How Blockchain Technology could Transform the Online Gaming Industry

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ABSTRACT,
Blockchain technology was born in 2008 and is already transforming the standards of various industries today. The gaming industry is worth over 100 billion dollars and consists of around 2.2 billion gamers. GamerToken is the first company attempting to develop a gaming ecosystem on the Ethereum blockchain. In order to analyze the possible benefits blockchain technology could bring to the gaming industry, a comparison must be made between the current gaming industry and the ecosystem as envisioned by GamerToken. This will be achieved by comparing GamerToken to Steam, the worlds leader in digital game downloads. This comparison and analysis is motivated by the question: Does the ecosystem being developed by the GamerToken create a more appealing business model for gamers, publishers and developers?

To this end, a business model canvas and value proposition canvas will be developed to investigate and compare these companies. This will allow for a greater understanding of the way in which the GamerToken wishes to differentiate itself by use of blockchain technology and a more inclusive environment. Furthermore, a value network analysis comparison will be conducted so as to visualize how the different business models interact with their environments, allowing for a depiction of the gains and pains offered by each of the business models. The results of the comparisons will lay the foundation for a greater understanding of if the development of a disruptive innovation such as blockchain technology can benefit a company or indeed shape an entire industry, and which other factors may affect this.

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1. INTRODUCTION

Aristotle (384-322 BC) was the student of Plato and the teacher of Alexander the great. He was a great Greek philosopher and many of his thoughts and conclusions are still valuable and accurate today. Around 350BC, Aristotle developed a framework to define the characteristics that make 'good money'. According to Aristotle, a good form of money must be durable, portable, divisible and must have an Intrinsic value (Bullionvault, 2009).

Todays modern currencies are nearly all severely lacking in one of these aspects: intrinsic value. In the past, todays modern 'paper' currencies (commonly referred to as Fiat money) were backed by assets such as gold. As the need to hold the physical asset itself diminished, since the notes were worth just as much as the assets backing them, less and less attention was paid to the gold standard. As the amount of assets backing currencies diminished in relation to GDP, it became clear that the value of Fiat currencies did not come from the gold backing it, but the trust people have in that currency and therefore the country. For this reason, and due to diminishing balance-of-payments, Richard Nixon ended all links between the dollar and gold in 1971 (Business Insider 2012). Over the years more and more countries chose to abandon the gold standard completely, until in 2000, Switzerland was one of the last countries to abandon any connection to gold (CIM Magazine 2017). A Fiat currencies value is now based solely on factors such as GDP and the goods and services a country is perceived to be able to supply, but most importantly the trust people have in their governments and countries stability (Business Insider 2012).

One of the reasons tokens based on blockchains have become more popular over recent years may well be due to the fact that the value of money has become far more subjective. By nature, tokens have an intrinsic value, as each token is backed by a smart contract which defines the properties of the token. Tokens could therefore provide a more understandable, transparent and secure form of money, since the intrinsic value is immutable; the smart contract remains the same; only the value people associate with the smart contract can change (CryptoBriefing 2018- What Is A Blockchain?).

The GamerToken is one of the first gaming ecosystems built on the blockchain. For the gaming industry, which achieved an annual revenue of over $100 billion in 2016 (Newzoo, Global Games Market 2017), this is a very new development with great potential and therefore worth some study. GamerToken was brought into existence to create a fair, transparent, interactive and rewarding tokenized gaming marketplace for gamers, publishers and developers.

1.1 Research Objective

This report will identify the possible benefits of and solutions brought by the use of blockchain technology, using the GamerToken as the prime example of the use of this technology within the gaming industry, so as to create a more fair and interactive gaming ecosystem.

In order to investigate this, several research questions were created:

Does the new ecosystem being created by the GamerToken create a more appealing Business model for gamers, publishers and developers?

This research question will be further broken down into the following;

- What are the shortcomings apparent in the gaming industry?
- What are possible improvements brought through the use of blockchain technology?

These questions will be answered by creating business model canvases, value proposition canvases and a value network analyses of the GamerToken ecosystem as well as comparisons to the current gaming industry as represented by Steam. The various figures and diagrams will be analyzed in the results section, before the research questions will answered in the conclusion. To begin this report however, the relevant terms, definitions and companies must first be introduced in the background knowledge section.

1.2 Academic & Practical Relevance

As blockchain was developed in 2008, it is still a relatively new and less explored topic in terms of academic research, especially in conjunction with additional industries, such as the gaming industry. This paper will shed light on the procedures and characteristics within the gaming industry with a focus on Steam. Furthermore, this comparison will investigate how the use of blockchain technology may affect these characteristics and procedures.

This will permit for an exploration of if an evolving business model based on the Ethereum blockchain (GamerToken), can create a more fair and sustainable ecosystem for the gaming community. This will enable us to generalize these findings and evaluate them in the context of the theory. In a practical sense, this will allow for a greater understanding of both companies and may therefore be useful when choosing which to patronize.

This report could lay the groundwork for future research concerning instances in which blockchain technology is connected to an environment in unexpected ways. Additionally, future research related to Steam, the gaming industry or blockchain technology being used in gaming could make use of this research. This paper could also be useful for research concerning how disruptive innovations may affect an industry. Furthermore, this paper would also be interesting in terms of changes in the underlying financial systems, as the ecosystem that GamerToken aims to create brings change to the gaming industry's status quo. It would therefore also be appealing for any academic research concerned with how industries might be altered by/ integrate/ adapt to the use of blockchain technology.

2. BACKGROUND KNOWLEDGE

2.1 Blockchain and Tokens

Blockchain technology was first put to use in 2008 by Satoshi Nakamori to create the Bitcoin blockchain, and is therefore a very new discovery, still requiring large amounts of research and analysis to explore its full potential. Since 2008, blockchain technology and the cryptocurrency industry has been experiencing enormous growth, now with a total market capital of over 430 billion, 158 billion of which results from Bitcoin alone (CoinMarketCap 05.2018).

A blockchain is essentially a list or 'ledger' of records (the `chain`), comprised of records referred to as 'blocks'. There are several types of cryptocurrencies, however, this paper will focus on tokens. When considering tokens, each block exists as a so-called 'smart contract', which stores the information it is programmed to, typically including the transaction data, a timestamp as well as data identifying the previous block. By nature, the blockchain is designed to be resistant to modification of data. This system is regarded as secure, because once recorded, the modification of a single blocks data cannot occur without also modifying every subsequent block of that chain, which would require that the majority of the network agree to this (Seth, S. Investopedia "Crypto") ((ICFAI) Investopedia "Blockchain").

According to Aristotle's framework, tokens would provide a 'better' form of `good money` since they fulfill all the categories of the framework, including intrinsic value.

2.2 Gaming Industry

Worldwide, over 2.2 billion gamers were responsible for an annual revenue of $101.8 billion in 2016 in the gaming industry (Newzoo, "Global Games Market" 2017). Compounded annual growth is projected to be 6.2%, therefore $128.5 Billion annual revenue is projected by 2020 (Newzoo, "Global Games Market" 2017). This reflects gamers continued and growing interest in the gaming industry as their primary entertainment medium. One of the major recent shifts in the industry has been that of switching from purchasing physical copies of games in the form of CD's, to buying purely digital ones. In 2017, 87%, or $94.4 Billion was estimated to originate from digital purchases (Newzoo, "Global Games Market" 2017).

Cosmetics and skins in a gaming context, can be considered any in game item with the ability to change the appearance of another item. Cosmetic items are highly sought after in games, therefore they can sell from as little as $1 to as much as $60,000 (Villanueva 2018). These skins are often sold over secondary markets unconnected to game developers and publishers. Research conducted by Eilers & Krejcik Gaming and Narus Advisors reflects that they estimate $5 billion were wagered on Counterstrike-GO skins in 2016 alone ("Esports" Calvinayre 2017). These existing secondary markets (third party marketplaces), which do support external commerce often operate outside the control of publisher and game developers (creators). This leads to fraud, hacking and exorbitant fees, as well as a loss of revenue for publishers and developers. Therefore, developers and publishers do not support secondary markets and allow them no influence in the development of the game (CryptoBriefing 2018- "What Is a Blockchain?").

