechanics? Does it bring something new to the game? To whom does it appeal? Especially permanent revenue mechanics are important to deliberate on before any drastic implementation occurs. Since players are spending real money it is difficult to change the function of revenue features without resulting in very negative player experience/feedback. However, if implemented correctly such features can prove to be powerful tools that always appeal to players throughout their life cycles. Here we emphasize one of previous principles of making revenue features exclusive: because permanent revenue features have a big impact on a game in general, it is not advisable to make features of this kind exclusive.

The digital creation cycle

Incorporate the business model from the beginning

There is a strong correlation between the game design and business model of a game. Indeed, the consequence of not considering the business model from the beginning of development negatively influences the quality of the game design, potential revenue, development time and development costs. Such a negative impact cannot be ignored. Likewise, the potential benefits of a well-wrought development strategy cannot be ignored.

Chapter 7

DISCUSSION

Concluding remarks on the master's thesis and holds general summaries of main parts of the thesis and propositions for future studies in the field of game design and business models.

7 DISCUSSION

This section serves as an instance of reflective practices on process, selected theory and the contributive value of the thesis. By critically viewing the project thusly, the discussion seeks to uncover possible strengths, weaknesses and uncertainties. The section is divided into six main parts:

1. Reflection on the contributive value of the thesis
2. The Game Design Model's functional contribution to our DADIU game development
3. Peer-review feedback
4. Reflection on method and process
5. Evaluation of the validity and reliability of our research
6. Reflection on chosen theory

7.1 REFLECTION ON THE CONTRIBUTION OF THE THESIS

The first part of the discussion focuses on the master's thesis' contribution. The Game Design Model and the Revenue Mechanic Framework are initially discussed to review the theoretical construction they comprise. Subsequently the focal point is that of practical usage scenarios of the two frameworks. This is followed by a reflection on the contributive value of the Guiding Principles, which entails a discussion of the various principles.

During our 8th semester, we focused on analysing the business model and design of games through the use of Osterwalder's Business Model Canvas and our own Game Design Model. This foundation clarified our understanding of the types of revenue models certain free-to-play mobile and PC games use, and why a variety of types of revenue models are effective in free-to-play games. The research led to a macro-level comprehension of game design and the domain business model in a free-to-play game. For our master's thesis, we wanted to employ a more what we consider a more pragmatic contribution.
This 10th semester master's thesis builds on a one-and-a-half year research period, looking into the correlations of game design and business models. Through our combination of state-of-the-art games analyses, source-based studies of both game design and business development, and peer reviews from accredited game developers, the development of the Game Design Model has undergone numerous iterations, i.e. revisions.

Figure 136: ***An overview of the mapping of the Game Design Mode, Revenue Mechanic Framework and Business Model Canvas, displaying the elements of each model in the Team Fortress 2 analysis.***

During this semester the goal with the Game Design Model and Revenue Mechanic Framework has been to design a tool readily applicable to free-to-play developers.

With a pragmatic approach, we wanted to establish a framework that could aid a greater scope of developers—this being opposed to a social constructivist approach where the focus is to develop a framework for one particular case. By utilizing the two frameworks and the core loops—as the optimal method to connect the two domains—we have created a tool that better understands the principles covering domain interconnectivity. We therefore argue that both frameworks and the guiding principles may increase the efficiency and quality of a free-to-play game development scenario.

7.1.1 CONTRIBUTION OF THE GDM

During our interview with Jonas De Freitas, Business Performance Director at King, De freitas argues that it is difficult to create a single model for communicating features and design, since the production of both is an on-going process:

> ***"I don't think we have a formalized model at all for specifying of how to arrive at a specific location for a feature, it's very much an on-going discussion with the product people and developers, artists across different studios. Its more of a boiling pot than a formalized process"***
> - Jonas De Freitas, Business Performance Director on Candy Crush Saga, King (annex 1)

The Game Design Model was made to facilitate discussions between developers. Discussing the framework with King's Business Performance Director, Jonas De Freitas, he addresses concerns of the usability of the framework. De Freitas argues that the development of a particular feature is an on-going process whereby developers of different professions discuss the new features without the use of a

formalized procedure or framework.

Game Design Documents are not designed to facilitate a shared language, but are helpful for a game designer to communicate and track the progress of specific game elements, yet such documents are not necessarily useful or understandable to colleagues of other professions in game development (lack of time is also a factor). However, because someone does not read a design document does not equal that Game Design Documents are not functional. It is important to understand that a Game Design Document is not the only formal model that developers use.

The MDA (Mechanics, Dynamics and Aesthetic framework) is a formal approach to understanding a game and is generally used to strengthen an iterative process. We introduce the MDA comparatively to the Game Design Model's three levels of game design:

> ***"MDA is a formal approach to understanding games...this methodology will clarify and strengthen the iterative process of developers, scholars and researchers alike, making it easier for all parties to decompose, study and design a broad class of game design and game artefacts"***
> - (Hunicke, 2004, p. 1)

The MDA formalizes games by breaking them into three classifications:

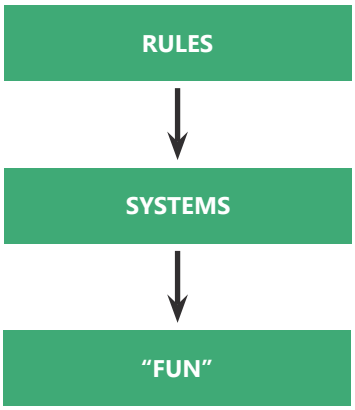


Figure 137: ***The three classifications of the MDA***

The three classifications have distinct design counterparts that are specifically made for different professions in game development. The design counterparts help game development teams establish a common understanding of how games are constructed.