2.3 Case Comparison

In order to investigate how blockchain technology may improve aspects of the gaming industry, a comparison must be made. This comparison will be between one of the most popular digital gaming platforms; Steam, and the the blockchain based company GamerToken.

2.3.1 Steam (Valve)

Steam (owned by the company Valve) is one of the largest gaming platforms currently on the market with over $ 4.3 Billion in revenue in 2017, (Statista) and over 125 million active users in 2016 (Steamstore-"News"). Furthermore, in 2011, "Steam control half to 70% of the $4 billion market for downloaded PC games" (Business Insider 2011). Steam could therefore be considered to possess one of the most successful business models within the online gaming industry so far. It is therefore an ideal company to compare to the GamerToken.

Steam hosts over 50,000 products, mostly games, (Steamdb 2018) and is growing consistently (Statista). Of these games, a small number are sold exclusively on Steam and not accessible elsewhere. Steam offers a marketplace where users can buy and download games. Joining this marketplace however, is costly; although it costs only $100 to publish a game on steam, it costs developers of games 30% of all revenue made on the platform (Polygon "Greenlight Fee" 2017). Furthermore, Steam has created a secondary marketplace, where users can purchase certain in-game items for a fee as well as sell these items to other users. This fee is 15%; 5% of which go directly to Steam, and 10% of which go back to developers/producers (The Verge 2012). This marketplace however, is fairly limited, allowing for purchases only under 400$ and limiting maximum account balances to 500$, as well as including other obstacles such as having to wait 15 days (on first use) to sell an object on the market (Steam Support- Community Market). For these reasons as well as others, many people prefer to use other sites and marketplaces to avoid fees and increase ease of use.

Steam also offers a creator's workshop, where developers can create 3D models (for games) and upload them free of charge in hopes of making some money. However, Steam retains 75% of all revenue generated from these models. (Polygon "Sales Origin" 2017)

2.3.2 GamerToken

The GamerToken is the first gaming ecosystem built on the blockchain. The GamerToken was developed to create a fair, transparent, interactive and rewarding tokenized gaming marketplace for Gamers, Publishers and Developers. GamerToken differs from Steam in that they offer a marketplace which facilitates transactions, rather than distributing games or content as Steam does.

GamerToken is a utility token issued by The Laurel Foudry Limited. For the purposes of this comparison, we will refer to GamerToken as a company, although it is not in fact a company. It represents and is the face and name of the ecosystem.

The GamerToken token can be used for rewarding skilled and/ or valuable behavior, and as royalty payments for "asset" designers. In order to empower gamers to buy and sell digital assets, and connect the economies of various games, GamerToken will introduce a blockchain-powered marketplace where all publishers, developers and gamers can participate and get their fair share. Gamers will have access to a universal marketplace where they can earn income via GamerToken by selling special items and excess inventory or earning rewards. Publishers and developers gain additional tools and data as well as lower transaction fees and greater transparency and security.

GamerToken has partnered with the German games platform Gamigo to launch their system and as a proof of concept. "The Gamigo Group is one of the leading gaming companies in Europe and North America, holding more than 100 million registered user accounts" (Gamigo 2018). The development of the blockchain has taken place with the support of the Token Foundry, a formation by Consensys, who are specialized in developing blockchain solutions for and with companies (Consensys 2018). The GamerToken was created to empower gamers, developers and publishers by creating an environment with set rules as defined by smart contracts. The ERC-721 token standard is used to ensure everlasting uniqueness and verifiable scarcity of non-fungible game items.

3. LITERATURE REVIEW

For this paper, the theoretical background consists mainly of business modelling literature. This will include a discussion of different possible frameworks and a justification of the decision to use the business model canvas so as to analyze the gaming industry and compare the possible business model resulting from the use of blockchain technology. Furthermore, the choice of which value proposition canvas as well as a justification for its use will be explained. The value capturing perspective will be discussed by use of a value network analysis, allowing for a more direct comparison of pains and gains.

3.1 Business Models

Many contradictory definitions exist to describe business models, as they can vary greatly by industry etc. business models were first explored indirectly by Drucker in his 1994 article where he proposed multiple questions which define a business's characteristics and goes on to state; "these assumptions are about markets. They are about identifying

customers and competitors, their values and behavior. They are about technology and its dynamics, about a company's strengths and weaknesses" (Drucker 1994). In his 2001 paper; "Strategy and the Internet", Porter stated: "Strategy defines how all the elements of what a company does fit together." (Porter 2001, p.71). While this is similar to what a Business model is, it is not the same thing.

Applegate (2000), described business models as "a description of a complex business that enables study of its structure, the relationships among structural elements, and how it will respond in the real world." She continued on to state a business model "can be built before the real system to help predict how the system might respond if we change the structure, relationships, and assumptions" (Applegate, 2000, p.53).

One of the more well-known definitions of business models as defined by Teece states: "A business model describes the design or architecture of the value creation, delivery and capture mechanisms employed [by a particular business]." (Teece, 2010, p.191).

Magretta (2002), defined business models as a tool to answer certain questions; "A good business model answers Peter Drucker's age-old questions: Who is the customer? And what does the customer value? It also answers the fundamental questions every manager must ask: How do we make money in this business? What is the underlying economic logic that explains how we can deliver value to customers at an appropriate cost?"(Magretta,2002,p.92).

Another useful definition of business models is put forward by Weill and Vitale's (2001) in their book on eBusiness models. They developed a diagramming technique called e -business model schematics. This could in essence be described as a diagram of the network of a firm's capabilities and environment. Their definition of an e-business model was; "A description of the roles and relationships among a firm's consumers, customers, allies, and suppliers that identifies the major flows of product, information, and money, and the major benefits to participants." (Weill and Vitale, 2001, p.34)

Applegate views a business model as just that; a model, rather than just an in-depth study of a business. In this context, she advocates using business models to help predict how certain changes in structure, relationships or assumptions may affect a business. Teece is more interested in how value creation is achieved as a result of the structure of the business model, adding the important element of the value proposition to the existing understanding of business models. Magretta defined business models in a similar way to Drucker's original description, adding elements of revenue and costs to the existing questions though not including aspects of the environment or competition in her definition. Weil and Vitale's definition is also interesting, as it avoids the mention of strategy or competition but focuses more on the environment.

While some researchers have focused more on certain aspects of the business model, Osterwalder & Pigneur (2010) developed a canvas which outlines all important aspects of a business rather than overvaluing the importance of one part of the framework over the others. The business model canvas includes aspects of many of the definitions above; it can be used to model different situations as suggested by Applegate, it includes the value proposition as focused on by Teece, as well as answering the questions posed by Magretta and being in the form of a diagram as proposed by Weill and Vitale. A great part of the business model canvases' appeal stems from the fact that a complex business model can be viewed and understood on a single page.

3.2 Value Propositions

Since the value proposition is arguably one of the more complex parts of the business model canvas, an additional canvas was created to evaluate the value proposition in a more detailed and in-depth way. The value proposition is one of the more complex aspects of the business model canvas, due to the fact that there are a variety of different aspects which make up the value proposition. Osterwalder and Pigneur (2003) explained the uses of value propositions as follows; "Modeling and mapping value propositions helps better understanding of the value a company wants to offer its customers and makes it communicable between various stakeholders". Due to the complexities, Osterwalder & Pigneur developed the value proposition canvas in addition to the business model canvas, which only offered a more general view of the value proposition.

As with the different ways in which business models can be analyzed, different versions of the value proposition canvas were soon developed. In 2016, Peter J. Thompson developed a value proposition canvas framed almost identically to the earlier version developed by Osterwalder & Pigneur. However instead of a focus on more tangible benefits of the proposition, Peter J. Thompsons version of the value proposition canvas also attempts to analyze the underlying emotions and experience from a more psychological point of view.

Due to the fact that the subject of this study (GamerToken) is a part of the gaming industry and therefore connected to a plethora of emotions, the more customer-oriented value proposition canvas as created by Peter J. Thompson will be used to evaluate the GamerToken's value proposition.

3.3 Environment Interaction Analysis

There are several options when attempting to analyze a company's interactions with its environment. One of the more well-known options would be to perform a value chain analysis as developed by Michael Porter (1985). The value chain looks at a company's interactions with its environment as well as internally in a structured way. This tool however, analyzes the situation from the companies' point of view, and focuses primarily on activities, rather than relationships.

Since GamerToken is a new and radical development in the gaming industry, a value capturing perspective would be highly relevant to this case study. Therefore, a value network analysis as designed by Verna Allee (2003), will be developed to better investigate relations between relevant parties in terms of tangible and intangible benefits.

The value network analysis allows one to map out the tangible and intangible benefits received by/ granted to the relevant parties by use of the product/ service. The value network analysis can be used on multiple levels, such as mapping out a company's departments, an entire industry, or even multiple industries within a country. For the purposes of this study, the focus will be on those parties directly connected to Steam and GamerToken: gamers, developers and publishers.

3.4 Research Design

The type of empirical data used will be selected by analyzing the degree of accuracy and academic relevance based on the source of the research and will consist mostly of reliable news articles and research papers.

The report will constitute a comparison between the business model canvases and value proposition canvases of the gaming industry (represented by Steam), and a gaming ecosystem supported by the Ethereum blockchain; which will be investigated by using the GamerToken as the prime example. Furthermore, a value network analysis comparison will allow for

a closer comparison between benefits and costs for all parties involved.

4. RESEARCH METHODOLOGY

In order to analyze the GamerToken and investigate the possible benefits or drawbacks blockchain technology could create for the gaming industry, a comparison must be made between the industry by looking at the characteristics of an online gaming platform using Steam as an example, as well as the industry as envisioned by the GamerToken. To this end, a business model canvas and value proposition canvas comparison will be created. This will allow for greater understanding of the way in which the GamerToken wishes to differentiate itself by use of blockchain technology and a more inclusive environment. Furthermore, a value network analysis comparison will be conducted so as to visualize how the different business models interact with their environment.

Empirical data to describe Steam will be collected from relevant and reputable sources. Data to evaluate GamerToken will be gathered from the GamerToken ("The Laurel Foudry") Whitepaper.

5. BUSINESS MODEL CANVAS

The Business Model Canvases show distinct differences between an online gaming platform as exemplified by Steam and the GamerToken. These will be investigated in more detail using the business model canvas.

For a depiction of the completed business model canvas please see figures 3 and 4 in the appendix.

5.1 Customer Segments

Steam's customer segments are completely focused on gamers. While publishers and distributors are necessary for the platform to sell content to gamers, these are generally not regarded as customers themselves but rather as a cost that must be incurred. Customers are segmented by hardware (Mac or Windows) as well as by frequency of play and in rare cases by region (Christine Brownell 2015) (Steam Support, Region Restrictions).

GamerToken has chosen to appropriate a wider customer segment. In this sense, rather than viewing developers and publishers as a necessary cost to be incurred, GamerToken views these as potential partners within their ecosystem. As the product being offered by GamerToken is a form of currency, all potential adopters of this currency are also potential customers. Therefore, all developers, publishers, gamers and platforms willing to adopt the GamerToken are in a sense a customer, working indirectly to increase the value of the ecosystem and by extent the GamerToken.

While Steam has a more targeted approach focusing on gamers as their target customers, the GamerToken is a new development and therefore still needs to grow. In order to achieve this, GamerToken views itself as an ecosystem rather than a distributor. This allows GamerToken to view all participants within the ecosystem as customers in one way or another as they either add value by gaming or add value by increasing the quality and amount of content available within the ecosystem.

5.2 Customer Relationships

Steam does not usually build especially strong relationships with their customers. The reason for customer retention is the fact that they are the market leader in the digital games industry. Larger platforms such as Steam, make it easier to remain loyal due to the large amount of games offered, however this is not truly an act of loyalty but rather due to ease of access for the gamer. While there are some exceptions, usually little reward is offered for completing achievements in games and customers' switch to new games when they are bored with a certain game. (Polygon, "Sales Origin" 2017)

In terms of customer relationships, GamerToken has taken a stance quite in contrast to the rest of the industry. By viewing all potential interactions on their system as value adding, GamerToken has come to the conclusion that all those who add value should be rewarded. These rewards come in different forms, including lower transaction costs for all participants making use of the blockchain and tangible rewards for gamers in the form of tokens. Developers, producers and other platforms willing to join the ecosystem receive additional benefits as well, in the form an (additional) distribution network as well as additional income due to the secondary market established for in-game items, ensuring that developers, producers and platforms may benefit from the sale of items after their creation.

Steam has loyal customers due to the fact they are a market leader and can offer the most content. Steam does not offer tangible rewards to their customers but does allow them to complete Steam achievements. GamerToken on the other hand, wishes to reward customers for being a part of the ecosystem. This includes tangible rewards for certain achievements and the ability to create content yourself as well as access to lower transaction costs and access to the secondary market.

5.3 Value Proposition

Steams value proposition consists of selling games and in-game items which may or may not be unique to gamers. Furthermore, a creator's workshop is offered where users can create content for games.

The GamerToken's value proposition is quite extensive. The value proposition includes the ability to create an additional source of income for distributors and publishers via the secondary marketplace. The ability to easily switch between games without any loss of in game money due to the use of the same currency in multiple games is another great benefit for gamers, as are the in game rewards for achievements in the form of GamerToken's. Also, the GamerToken ecosystem represents an additional source of distribution for games. Furthermore, content can be created by users and integrated into games, compensation will be defined by a smart contract and therefore immutable, automated, structured and known. Another important factor is that the GamerToken is using blockchain technology to ensure the security and validity of all data and transactions.

Steam offers a vast amount of content and has therefore focused on distribution. GamerToken however, offers their customers value in a different way; tangible rewards and the ability to combine in game economies, create items for games, as well as additional sources of income via the convenient secondary market. GamerToken has chosen to offer value beyond the simply the content they offer.

5.4 Key Activities

Steam's key activities include content delivery and digital rights management as well as system maintenance and support (Black Shell Media, 2017).

The GamerToken's key activities include incentivising publishers/ developers to create content and incentivising players to make use of the offered content using rewards, as well as creating a secondary marketplace directly connected to publishers/developers. Furthermore, GamerToken wishes to maintain, monitor, grow and improve their ecosystem.

The key activities of both parties are quite similar, as they are focused on the maintenance, development and expansion of their respective ecosystems, though Steam focuses on distribution and GamerToken focuses on facilitating distribution.

5.5 Channels

In terms of channels, Steam will sell/ offer their products directly from their website/ platform. Furthermore, successful games may be offered in additional marketplaces or on different consoles (Developer Tech, 2016).

In terms of Channels, the GamerToken ecosystem will be the main channel. Furthermore, any platforms partnering with GamerToken such as Gamigo, will also become channels for GamerToken (Medium 2018).

Both parties are themselves the channels, and distribution occurs directly via their ecosystem, though GamerToken facilitates transactions rather than distributing content themselves.

5.6 Revenue Streams

Revenue streams consist of advertisements and revenue made from games and in game items. Developers and producers may publish their works on Steam, but Steam may retain 30% of all revenue including in-game transactions (Yin-Poole: Eurogamer 2013). Furthermore, Steam's creators workshop allows creators to retain only 25% of revenue from created items, sometimes even less (Polygon, 'Sales Origin' 2017).