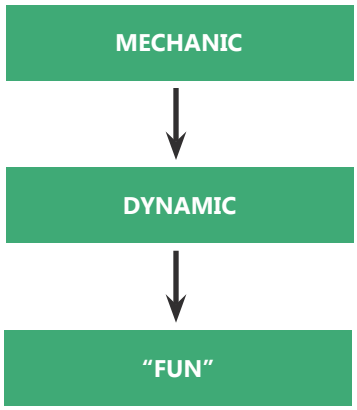


Figure 138: ***The three elements that make up a game, and what features a developer works on***

Mechanics describes particular game components, dynamics describes the run-time and behaviour of a particular mechanic, and aesthetics describes what emotional responses a specific feature should invoke in a player.

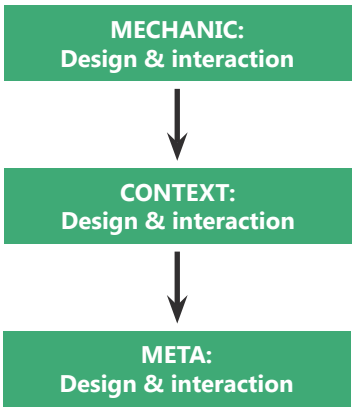


Figure 139: ***The Game Design Model three main components***

The Game Design Model differs from the MDA by focusing not just on mechanics but on the three core loops (mechanics, context and meta) that we believe are key to the success of any game and, particularly,

free-to-play games. The Game Design Model provides developers with an overview of the three design levels in which a player interacts, both directly and indirectly, with a game (the 'interaction blocks' of each design level). As such, the developers have a tool they can use to portray a game's different components to establish their interconnections. This will make it easier to view, assess and discuss different aspects of their game, while maintaining an overview of parts whose potential change affect other elements by relative proportions.
We see this as one of the main strengths of the Game Design Model as it allows developers to quickly map the core ideas and context of use scenarios for their game. Furthermore, when using multiple Game Design Models, during different developmental states of a game, developers can track the development of a game, and see how specific features or aspects have changed throughout the process.

Both the Game Design Model and the Revenue Mechanic Framework differs from the MDA by focusing on guiding the developer. Each block in our two frameworks consists of a set of questions formulated on the basis of our expert interviews, source based studies and units of analysis. These questions aim to guide the creative process, especially for novice developers, which is a quality the MDA does not possess. However, it could also be viewed as a disadvantage to have the questions present; it could make the developers focus too much on structural adherence, which might limit their creative process.

The Game Design Model is a useful tool for providing a development team with a detailed overview of new and old features. However, as game productions can be massive and a whole team can consist of hundreds if not thousands of developers that need to collaborate in order to create a successful game, the Game Design Model will be more beneficial with the lead teams in such situations.
Through our interviews we have learned that not many game companies utilize specific development models. They customize their own models specifically to their individual team and game design proposition. In some cases they do not use any formalized model at all. We see this as an interesting opportunity for the Game Design Model to be used in smaller "scrum teams" of a game development production. The emphasis on scrum stems from the Game Design Model's ability to visualize iterations of a given game development, when several Game Design Models are utilized.

7.1.2 CONTRIBUTION OF THE REVENUE MECHANIC FRAMEWORK

The Revenue Mechanic Framework functions like a pin-up board where developers can view different monetization options (in regards to mapping and evaluating revenue mechanics). The Revenue Mechanic Framework is also useful for game scholars that wish to map and analyse existing games' uses of revenue mechanics. The Revenue Mechanic Framework allows both user segments to obtain a detailed view of the core revenue mechanics a game utilizes. By utilizing it as pin-up board, new combinations or revenue mechanics can be tested and discussed.

As we have discovered through our own experiences on DADIU and through our expert interviews, game development is often an iterative process of testing and refining the design. Thus iterations where revenue mechanic considerations are valuable or useful for a game might also occur. We discovered this in our interview with De Fretias. De Freitas spoke of the process of iterating on a permanent revenue mechanic feature and the discovery that their game, Bubble Witch, was losing money because of this feature. They have since iterated from Bubble Witch to their newer games, where they focus on non-permanent boosters.

"Bubble Which Saga was one of the biggest games on Facebook at the time before we ventured into mobile, and in that game we had something called "Charms" and charms were a booster but you kept it forever...so after having been live for a year we had you know 17 different charms goes we needed to

release something new to give our most dedicated players something to spend money on. So that obviously wasn't ideal for a game that would live that long... Also a lot of people were put of, if you have elements that cost 7 dollars "what! Why am I going to pay 7 dollars for something I just started playing this game" ..."

- Jonas De Freitas, Business Performance Director on Candy Crush Saga at King

Even though this might be a single case scenario, it is relevant in regards to the Revenue Mechanic Framework: the framework has a potential value to developers in a situation where they need to formalize a clear discussion of what effects a specific revenue mechanic have. Combining the Revenue Mechanic Framework with the Game Design Model does this.

By combining the Game Design Model and Revenue Mechanic Framework, developers are able to see which revenue mechanics affect one or more of the three core loops. It becomes easier to thus assess the consequences a potential mechanic can have on a game, both in regards to the gameplay experience and the revenue stream. Interestingly, King released a sequel to Bubble Witch in May of 2014 that iterates on how the performance boosts work, and it did not feature any permanent boosts but rather three different non-permanent boost revenue mechanics.

Figure 140: ***Bubble Wich Saga 2 features differnet kinds of non permanent functional boosters, such as comets and extra life***

7.1.3 CONTRIBUTION OF THE GUIDING PRINCIPLES

The purpose of the Guiding Principles is to present developers with a guideline for the creation of enjoyable experiences with the use of revenue mechanics derivative from the key findings of this thesis. Many games, including premium games, utilize revenue mechanics for developers to give users unique experiences besides the main game.