Revenue streams for GamerToken have not yet been fully developed. Initially, money will be raised via an initial coin offering (ICO). Any additional direct token offerings will similarly be direct sources of revenue. After a certain period of growth, GamerToken could charge a small fee of each transaction within the secondary marketplace and/ or a percentage of all revenues (as Steam does). Furthermore, there is the opportunity to allow for advertisements. which could create additional flows of revenue.

The Steam games-client was first released in September 2003 and has therefore had time to develop and standardize its revenue. Steam takes 30% of all revenue (Yin-Poole: Eurogamer 2013) from a particular game as well as 75% of revenue from items created in the Steam creators workshop (Polygon, 'Sales Origin' 2017). GamerToken has not yet fully developed its revenue model and will be raising money with the ICO and possible further offerings. In the future, GamerToken could choose to charge a percentage of revenues on games as Steam does. Steam's 30% cut however, is quite high, industry experts, such as Tim Sweeny; co-founder of Epic Games, insists that he does not believe more than seven or eight percent of revenue would be necessary to "make significant profit". He goes on to state: "We should constantly be on lookout for better solutions" (PCGamesN 'Steam' 2017). GamerToken may very well prove to be one of these better solutions.

5.7 Key Resources

Key resources for the Steam platform consist of the content provided, particularly unique content. The creators workshop is another key resource for steam, as are the employees skills & knowledge. Furthermore, the platform itself and its look/ feel are also a key resource.

The GamerToken's Key resources are the tokens themselves, the blockchain and more specifically the ecosystem they have created. Most importantly however, their relationships and partnerships with platforms, developers and producers which will provide content for the gamers are important to them. Their collaborate and relationships with their partners are also of great value.

Steam's key resources consist of the content they provide and the characteristics of their system. Similarly, GamerToken values the ecosystem it has created and its characteristics, however as GamerToken highly values the providers of content, users creating content, as well as their partners and their relationships, these are all viewed as key resources as well.

5.8 Key Partners

In terms of key partners, it is vital for Steam to build relationships with developers and producers. Furthermore, the users of the creator's workshop are also highly important to Steam, as the profit margins for their creations are very high (Doucet, L. PCGamer, 2017).

As mentioned multiple times, their partners are one of GamerToken's greatest assets, as these are the ones who introduce content to and make use of the ecosystem. Among these important players are: platforms such as GamerToken's launch partner Gamigo, gamers, developers and publishers. Furthermore, GamerToken has been developing their ecosystem with the support of Token Foundry, a formation by Consensys, which is recognized as being an expert in the development of blockchain based solutions (Consensys 2018).

Steam does not work very closely together with their partners, as they are the market leader and therefore the main channel, their focus is on distribution without a need for partners. GamerToken however, values its partners very highly, as these are supporting the development and growth of the entire ecosystem, they work closely with Gamigo and Token Foundry and view all participants in the ecosystem as partners.

5.9 Cost Structure

Steams cost structure consists of costs to keep the platform running such as server costs and data transfer costs. Advertisements for Steam as well as fixed costs such as employees, rent (offices) etc. also create costs for Steam (Buckley, S. 'Gizmodo', 2015).

In terms of cost structure, the GamerToken will incur multiple costs apart from fixed costs such as office space and employees. First and foremost is the cost of keeping the blockchain and therefore the ecosystem running as well as the cost of creating said blockchain. There will also exist costs of advertising the GamerToken ecosystem and possibly costs of incentives in order to entice more platforms/ producers to join the ecosystem.

Steam and GamerToken both experience very similar costs, while Steam experiences server and data transfer costs, GamerToken will incur similar costs for using the blockchain on top of fixed costs such as employees and rent.

6. VALUE PROPOSITION CANVAS

For a depiction of the completed value proposition canvas please see figures 5 and 6 in the appendix.

6.1 Product

The products distributed by Steam are games and/or in-game items.

The product distributed by the GamerToken consists of the Token. In a greater sense however, the product consists of the entire ecosystem as this, as well as the smart contract the tokens are defined by, is what makes up the Tokens value.

6.1.1 Product Benefits

The possible benefits of these products for the customer (gamers) includes unique games offered by Steam as well as possible rewards for gamers based on achievements. These rewards however, are often not valuable and usually consist of in-game items. Another benefit of Steam is the fact that they offer users the option to store saved game files in their cloud so as not to lose progress. The main benefit of course, is the fact that Steam is the market leader in digital games distribution and therefore offers a vast amount of content.

The possible benefits brought by GamerToken include the benefit of an easily accessible secondary market for in-game items. This will increase the ease with which gamers can sell items and switch between games, while also providing an additional source of revenue for developers and publishers. Developers and Producers will have easy access to and oversight over their creations via a universal API (Application Programming Interface) created by GamerToken. This API will also allow for easy integration of new and unique items into already existing games. Unique items can be tokenized and will therefore have set properties, allowing developers to limit item quantity and define characteristics. Furthermore, the GamerToken runs on a blockchain and all records and transaction data are therefore safe and immutable.

The main benefits of Steam include the amount of content they offer and the ability to upload save game files in the cloud to avoid losing progress. GamerToken offers tangible rewards, a way to connect in-game economies and the ability to easily integrate new content into the ecosystem. Furthermore, it offers the security and reduced transaction costs by way of use of the Ethereum blockchain.

6.1.2 Product Experience

In terms of experience, Steam offers over 50,000 products on one site, these can be online or offline games and may be free to play or it may be necessary to purchase them. One of the often complained about experiences with free to play games is that they are 'pay to win', requiring in-game purchases to dramatically increase your chances of winning, leaving those unwilling to pay at the bottom of the leaderboard and often unable to progress further in the game without payment.

GamerToken will easily allow for multiple games to be played while using only one currency and therefore allow for easy transfer between games. GamerToken will provide a secondary marketplace for in-game items that will help facilitate liquidation of in-game items. GamerToken will also provide the opportunity to quickly introduce new and unique items with a clearly defined ownership/ pay-out structure from which developers and publishers can benefit. Furthermore, tangible rewards in the form of Tokens will create greater rewards for gamers, and therefore increase customer loyalty.

In terms of experience offered, Steam hosts a vast variety of games and therefore makes it easy for users to find new content to play when bored with the old. GamerToken will allow users to switch between games with ease due to the interconnected game economies and ability to liquidate in-game items. It also offers developers and producers new streams of revenue and lower transaction costs as well as tangible rewards for loyal gamers.

6.1.3 Product Features

Steam offers a vast number of products. The features of these products include the fact that the purchase and download/installation of the product is initiated directly on/via their Platform.

In terms of features, the GamerToken ecosystem allows for the connecting of in-game economies and the creation of truly limited in-game items. The GamerToken ecosystem will also be a direct point of sale for in-game items.

Steam's main feature is the amount of content it provides. GamerToken on the other hand, distinguishes itself by connecting in-game economies and therefore reducing the cost for gamers to switch games as well as increasing customer retention.

6.2 Customer

Steam only serves one set of customers, these being gamers using their platform.

The GamerToken serves two sets of customers. These being the Gamers themselves, which consume content, and the developers/ publishers that create or distribute said content.

6.2.1 Customer Needs

Online gaming platforms like Steam, view gamers as their customers, as such the gamers needs must be met. A gamer's needs include wanting to be entertained by and immersed into games which requires games created to the customers liking.

With a greater range of target customers, the amount of needs that GamerToken must meet is greater as well. Gamers still need to be immersed and entertained by the games. Developers and Publishers however have very different needs. These include the need to create revenue, which is clearly and transparently structured by GamerToken, since the ownership and percentage of revenue for each transaction/ item is defined by a smart contract. In order to grow and increase revenue, it is also important for Developers/Producers to retain loyal customers, which can be more easily achieved with connected game economies and is encouraged by the rewards gamers can earn.