An example of this is arguably found in the microtransactions in Dead Space 3 (EA published, 2013). Not only do the revenue mechanics directly change smaller gameplay scenarios, but the game also utilizes more traditional revenue mechanics such as downloadable content. It should be noted that the Guiding Principles presented by this thesis are not intended to be set in stone, but should be more favourably be regarded as the first steps of what could shape a comprehensive guideline for developers wanting to create free-to-play games.

7.2 THE GAME DESIGN MODELS POSSIBLE CONTRIBUTION TO OUR DADIU GAME DEVELOPMENT

The discussion will now focus on how the current state of the Game Design Model could have increased the development process for our DADIU games. We worked on two different games at DADIU and therefore have different development experiences; however we

Figure 141: ***Dead Space 3 has both functional, new content and vanity revenue mechanic features***

also had several similar experiences.

Due to DADIU being a multidisciplinary (workshop) education, many problems naturally arise, since the people of the team have very different understandings and approaches to game development. One of the primary challenges was to communicate the game concept to the rest of the development team. Many times the game director has a vision for a game he or she wants to make and it needs to generate a specific emotional response with the imagined player. During our DADIU developments we experienced how the game director's vision confused the rest of the development team. With the vision vaguely outlined and badly communicated to the team, we experienced how the vision resulted in internal power struggles on the goals for the final game product and which features ought to be prioritized in the creation cycle of the production.

DADIU

The National Academy of Digital, Interactive Entertainment is a collaboration between universities and art schools in all of Denmark. Six teams are formed each consisting of 18-20 people containing a Game Director, Game Designer, Project Manager, Level Designer, Art Director, Programmers, Animator, CG artists and Audio composer, which purpose is to develop a game from pre-production to release.

The DADIU production of The Printer Guy had many problems concerning what the core game was, and what mechanics were in the game, and how the chosen business model (free-to-play) would impact the game. This was the loosely constructed idea: In the game, players would take on the role of an office janitor whose sole job is to fix printers. But the office, being a stressful area, with characters constantly shouting at

the player, ordering him to fix printers faster, should add an element of challenge. This was a very abstract way of communicating the game concept, and due to this, The Printer Guy went through numerous design iterations that completely changed the game concept. We are convinced that the main part of these problems can be ascribed to the whole team being amateur game developers, in an education scenario, and thus being subject to natural problems that first-time developers face. What ended up describing the game was a 30-page long Game Design Document that no one read besides the game designer, since it was too comprehensive for programmers and the game director to understand. Much of The Printer Guy's development focused on the context core design of how the story and characters should be. It neglected an equivalent focus on having an entertaining mechanic design.

The Game Design Model would have been an influential and beneficial prioritization tool for features in the production of The Printer Guy. It would enable an optimal method to communicate the core concept of the game by mapping the core design elements of the three design levels, and the use of the core loops could have clearly described which interactions were designated to create entertaining experiences for the player. This could have been done at a very early state of the game creation cycle. Regrettably, it was not.

Another example comes from our second DADIU production, Saviour of Asgaard; a game about a violent Viking warrior seeking revenge for the kidnapping of the Goddess Idunn. As a sidescrolling hack-and-slash game, it was easier to communicate the core mechanics of Saviour of Asgaard in comparison to The Printer Guy's less-defined concept. However, due to a mistaken prioritization of the context design around an in-game shop, one where players could purchase new stuff, the development team ended up using an extensive amount of time on a less important design level.

The team should instead have focused on making the mechanic design loop first—instead they ended up having prioritized context over mechanics, ultimately creating a game with a suboptimal player experience.

In some ways it thus had development problems similar to those of The Printer Guy. We therefore argue the Game Design Model would have given the development team a clear prioritization of game features and helped the overall understanding of the game concept.

7.3 PEER-REVIEW FEEDBACK

Critique of our contribution has been an important factor from the start of our master's thesis. Employing peer-reviews has been an on-going process since the start of our research, and so has study of game designs and business models. During the 8th semester, the first iterations of the Game Design Model were introduced to a wide group of reviewers ranging from game designers, directors, producers, and academics; they have all given valuable feedback on the first iteration of the Game Design Model. Many game developers had trouble understanding the general rationale behind the model and its practical use. Their feedback resulted in new iterations of the Game Design Model with the goal of creating a more pragmatic model to support the problem statement(s) of the master's thesis.

In order to improve the Game Design Model and Revenue Model Framework, the frameworks have been peer-reviewed to ascertain their pragmatic value based on the respondents' practical knowledge of the field. Criticism of validity and use can be brought to question regarding the number of peer reviewers, as opposed to our 8th semester project where we used six reviewers with different backgrounds. This issue derives from practical problems and our respondents' unavailability due to conferences such as E3 (Electronics Entertainment Expo), which resulted in only two game development experts being able to supply the required feedback.

It would have been advantageous to get into contact with the developers about our units of analysis, but after numerous emails (approximately one new email per day) and messages on social networks, we were not able to reach the developers. We decided to

stop and go another direction: by contacting former reviewers and ultimately getting into contact with King.com (one of the biggest free-to-play mobile game developers), we discovered a source for feedback on the frameworks. Below we have sought to give the reader the key findings from the peer-reviews.

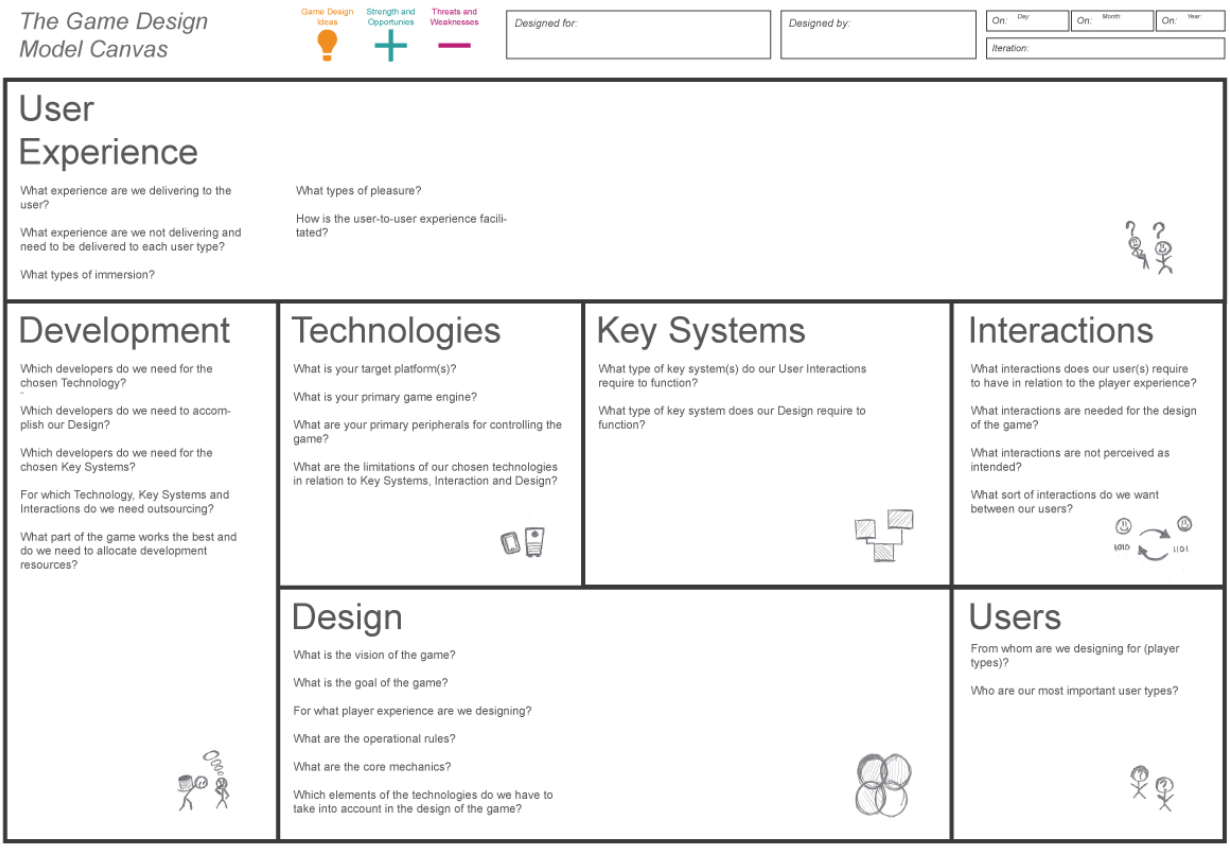
> ***"It looks useful when designing a new game from scratch or alternatively when analyzing a game that has potentially grown too complex with time."***
> - Jonas De Freitas, Business Performance Director on Candy Crush Saga at King (annex 10)

Here, the general pragmatic value of the Game Design Model is evaluated. We find it interesting that the feedback ruminates on how a game developer gains a cohesive overview of a game's current elements. As we have stated before, the Game Design Model is meant as a tool for mapping both a present and possible future model of a game state, and De Freitas statement implicitly supports this. We therefore see an indication that the Game Design Model can be used through different stages of a game development cycle. However, a counter to the usability of the Game Design Model is also evident, which concerns the lack of integration between the Game Design Model and Revenue Mechanic Framework:

> ***"It does not contain anything about how you are actually going to make money from it [if it's going to be freemium or not]. If freemium than monetization should probably be integrated into design of the core game loop to work successfully"***
> - Jonas De Freitas, Business Performance Director on Candy Crush Saga at King (annex 10)

The feedback is interesting—it could be interpreted as wanting one complete model that includes both game

Figure 142: ***The final version of the Game Design Model developed on our 8th semester, which reviewers had trouble understanding the connections between the seven blocks.***



design and the secondary RMF in an integrated model. At the same time it is interesting how De Freitas sees the need to have a tool where game design and business model correlate to each other rather than two models where game design and business are separate. It could simply be because the peer-reviewer reviewed the GDM before giving feedback on the Revenue Mechanic Framework.

A main concern that Vendler points towards is the lack of social hooks in order to acquire and keep new users (i.e. retention) and how to design this. However, he does not offer solutions for changes.

> ***"I think the framework does not place a lot of weight on social hooks for retaining/ reactivating/acquiring users."***
> - Rune Vendler, Game Director at Haptico (annex 11)

Since retention is important for the success of new games, especially free-to-play games, the general guiding questions in the GDM should focus on integrating this aspect more. We do however see a connection in what Vendler refers to as social hooks and the term 'return triggers', which is a focal point of our research. This leads us to believe that the functionalities of return triggers should be more evident through the Game Design Model and Guiding Principles.

Regarding our second contribution, the Revenue Mechanic Framework, De Freitas focused on its usefulness in practice, noting that it provided good structural handling of what developers discuss and think of regarding revenue mechanics. Some of the more specific concerns were related to its complexity, and that the framework could have benefited if it were slightly more generalized.

> ***"In general I think the model has good coverage of the type of mechanics you would think about although I would perhaps think that it could be slightly more general. For instance I would have the developer think about what the scarce resource is in the game [for a resource management title like farmville or clash of clans it's normally time]"***
> - Jonas De Freitas, Business Performance Director on Candy Crush Saga at King (annex 10)

This concern of complexity versus practical use has been important for us during the iterations the model went through. One of the primary ways to change this would be to iterate on questions asked in the blocks, and have more general questions that game developers ask themselves. This requires further studies of the practical use of the model in real-world scenarios, in order to evaluate the questions' specific and general uses.