For Steam, the main customer need to satisfy is that of providing enjoyable content to gamers. GamerToken however, aims to create an ecosystem and therefore wishes to address the needs of producers and developers as well. This is achieved by offering lower costs and additional revenue streams as well as offering transparency.

6.2.2 Customer Wants

Gamers on Steam may want to play together with friends, experience new content and earn rewards. All these wants may be fulfilled by providing high quality online games and offering rewards to encourage loyalty. Steam also offers users the ability to create content as well as a secondary market for in-game items.

In terms of wants of GamerToken customers, it is clear that gamers are interested in quality of games and benefits (rewards) from. Developers and publishers are primarily interested in the revenue they can attain. Both of the main wants of gamers and developers/ publishers are attained by the introduction of the secondary marketplace which provides additional revenue for developers and publishers as well as the connected game economies, which allow gamers to easily switch between games they enjoy.

Steam and GamerToken both offer users a secondary marketplace, a way to create in-game content as well as rewards. However, the Steam marketplace is not very user-friendly and rather costly, while rewards offered by Steam are intangible and the use of their creator's workshop comes at a high price.

6.2.3 Customer Fears

Some of the fears gamers using Steam may have would include the loss of their investment when they become bored with a certain game. Furthermore, customers fear the decline of the value of in-game items when supply of certain items is increased as well as the fear that playing does not earn them rewards.

The greatest fear for customers of GamerToken would be a decline in the value of the token, after having purchased said Token at a greater price; this would represent a loss of investment. However, since the network and the system behind the Token has only recently begun operating, and is being further developed and grown, the actual value behind (and indirectly backing) the Tokens will increase over time. Another fear of developers and publishers, though unlikely, may be that for some

reason customer loyalty is low or that customers may be lost due to the integration with GamerToken.

Steam users' fear losing their investment in a particular game when they wish to play something different as well as the decline in value of in-game items. GamerToken users are more concerned about a decline in the value of the token itself, though the value behind the token is actually increasing as the system is further developed.

7. VALUE NETWORK ANALYSIS

The GamerToken ecosystem provides a number of benefits to gamers, developers and publishers at the cost of a few small concessions. It views all contributors to its network as customers and value adding.

Steam's direct environment differs from GamerToken in that it treats developers and publishers more as a single entity. Usually game developers will hire publishers to publish and manage their game distribution, however, developers can also do this themselves. For this reason, Steam views developers and publishers more as a single entity; the contributor to their network.

Please see Table 1 in the appendix for a detailed table comparing gains and pains of the different actors.

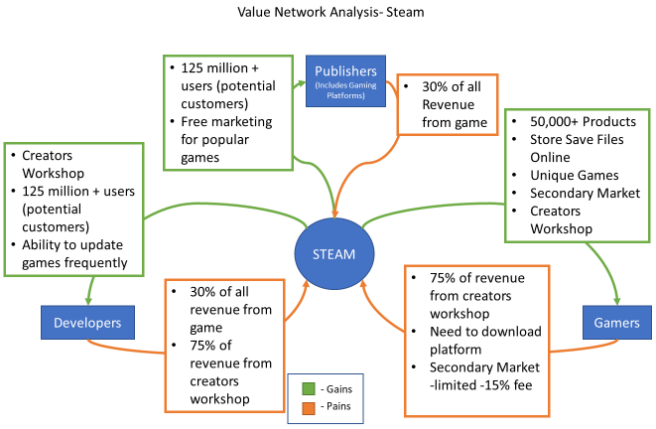

Figure 1. Value Network Analysis- Steam

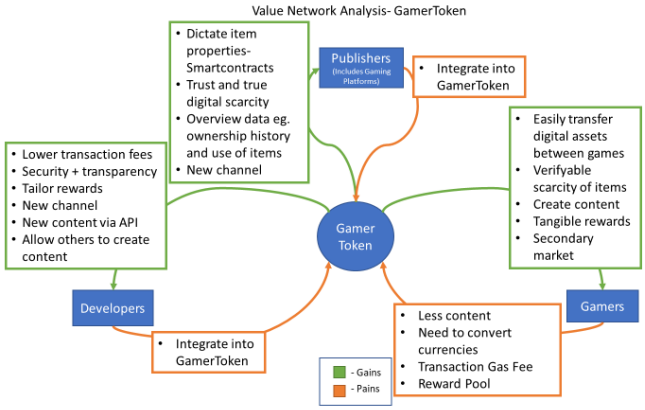

Figure 2. Value Network Analysis- GamerToken

7.1 Developers

Developers working with Steam receive access to the creator's workshop, as well as access to over 125 million potential customers (Steamstore-News). Furthermore, Steam offers the ability to easily update games. In exchange for this, Steam receives 30% of all revenue made from a particular game, as well as 75% of revenue from items created in the creator's workshop. (Yin-Poole: Eurogamer 2013) (Polygon, "Sales Origin" 2017).

Developers working with GamerToken incur lower transaction costs and greater security and transparency due to the nature of the blockchain. Furthermore, the API (Application-Programming-Interface) allows for the ability to tailor rewards for players and easily add new content or even permit others to create content. Finally, integration into the GamerToken ecosystem will create additional channels for developers to distribute their content. In return for these benefits, the developer will have to integrate their content into the GamerToken ecosystem.

In exchange for integrating their content into the GamerToken ecosystem, developers receive another channel to sell through as well as greater security and transparency and the ability to tailor rewards for players and easily add and create new content. Steam offers the use of their channel for 30% of all revenue and the ability to create new content with the creator's workshop for a cost of 75% of revenue per item (Yin-Poole: Eurogamer 2013) (Polygon, "Sales Origin" 2017).

7.2 Publishers

Publishers working with Steam receive the same basic benefits and drawbacks as developers since they are treated as a single entity; a channel with over 125 million users to distribute their game from, at a cost of 30% of the games total revenue (Steamstore-News) (Yin-Poole: Eurogamer 2013). A publishers job is essentially to distribute games and manage this distribution process, therefore a benefit which may be more interesting to publishers than developers, is that Steam will promote successful games free of charge, as this is also in their own best interests.

Publishers using GamerToken gain access to the publisher creator portal, from which they can easily manage existing content and their properties as well as create new content. Additionally, the publisher creator portal will allow for overview of ownership and transaction data of content provided by the publisher in question. The nature of smart contracts and the in-game items verifiable scarcity creates more trust and transparency. As with developers, publishers must integrate the content into the GamerToken.

While Steam offers publishers the use of their channel in exchange for 30% of revenue (Yin-Poole: Eurogamer 2013), GamerToken offers access to their channel as well as access to the publisher creator portal free of charge. The publisher creator portal will allow for an overview of data and statistics as well as managing scarcity of items, providing greater transparency.

7.3 Gamers

Gamers making use of Steam must download the platform and then receive access to over 50,000 products consisting mostly of games (Steamdb 2018). Steam offers a cloud where save game files may be stored to prevent a loss of progress. Games are offered directly from the Steam system, some of these are exclusive to and/or must be played with Steam. Furthermore, Steam offers a creator's workshop where gamers and developers can create in-game items for 75% of all revenue created by the item (Polygon, "Sales Origin" 2017). Steam also offers a secondary market for selling in-game items, however users must pay a 15% fee, as well as being limited to 400$ per transaction

and undergoing a time-consuming confirmation process (The Verge 2012).

Gamers using the GamerToken ecosystem, will have access to all games available on the system, beginning with games from their launch partner; Gamigo. Gamers will receive the ability to easily transfer digital assets between different games, with the added assurance that the value of these items will not change greatly due to the verifiable scarcity. Gamers will be able to create content for their favorite games, as well as receive access to a secondary market. Furthermore they will gain the ability to earn tangible rewards in the form of tokens. Rewards will come from reward pool's which are game-specific and for the entire ecosystem; a small percentage of each transaction will be allocated to the relevant reward pools, allowing for future rewards. Furthermore, a small so-called 'transaction gas fee' must be payed, in order to make use of the necessary computing power the blockchain requires to facilitate the transaction. Due to the nature of the ecosystem, gamers will only be able to use their digital assets across games in the ecosystem and are therefore limited to games offered there. An additional action necessary to transfer currencies between games is the need to exchange the currency from the old game for GamerToken's and then exchange the tokens for the currency of the new game.

Gamers using Steam gain access to over 50,000 different products, and the ability to upload save game files online. They also receive access to the creator's workshop at a cost of 75% of revenue produced by created items as well as access to a secondary market at the cost of a 15% fee per item sold (Polygon, "Sales Origin" 2017) (The Verge 2012). Users of GamerToken gain the ability to transfer digital assets between games with the knowledge their value will not change due to true digital scarcity as well as the ability to earn tangible rewards. They also receive the ability to create content for their favorite games. The cost to GamerToken users is a small percentage of each transaction which is allocated to developers/producers and reward pools to reward gamers future achievements.

8. RESULTS AND IMPLICATIONS

8.1 Business Model Canvas

According to Weill and Vitale a business model is "A description of the roles and relationships among a firm's consumers, customers, allies, and suppliers that identifies the major flows of product, information, and money, and the major benefits to participants." (Weill and Vitale, 2001, p.34). The business model canvas as developed by Osterwalder & Pigneur (2010) has permitted us to analyze these characteristics within a structured framework. The comparison has allowed for a greater understanding of the differences between the two business models in general.

The business model canvas brought to light the fact that while Steam is an independent distributor offering the greatest amount of content, GamerToken views itself as an ecosystem heavily invested in the collaboration of all participants, and therefore offers all participants benefits beyond simple distribution and access to content. This can be explained by the institutional theory as developed by Meyer & Rowan, DiMaggio & Powell. It asserts that the environment and its values, norms and beliefs can strongly influence a company and its formal structure (Idea Group Inc.-Institutional Theory). GamerToken and Steam were created in very different environments with very different goals and orientations.

The fact that it is a Token- based ecosystem on the blockchain, allows GamerToken to connect in-game economies, offer tokens as rewards, better define characteristics of items and increase security and transparency while decreasing transaction costs.

This implies that GamerToken is far more customer and network-oriented than Steam, while also offering their customers greater benefits than does Steam. This is not only thanks to the use of blockchain technology but also thanks to GamerToken's approach of empowering gamers, developers and publishers.

8.2 Value Proposition Canvas

Osterwalder and Pigneur explained that a value proposition explains the "value a company wants to offer its customers" Osterwalder and Pigneur (2003). Using the value proposition canvas as developed by Peter J. Thompson (2016), has facilitated the evaluation of the value offered to customers from a more psychological viewpoint. The comparison has shown that Steam wishes to offer its customers (gamers) value in the form of access to the greatest collection of video games, as well as some smaller benefits. GamerToken on the other hand, views all participants within its network as value adding, and therefore offers value not just to gamers, but to producers and developers as well.

GamerToken customers only have one-real fear: the decline in the value of the Token. Steam customers have various fears including the decline of in-game item value, receiving only low value intangible rewards, and the fear of loss of investment when switching between games. GamerToken not only causes less customer fears, but also better fulfills the customers wants and needs, therefore providing greater value. This is one of the reasons a value proposition canvas is so useful, it clearly lays out what is important to a company (product) and the customer.

The fact that Steam does not offer developers and producers working with them any additional benefits beyond the use of their channel, could be an indication that this type of ecosystem may be greatly attractive to those previously neglected by the gaming industry. The additional benefits available to gamers is also a strong reason for them to make use of this type of ecosystem rather than Steam, especially as the network grows and the ecosystem begins to provide a greater variety of content.

8.3 Value Network Analysis

The value network analysis shows the tradeoffs that the environment interacting with the respective company must make. It acts as a cost-benefit analysis, allowing for a greater understanding of the pains and gains experienced by the immediate environment of each company.

In exchange for integrating their content into the GamerToken ecosystem, developers receive an additional channel to sell their content, as well as greater security and transparency and the ability to tailor rewards for players and easily add and create new content. Steam offers the use of their channel for 30% of all revenue and the ability to create new content with the creator's workshop for a cost of 75% of revenue per item. In terms of gains and pains, GamerToken has a more attractive value proposition for developers than does Steam. This implies developers would greatly benefit from being a part of the GamerToken ecosystem and in fact have no reason not to integrate their content beyond the simple process of integration.

While Steam offers publishers the use of their channel in exchange for 30% of revenue, GamerToken offers access to their channel as well as access to the publisher creator portal free of charge. The publisher creator portal will allow for an overview of data and statistics as well as allow managing the scarcity of in-game items and providing greater transparency. Due to Steam's neglect of publishers and their exorbitant fees, GamerToken offers publishers greater benefits at a far lower cost and is thus greatly attractive.

Gamers using Steam gain access to over 50,000 different products, and the ability to upload save game files online. They also receive access to the creator's workshop at a cost of 75% of

revenue produced by created items as well as access to a secondary market at the cost of a 15% fee per item sold. Users of GamerToken gain the ability to transfer digital assets between games with the knowledge their value will not change due to true digital scarcity as well as the ability to earn tangible rewards. They also receive the ability to create content for their favorite games. The cost of using GamerToken, is a small percentage of each transaction which is allocated to reward pools to reward gamers future achievements. Steam has been the market leader in digital game distribution for multiple years and has therefore maintained the status quo as this was highly beneficial for them in terms of revenue. With the advent of GamerToken however, the gamer can earn benefits beyond simply content and is rewarded for their participation in ways not before seen. This implies a new age of customer focus in the gaming industry; as the amount of content available on different platforms becomes more equal, the cost of acquiring customers will increase as benefits beyond content must be used to incentivize loyalty.

This framework as developed by Verna Allee in 2003, has allowed us to prove in a systematic manner that GamerToken possesses a more attractive business model than does the industry leader: Steam. Thanks to the way in which the gains and pains can be directly compared, and the identical environments and similar procedures these companies work in and with. This is interesting, because it shows that comparisons between value network analyses are most valuable when those variables not being investigated are equal.

9. CONCLUSION

After extensive analysis of the two companies, we can now answer the main research question:

Does a gaming ecosystem based on the blockchain create a more appealing Business model for gamers, publishers and developers?

We will achieve this by first answering the sub-questions beginning with shortcomings currently apparent in the gaming industry and ending with the benefits gained by using blockchain technology.

From the value proposition canvas, we have learned that one of the issues Steam has, is a focus on the gamer exclusively. While this is not something GamerToken has done differently due to blockchain technology, it is worth noting that GamerToken has found ways to empower all participants of the ecosystem by viewing all participants as valuable additions to the ecosystem rather than just customers to sell to/for. The value network analysis of Steam revealed a number of shortcomings in comparison to GamerToken, mainly concerning the cost of use; Steam charges large percentages of revenue without providing much additional value in return. In essence, the larger shortcomings apparent in the industry after a comparison, result from a difference in values and a lack of value the current industry sees in its participants.

Possible improvements brought through the use of blockchain technology are numerous. The value proposition canvas showed that GamerToken will benefit from true digital item scarcity, the ability to offer tangible rewards, the ability to connect in-game economies and the ability to define the characteristics of in-game items thanks to the use of the Tokens and blockchain technology. The value network analysis showed that producers working with GamerToken gain the ability to monitor in-game items and their properties ownership data etc. thanks to the fact that items can also be defined by a smart contract and placed on the blockchain. Furthermore, all users will experience greater security and transparency as well as lower transaction fees thanks to the nature of the blockchain. This implies a number of benefits are readily available, though the exact application may be unique in this case, the adoption and integration of blockchain technology in a company or system can bring with it great benefits.

Finally, does a gaming ecosystem based on the blockchain create a more appealing Business model for gamers, publishers and developers? Based on our investigation, the answer to this question is yes.