Vendler focused on problems with terminology. He did not understand the meaning of 'Main' and 'deluxe' currency: the model, he said, should utilize industry standard terms such as 'soft' and 'hard' currency. He also criticized the layout in this connection:

> ***"Currencies: we call them soft/hard currencies. I've never heard main/deluxe used as terms...I think the terms on there are all relevant if you are designing a game, but I probably don't see the great gain in presenting them in this particular layout"***
> - Rune Vendler, Game Director at Haptico (annex 11)

Regarding the terminological use in the revenue mechanics framework, we are already using the terms Soft and Hard currency in our theoretical chapter, but chose to use main and deluxe as a way to for us to better differentiate between the two types. Moreover, layout of the framework has been important: seeing the flow of how elements connect is vital to developers understanding the beneficial qualities of the framework. As Vendler points out, the terms used are all "relevant" but the connection and flow is something that needs further iteration, which could be done through workshops with developers and/or by connecting the specific revenue mechanics to specific

game design elements in the Game Design Model.

> ***"The more a model can steer you from generic questions towards specific ones, the better"***
> - Rune Vendler, Game Director at Haptico (annex 11)

> ***"I think both frameworks would be useful for someone who would design a game but I would perhaps like to see an even tighter integration between the two"***
> - Jonas De Freitas, Business Performance Director on Candy Crush Saga at King (annex 10)

In general, both Jonas De Freitas and Rune Vendler wanted both models to steer away from generic questions to more specific ones. For future iterations of both models we want to integrate the two models more. We want to make it clear how the two frameworks are intended to coexist and to be utilized overlappingly.

7.4 REFLECTION OF METHOD AND PROCESS

In the methodology chapter we described the different phases and processes which were important when conducting case study research and developing theoretical framework. In the process of developing our theoretical framework a key factor was the triangulation between our source-based studies, the analyses of our selected state-of-the-art games, and expert interviews. In accordance with the described method these three elements facilitated many iterations of the theoretical frameworks; they were constantly used for comparison and evaluation. However, as our interviews were not conducted until late in the process, they were not a part of the equation when iterating on the frameworks in the early stages of the project.

In regards to the development of our theoretical frameworks, the interviews could have provided useful insights that could have helped shape the frameworks, and as such, provided the initial phase of our analysis with a different outcome. This could, for instance, be in the form of more in-depth questions, which in turn could have helped us form new perspectives on our analyzed games. However, as the interviews were conducted the analysis was reviewed again, using the new material.

An earlier inclusion of the interviews could also have provided us with a more coherent process in regards to transcriptions, cross tabulation and the task of dividing the interviews into matrixes.

As it was though, having such late interviews also meant that we were unbiased in regards to an initial focus, perhaps more research grounded, throughout the project. This may have led to a more open-minded analysis of our selected games. This latter observation ought to be considered a strength of our project. It has helped us stay on track in regards to focusing on the right parts, and it has guided a visible thread throughout the thesis.

In summary, the fact that we were not able to include the majority of the interviews in the early stages of our project may have affected our project in both positive and negative ways. The original plan was to conduct the interviews prior to our analytical phase, in order to utilize the knowledge of our respondents in the analysis. However, as respondents experienced scheduling problems, this was not possible.

Collecting our empirical data in the last phases of our project has also showed us unexpectedly positive effects: they literally made us realize that another approach in regards to collecting the data might be preferable. Call it a trial-and-error process whereby we found out a better way of likely success.

There are pros and cons to be found from conducting the interviews during various phases of the project. We would have preferred to have the interviews in the initial, midway and final phase of the project but ended up drawing critical conclusions with the material we had.

Figure 143: ***The newest update for Boom Beach features new content, as well as more focus on social elements within Boom Beach***

7.5 VALIDITY AND RELIABILITY

In this section, we discuss the validity and reliability of our thesis and its findings. We will be looking at the way we selected and analyzed our state-of-the-art games.

To establish the correlations between a game's game design and revenue mechanics we selected six state-of-the-art games for analysis.

In relation to the six state-of-the-art games, we decided upon two genres and platforms (strategic combat on the mobile platform and multiplayer shooter games on the PC platform). This selection was made in order to be able to cross tabulate between each game within each genre, and across all six when combining the two genres. The two cross tabulations, from respectively PC and mobile games, were conducted through the use of our GDM and RMF, which allowed us to identify patterns within the two genres.

In addition, as we cross tabulated between all six games we were able to identify a new set of patterns. Because we were able to cross tabulate between the games within each genre, but also the two genres, tendencies were revealed about both the general state of free-to-play games and the two genres. As such, these results enable us to make analytic generalizations since the tabulations are based upon the theory that supports the Game Design Model and Revenue Mechanic Framework. The results from our analyses were deduced through the method and theory presented throughout the thesis. This procedural concern ensured that the discourse remained academic. This aspect also ensures that our findings are argumentatively valid and commercially presentable.

However, when trying to generalize across free-to-play games and the two genres, the complexity of the two domains of game design and business models result in an immense amount of different theoretical elements and factors that may each influence the outcome of such a multidisciplinary study.
Another factor that could potentially be argued as having influence on the validity of findings in this field is whether the Game Design Model and Revenue Mechanic Framework are only applicable when approaching one certain type of games. However, we avoided this issue. Our utilization of different genres and games indicates how the analytical ability of the frameworks remains broadly applicable as a tool for game design.