The reason for this is clear: All participants receive greater benefits at a lower cost than when using more traditional business models like Steam. However, the ecosystem created by GamerToken is not superior to Steam (from a pure value perspective) solely due to the use of blockchain technology. The superiority stems from the fact that GamerToken has found a way to allow all participants in the ecosystem to benefit in various ways, rather than simply distributing the games, and has done so by incorporating the additional benefits brought by making use of blockchain technology.

Future developers and producers have no reason not to add their content to the GamerToken ecosystem, simply to create an additional channel, and/or to gain the greater benefits GamerToken offers when compared to its competitors. As such, the amount of content available could be predicted to increase, and Steam's ability to differentiate itself by offering more content will diminish. Eventually, Gamers, Producers and Developers making use of these systems will be attracted to the company offering greater benefits. The values users currently have when choosing where to purchase/play/distribute a certain game will evolve and be based on factors beyond simply the content/ potential users provided.

9.1 Limitations

As GamerToken is still undergoing the process of development, a variety of details regarding their business model may change in future. However, the overwhelming amount of benefits all participants receive in comparison to Steam should ensure the continued viability and superiority of GamerToken's business model as well as the relevance of this paper in times to come. The fact that the case study is limited to only two cases is also a limitation, although Steam's business model closely resembles many others in the industry.

9.2 Contribution and Future Research

This paper contributes to research into how radical and disruptive innovation can lead to the alteration of internal and external environments. This research also brings to light how a difference in values can shape a company's actions and norms.

In a practical sense, this research may increase the readers understanding of the differences between Steam and GamerToken, it may therefore help developers, publishers and gamers decide which company to patronize.

This research could be used as a starting point for research concerning future changes in the industry as well as research seeking to discover how other disruptive innovations may affect an industry. This paper may also be useful for future research into how a difference in customer orientation and focus may affect two competing organizations and/or their environment. Future research could include additional case studies such as additional platforms to perform the case study on. It would also be interesting to investigate the different ways blockchain technology can be applied in this industry to create a more successful business model. Future research into these areas could benefit from being more in depth, for instance by collecting opinions from the studied environment and furthermore by weighting opinions based on these studies in order to more accurately analyze or compare cases.