As another possible issue, one might note how our analytical abilities might also have been a factor to influence the results of the thesis. Here we refer to

an ethos in our educational background: we have a certain expertise on interactions and media, and this may have influenced the way we have constructed the Game Design Model and Revenue Mechanic Framework, but mostly positively. However, we cede that it would, perhaps, have been preferable to form a group with more diverse educational backgrounds (still within the different domains of video games), such as programmers, animators or level designers, and to thus strengthen a multidisciplinary project with multidisciplinary analyses.
All these factors, and likely more, must be taken into consideration, when evaluating our results—a filter of critical self-reflection.

7.6 REFLECTION ON THE SELECTION OF THEORY

Throughout our study and use of game theory we have uncovered certain limitations to the use of traditional game design theory when analyzing free-to-play games. From the very beginning of the master's thesis, our approach to the selection of theory, especially game theory, focused on traditional game theory. We saw that as the optimal way of describing what games are and what game design is. With the combination of classical game design theory (Jane McGonigal and Eric Zimmermann), and a modern, business focused game understanding (Oscar Clark), we initially hypothesized that these be optimal grounds for the study that we were to conduct.

Two options were available to us that would greatly affect the outcome of our research: one focused on traditional game design, and how we could have designed a concept for a game that was free, but did not use traditional revenue mechanics. Another, the one we chose, was trying to bridge the gap between classic game theory with modern game theory—a synthesis that takes the business side into consideration.

In classic game theory, like that of McGonigal and Zimmermann, the scholars do not take into consideration the effects that business models can have on the core design of a given game. Rather McGonigal and Zimmermann focus on what elements are needed in order to create 'meaningful play', which is, of course, still important. Their method begs the question though of their relevance in a now-changing landscape of video games. Classic video game theory acknowledges only the business premium model. Free-to-play games have a double-challenge: create an entertaining game and generate revenue through mechanics at the same time- mechanics that potentially affect the core gaming experience.
We approached the lack of games business models in classic video game literature, with aforementioned modern video game literature. This enabled us to bridge the gap between the two domains. Yet, what writers like Oscar Clark and Will Luton lack is the knowledge gathered by classic game theory. This results in thoughts and practices that strictly focus on the business side and have somewhat vague definitions of elements such as immersion and engagement.

By choosing a double-edged approach, problems arose regarding how we would utilize the theory though. If we wanted to focus on immersion and player engagement, a more traditional thesis on games would more than likely turn up. Here we would have had to conduct user tests on various free-to-play games with different users, something done in order to understand what they found to be an entertaining experience. This way we would have been able to further understand how and what motivates (gratifies) people to continue to play free-to-play games, and our contribution would reflect this understanding—this would have been a thesis more based on player than developer.

Had we approached the thesis with only the use of modern game theory, we would more than likely be able to find new types of players and would instead contribute to an outdated view of player types. But, this approach, favouring player over developer, would arguably understand and focus on game design less fully. To a degree, we chose a balanced combination of the two, because a developer must naturally consider an "imagined" or "ideal" player. We found that relying strictly on classic theory would be dangerous because

they have a predefined understanding of player engagement, and do not take the context of use for mobile games into consideration at all.

Having concluded the thesis, new problems of interest have intermittently emerged through discussion. Here we find prospects for possible further research. It is also worthy of investigation to look for ways that our theoretical combination of classic and modern game design theory might make its way into contemporary games studies.

The combination of classic and modern video game theory has given us new insight into how player engagement changes, and how such insight is applied when making free-to-play games. Classic video game theory centers on engagement of abstract artifacts, as described in the theoretical section "Entertainment". Modern game theory shows multiple new layers of possibilities of categorization and design, for example, for player lifecycle and engagement (as our synthesis described). The three core loops in our Game Design Model is a new way to study video games. For example, classic video game theory does not take 'player retention' into account, as it has never been a factor for how they define engagement. With three core levels of engagement designers can effectively engage players and keep retention over short and long-term engagements; we see this as a possible new way to design game experiences.

This new way of developing games could mean that, in modern game development, you do not need to create a fully completed game that utilizes all three core loops from beginning.
Classic development, however, features numerous high risks, and does not focus on the player life cycle in the same manner. The new approach, shown through the contribution of the Game Design Model, could enable developers to efficiently develop design concepts for their games and increase awareness of the correlative values of design and revenue models early in a development cycle. We see it in the game, Boom Beach. Here is a clear example of how games can effectively utilize the three levels player engagement and a focus on player life cycle. By having strong core mechanics and a basic, yet effective, context, Supercell has been able to construct a foundation from whence they can constantly innovate. Recently Supercell updated their game with more social elements, strongly increasing the social engagement of the game now that their players are longer in their player life cycle, which increases the value of social engagement.

It is important to note that we do not state that the engagement categories in the three core loops of the Game Design Model should always be prioritized in a chronological order. No data and evidence suggest this need. The study of the six games shows that these games do follow a prioritization of engagement categories in the three core loops though. Yet we are convinced that some games contradict this prioritization nonetheless. We find this latter point to be something that requires further study: it might mean that developers have degrees of model flexibility to work with—and thus for this field of academic study on game development to work with.

We see many different ways we could have used our gathered theory and treated it alternately. A possible treatment could be on the continuing debate regarding ethics of free-to-play games, a topic we have touched upon, and numerous cases of children purchasing thousands of dollars worth of virtual objects. Having this approach would have drastically changed how we viewed and utilized our gathered theory. Since we wanted to contribute with something that would optimize games, approaching business ethics could focus on the companies' corporate social responsibilities (CSR). Where our focus was on the strategies of a design process, and the contribution of a work tool to facilitate discussions, the direction of CSR and ethics project could have generated a different contribution altogether. One thing to look at could be how certain games reward players for playing the game in meaningful ways: they sometimes contribute to something larger such as a Children's Foundation where, if you get enough players to play a specific level, revenue goes to a specific foundations. This is readily seen in 'Who Wants to be a millionaire' where

contestants play and the amount won is distributed to various foundations. This could potentially be an interesting approach from the meta core design of a game: how to increase the awareness of a product in positive ways, using charitable donations. We already see this used in our own units of analysis, namely Team Fortress 2.