10. APPENDIX

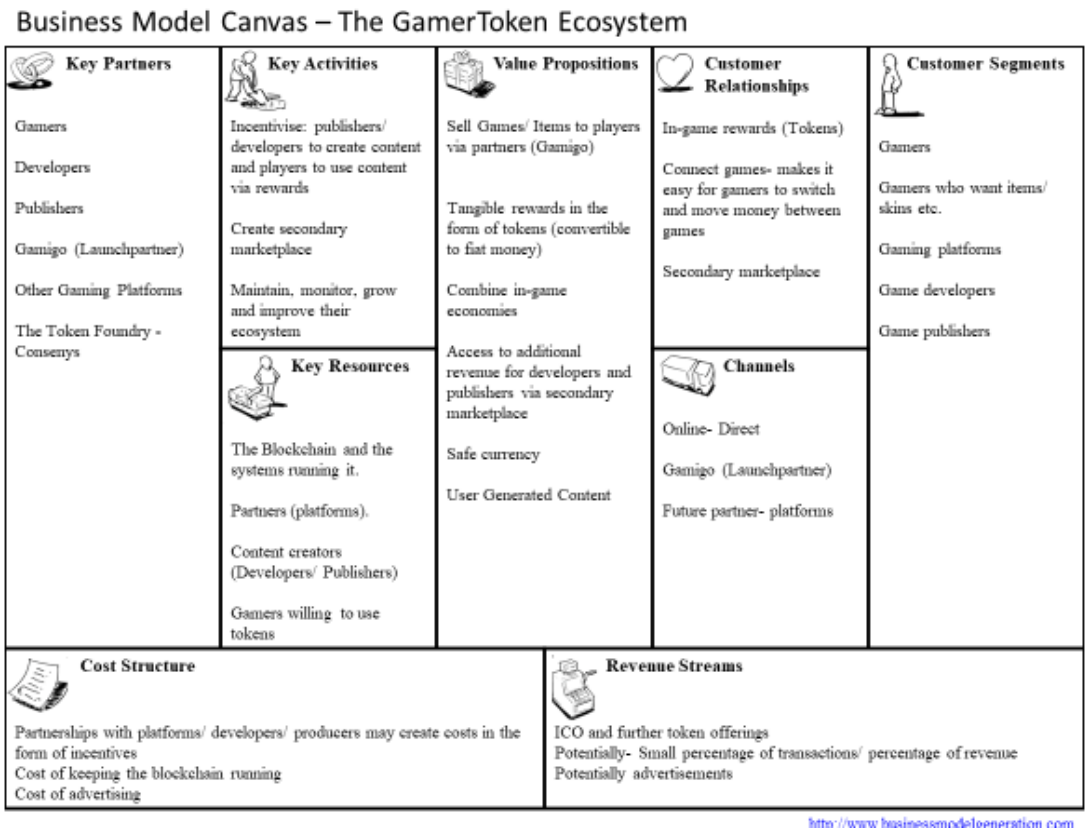

Figure 3. Business Model Canvas- GamerToken

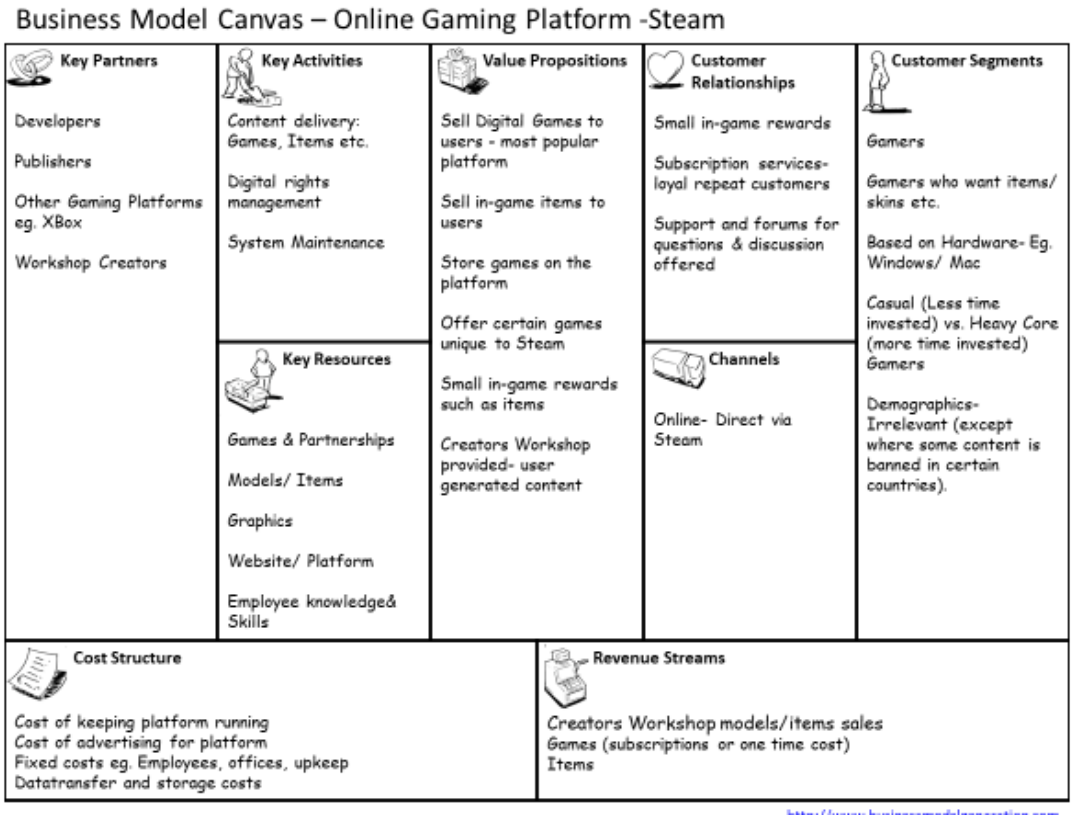

Figure 4. Business Model Canvas- Steam

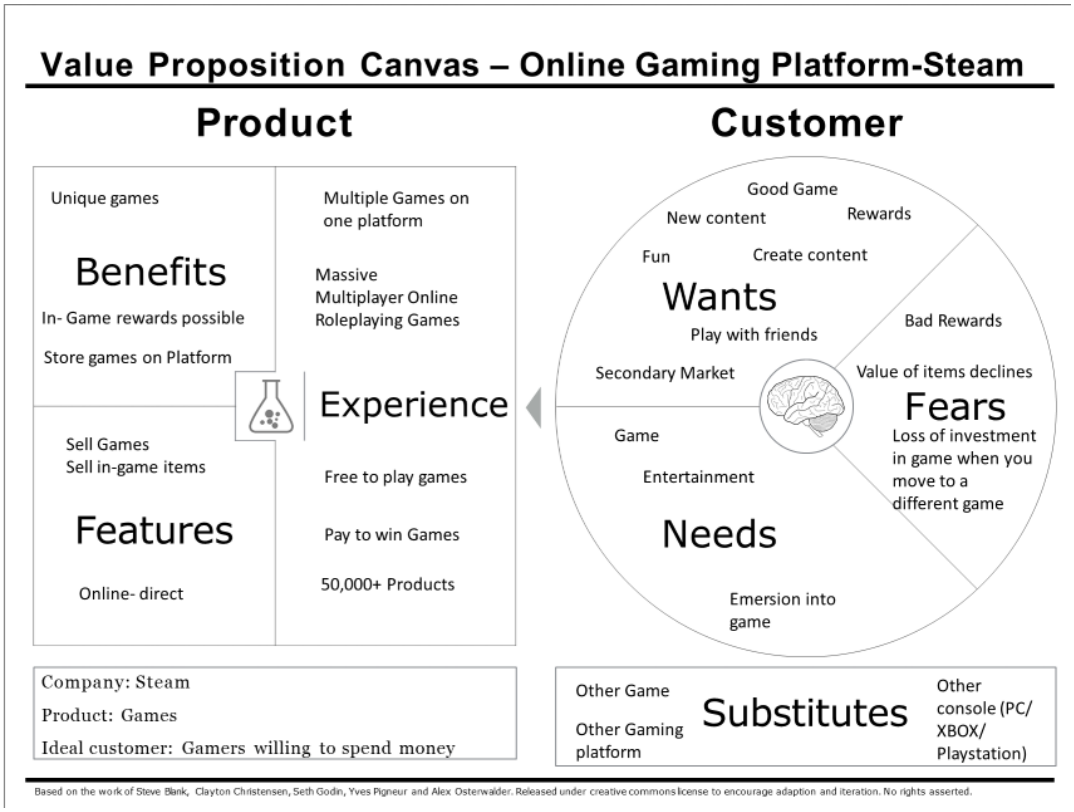

Figure 5. Value Proposition Canvas- Steam

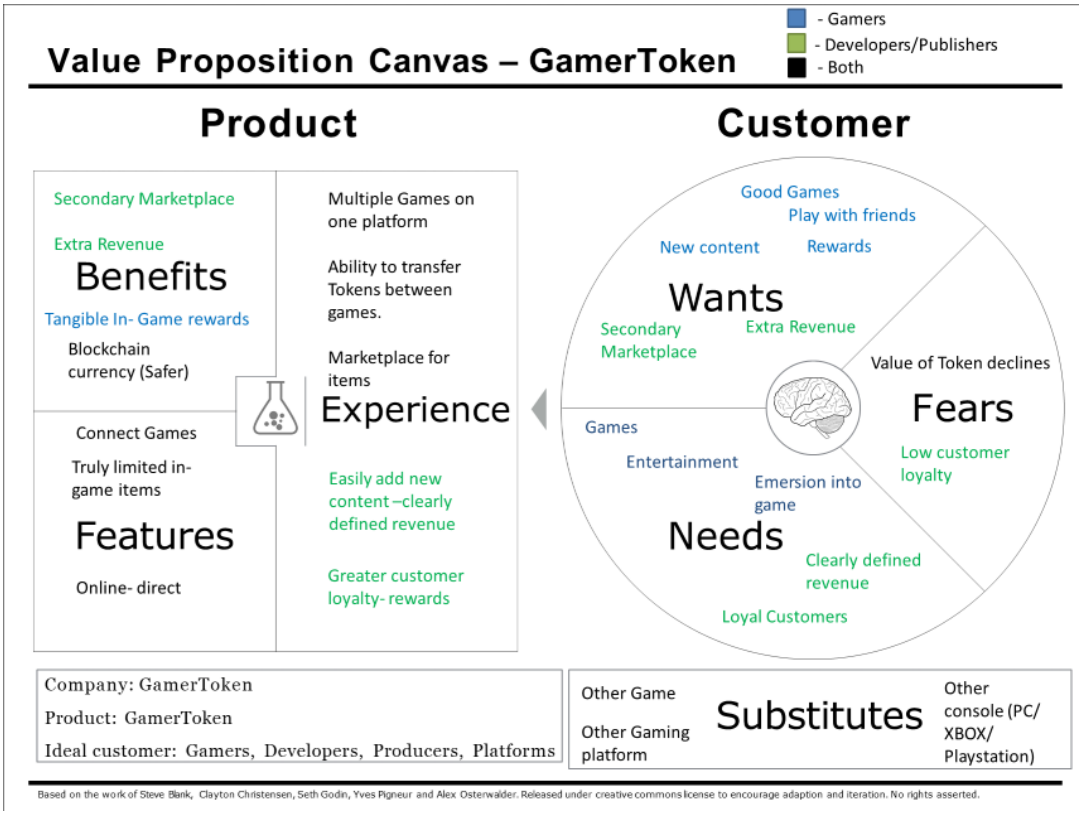

Figure 6. Value Proposition Canvas- GamerToken

Value Network Analysis Comparison				
	Steam		**GamerToken**	
	Gains	Pains	Gains	Pains
Developers	• Creators Workshop • 125 million + users (potential customers) - market leader • Ability to update games frequently • 10% from each transaction in the secondary market (depending on contract either publishers or developers receive it.)	• 30% of all revenue from game to Steam • 75% of revenue from items created in creator's workshop	• Lower transaction fees • Good Security + transparency • Tailor rewards • New channel • Easily add new content thanks to the API • Allow others to create content • True digital item scarcity • Ability to define item properties via a smart contract • Additional revenue from secondary market- a small percentage of each sale.	• Integrate content into GamerToken
Publishers	• 125 million + users (potential customers) – market leader • Free marketing for popular games • 10% from each transaction in the secondary market (depending on contract either publishers or developers receive it.)	• 30% of all Revenue from game • (75% of revenue from items created in creator's workshop)- depending on deal between publishers & developers	• Dictate item properties- Smartcontracts • Trust and true digital scarcity • Overview data e.g. ownership history and use of items • New channel • Tailor rewards • Lower transaction fees • Additional revenue from secondary market- a small percentage of each sale.	• Integrate content into GamerToken
Gamers	• 50,000+ Products • Store Save Files Online • Unique Games • Secondary Market • Creators Workshop	• 75% of revenue from creators workshop • Need to download platform • Secondary Market -limited -15% fee	• Easily transfer digital assets between games • Verifyable scarcity of items • Ability to create in game content • Tangible rewards • Secondary marketplace • Ecosystem and game specific reward Pools	• Less content than the market leader • Need to convert currencies • Transaction Gas Fee- fee for using blockchain • Reward Pool – a small percentage of each transaction in the marketplace will be allocated to the relevant reward pool and developers/publishers.

Table 1. Value Network Analysis Comparison

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