This section attempts to give a short overview of our thoughts and concerns connected to the contributive value of the thesis, and how we could have chosen different approaches to the thesis and its content. Furthermore, the chapter sheds light on how our contributions might participate in the growing development of known game design theory; a development wherein business models must be considered as a factor that has influence on core design elements.

games, we were able to identify a new set of patterns. Because we were able to cross tabulate between the games within each genre, but also the two genres, tendencies were revealed about both the general state of free-to-play games and the two genres. As such, these results enables us to make an analytic generalization, as they are based upon the theory that supports the GDM and RMF. The results from our analysis were deduced by accommodating the method and theory presented throughout the thesis, in order to assure academic procedures were meet. As such, it is arguable that our findings contains a degree of validity.

However, when trying to generalize across free-to-play games and the two genres, the complexity of the two domains of game design and business models results in an immense amount of different elements and factors, that might have an influence on the outcome.

Another factor that potentially could have influenced the validity of our findings is whether the GDM and RMF were only applicable when approaching one certain type of games. However, by utilizing different genres and games, it indicates how the analytical ability of the frameworks is useable as a tool for game design.

Furthermore, our ability as the conductors of the analyses might also been another factor that could have influenced the results of the thesis. As we have an educational background that have certain focus on interactions and media, it can influenced the way we have constructed the GDM and RMF, and as such, also the analyses of our games. Therefore, it could be preferable to include other operators from the other educational backgrounds within the different domains of video games, like programmers, animators or level designers.

All these factors must therefore be taken into consideration, when evaluating the results.

Chapter 8

CONCLUSION

Concluding remarks on the master's thesis and holds general summaries of main parts of the thesis and propositions for future studies in the field of game design and business models.

8 CONCLUSION

The master thesis is dedicated to the research of the correlations between game design and business models in a time where the two domains are more intertwined than ever before. The thesis contributes with two new frameworks: the Game Design Model and Revenue Mechanics Framework. The following problem statements guide the creation of the frameworks:

> ***"What is the optimal correlation between game design and game business models when the purpose is to create an entertaining player experience with a sustainable business model and how are revenue mechanics applied into the design of a game?"***

The two frameworks aim to guide the strategic creation of revenue mechanics implemented cohesively (i.e. parallel) to key design elements. In other words, it concerns the fundamentals of the thought-processes developers are tasked with during the design of free-to-play games with in-game monetization.
The Revenue Mechanic Framework functions as an in-depth exploration of the revenue stream segment in a game's business model. The Revenue Mechanic Framework makes it possible to identify how a game business model is correlative to the design elements inside games.

Through the use of the Game Design Model and Revenue Mechanic Framework, as analytical tools, we have found the three levels of the core loops (mechanic, context and meta) to be factors essential to grasping the operational links, i.e., correlative interdependencies, between game designs and business models of free-to-play games. The core loops are key factors in determining the Game Design Model's viability.

The thesis introduces a useful set of utilitarian principles that contribute to the development of free-to-play games. The guiding principles are founded on the premise that in order to create a free-to-play game, one that has successful revenue, the game has to consider player retention. In order to maintain retention, the game has to appeal to the player on the three design levels. The thesis ties these elements of appeal to three levels of engagement categories. Here, the mechanic design level is connected to

game interaction engagement, the context design level to progression & competitive engagement and, finally, that the meta level is connected to a social engagement category.

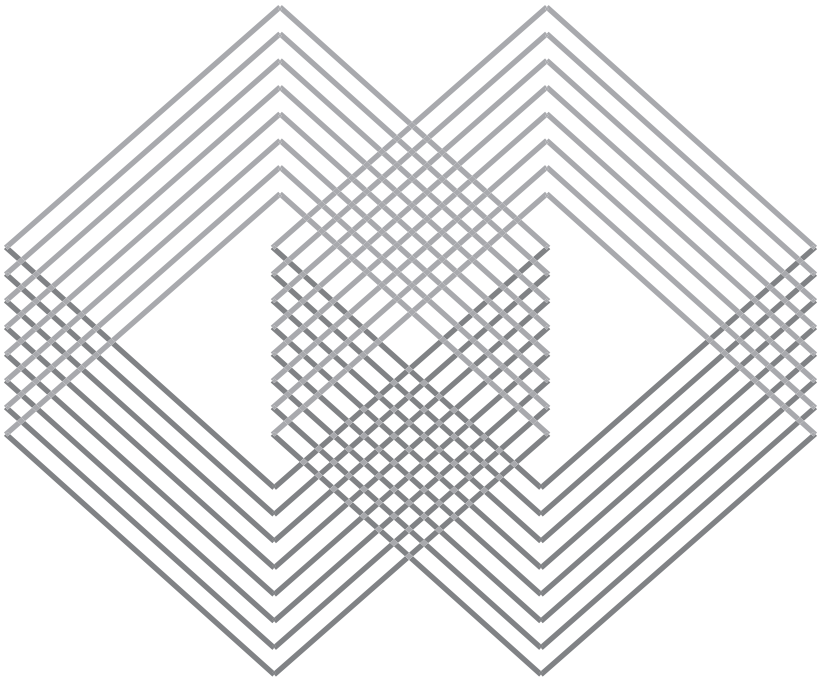
The thesis states that in order for the progression & competitive engagement category to emerge, the game interaction engagement category must be present. Furthermore, the emergence of the social engagement category requires both the game interaction engagement category and progression & competitive engagement category to be present. The engagement categories are thus affected by each other and they influence what engagement type emerges in each category.

The importance of the three design levels' engagement categories change individually through a player's game life cycle. More experienced players require an engagement on all three levels, where the most important engagement level is the social engagement category. Therefore, identifying how a game can engage the player on each of the design levels is one of the key factors to maintaining retention and thereby creating a successful free-to-play game. The thesis further proposes that by uncovering revenue mechanics that support a game's specific types of engagement, developers can increase both the game's revenue and the player's engagement in a game. The thesis does however state that there is a fine balance from implementing revenue mechanics that increase revenue to implementing revenue mechanics that have a negative influence on player engagement. Implementing revenue mechanics should therefore be carefully premeditated, since they have an extensive impact on gameplay.

By connecting the study of player engagement to three different design levels—and as a key factor to maintaining retention—the thesis formalizes an addition on how to perceive and approach player engagement in video games using a free-to-play business model; it is an addition to current understandings in contemporary academics and developer theory in the field. We propose that the connection between player engagement and a sustainable business model may lead to further research into how free-to-play business models affect other core areas of game design studies. Such research might change perceptions and approaches to the core design areas in question. It is, in this connection, not hard to imagine a more rigorous, scientific study of the cognitive processes involved in the type of user-gratification this project has concerned itself with. New approaches are not only profitable in a fast-paced, rising software economy but also theoretically interesting. They may also lead, quite simply, to greater game experiences.

The use of the Game Design Model and Revenue Mechanic Framework provides developers with a tool that facilitates effective discussions on how the game designs and business models of free-to-play games influence one another and what relational outcomes of potential adjustments within both domains may be when viewed conjointly. The goal of using the frameworks as a cohesive tool is to gain an overview of the correlation between two main aspects of game development. The frameworks can be applied to any instance of game production whether the matter concerns a present or future development state.

Both frameworks have been peer-reviewed by veteran game developers, asked primarily to focus on the practical relevance of the frameworks. Here the practical relevance of the frameworks has been validated with an emphasis on its quality of keeping a level overview on complex free-to-play games and the development of new free-to-play game concepts. However, the peer-reviews reveal an imperfection: they suggest the need for a stronger connection between the two frameworks. We therefore propose that new research in the field, and in relation to the findings of this thesis, will focus on connecting the two frameworks further. It is a well founded assumption that a connection each level of core loops with a range of specific revenue mechanic types would greatly contribute to the study of the correlative values of the domains of game design and free-to-play game business models.



APPENDIX

A APPENDIX

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World of Tanks. (2010). Developed by Wargaming.net, published by Wargaming.net

World of Warcraft. (2004). Developed by Blizzard Entertainment, published by Blizzard Entertainment

ANNEX

Annex 1 - Jonas De Freitas, King
Located on USB

Annex 2 - Thomas Lund, Full Control
Located on USB

Annex 3 - Rune Vendler, Square Enix
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Annex 4 - Paul Barnett, EA Mythic
Located on USB

Annex 5 - The primary literature for the thesis (from introduction - das model)
Located on USB

Annex 6 - Interview matrix's
Located on USB

Annex 7 - Game Design Model and Revneue Mechanic Framework printout
Located on disc

Annex 8 – Thesis Roadmap
Located on USB

Annex 9 – Thesis pipeline
Located on USB

Annex 10 – Jonas De Freitas, peer review feedback
Located on USB

Annex 11 – Rune Vendler, peer reveiew feedback
Located on USB

Annex 12 – Monetization framework
Located on disc

Annex 13 – Interview Guide
Located on USB

Annex 14 – Boom Beach BMC
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Annex 15 – Clash of Clans BMC
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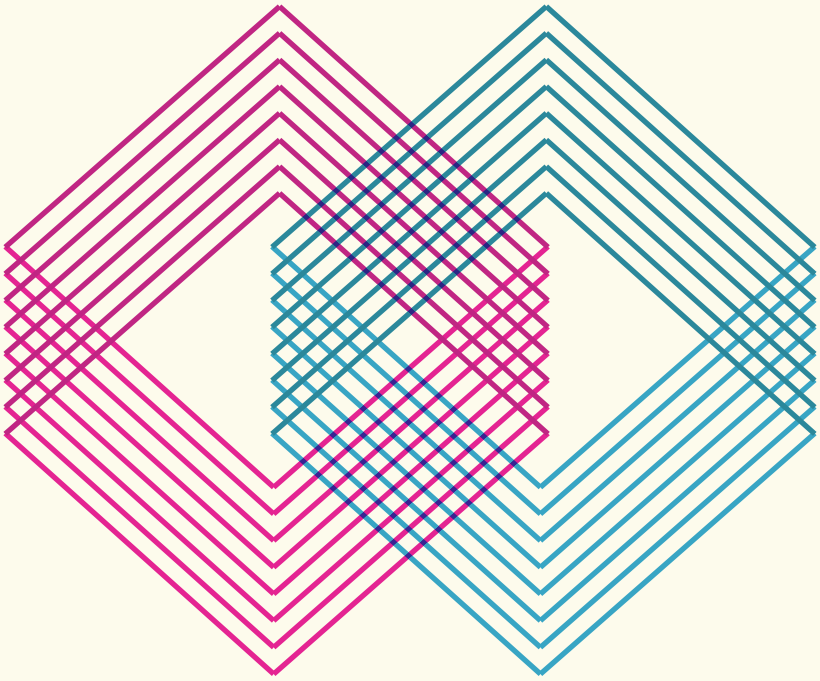
Annex 16 – Dungeon Keeper BMC
Located on USB

Annex 17 – Loadout BMC
Located on USB

Annex 18 – Team Fortress 2 BMC
Located on USB

Annex 19 – World of Tanks BMC
Located on USB

Annex 20 – Game Design Model
Located on USB

Annex 21 – Revenue mechanic Framework
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