



# Blockchain Commerce Solution

Whitepaper v2.0

Decentralised blockchain commerce  
for independent game developers

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# Executive Summary

## The Problem

We cannot deny that ecommerce platforms like Steam, Amazon, eBay, and Alibaba have taken significant market share from bricks & mortar stores over the past 20 years. But those that have survived have had to adapt. They learnt to play by these new rules. Rules set by a handful of large online retailers.

Technology has brought a great deal of innovation to retailers: such as cheaper communication tools, greater information access, and a whole host of new products, services, and business models.

However, despite all of these improvements, somewhere along the way retailers and consumers lost control: of how they sell, profit from, and distribute their goods.

In the pre-Internet era, commerce was truly decentralised. We could buy and sell what we wanted, when we wanted, however we wanted to. There was no dominant distribution intermediary.

Then came the Internet – and with it ecommerce and digital products – software, online services, games to name a few. To maintain control, publishers and creators imposed the same restrictions for the buying, selling, and trading of physical goods on digital assets. This centralised control stripped consumers of their rights; meaning, for example, they cannot resell or give a game to someone else, without giving them access to their account – something that in actual fact breaches Steam's Terms and Conditions.

## The Solution

Fast forward a few years, and a new disruptive force emerges: the blockchain – a technology that can restore retailers' and consumers' pre-Internet privileges. The blockchain is poised to restore the balance upset by ecommerce; decentralising control once again, cutting out intermediaries, and opening up a wealth of new opportunities.

These include:

- **Asset Ownership:** ensuring consumers retain full control over an asset when they assume ownership.
- **Market Liquidity:** giving existing markets freedom to trade outside of the rules set by a few large players.
- **Decentralisation:** opening up new digital distribution models to relieve the control of ecommerce monopolies.

## nTitle: Actively Addressing Decentralised Digital Distribution

Here at nTitle, we're championing what we call bcommerce (blockchain commerce).

Our aims are simple:

- to decentralise the distribution of digital assets
- transform market mechanics
- stimulate a trading economy where product creators can leverage the assets they own

## **Breaking Down Barriers in Gaming**

Our first focus will be the independent PC games industry. Gaming is the biggest entertainment market in the world – and is currently experiencing massive centralisation combined with high cost.

Currently one company, Steam, dominates between 50-70% of the independent PC games market and charges a 30% commission on all sales. As more and more games are published on the platform, game developers are increasingly finding it difficult to stand out amongst the crowd.

In addition, the way games are discovered is increasingly decentralised too. There's a tangible shift away from centralised marketplaces like Steam, GOG or Google Play, towards social media and influencer marketing.

## **Giving Gamers & Developers More Autonomy**

nTitle's decentralised bcommerce solution uses open source code; which is available to everyone, allowing game developers to reach consumers directly. Using our services, developers pay only a fraction of standard sales fees by avoiding a centralized intermediary – while enjoying a higher level of trust and security.

Ultimately, our aim is to level the playing field for the most important people in gaming: developers and gamers. Our bcommerce solution will provide smart contract driven DApps that align both of their interests.

As a result, gamers will realise the value of true digital asset ownership and reap the benefits of bringing exposure to the games they play; and game developers – will own their own channels to market, can manage the licensing of their intellectual property, control the liquidity and tradability of their assets, and sell at the point of discovery.

# 1. Background and Motivation

The Internet has redefined the gaming industry - from how we buy games, to the way we play and interact with them. This impact has been revolutionary and now blockchain technologies are poised to bring about even greater changes.

## 1.1 The Evolution of the Value Chain in Gaming

The introduction of the Internet has made it easier for developers and publishers to digitise their games and sell to consumers by circumventing the physical retailer.

Distribution platforms such as Valve's Steam, Apple's App Store or Google Play have all transformed the way we buy, sell and play games.

Blockchain technology is poised to change the hold these distribution platforms have on current markets. For the gaming industry, this means a move from a centralized distribution system to a decentralised model where the intermediary is removed from the value chain. In this new scenario, the power is given back to the game developer who now has a more direct, engaging and sustainable relationship with the market.

	Pre-Internet	Now	Future
Type	Physical games	Digital games sold via ecommerce	Digital games sold via bcommerce
Enabler	GameStop	Steam, App Store, Google Play	nTitle
Technology	Electronic Data Interface (EDI)	Internet and mobile	Blockchain

*Value chain & technology used in gaming over time*

## 1.2 Misalignment in the Value Chain

The growth of ecommerce saw game distribution platforms create a game discovery mechanism on the Internet. However, the success of these platforms also caused a number of unexpected issues. For the game developer, exposure and discoverability on these platforms is declining and margins on sales are tightening.

Take Steam for example. They are the single largest digital distribution platform for PC gaming, estimated to have a 50-70% market share for PC game downloads<sup>1</sup>. More games are being released than ever before on Steam; there are now over 22,000 games and in 2017 alone over 7,796 games were released. The result of this is a decline in sales for the

<sup>1</sup> <https://venturebeat.com/2017/02/13/valve-wont-manually-curate-steam-because-it-dominates-pc-gaming/>

average game – especially for Indie games. On Steam, the median number of owners for the average game is 9,500 and for an Indie game is 5,000. However, for an indie game released in 2017, the median number of owners was just 1,500<sup>2</sup>.

The top 100 games (<0.5%) accounted for 50% of the revenue on Steam in 2017, highlighting that sales are heavily skewed from the top down, with the ever-growing long tail struggling for exposure and discoverability. The average revenue for new games published on Steam is steadily declining, while the number of games rises.

According to the Game Developers Conference attendee survey<sup>3</sup>, game developers are having more success promoting their games on other platforms.

The reason being that gamers are **increasingly discovering games outside of platforms like Steam**: through social media, gaming influencers and word of mouth.

**The point of discoverability of games is changing, and therefore the point of sale should follow suit too.**

Which methods do you anticipate will be most effective for discovery of your \*next completed\* game? (Allocate 100 points across the answers options; there are 10 options, so default would be 10 points to each method then add/subtract accordingly)

Social media (Twitter, Facebook)	22
Promotion on a platform's digital storefront	19
Word of mouth	16
YouTube videos	13
Paid advertising	13
Traditional press and bloggers	11
Twitch streamers	10
Live events	8
Forums	7
Real Time communications (Discord, Slack)	6

Game Developer Conference, State of the game industry 2018.

<sup>2</sup> The annual overview of the current state of the biggest PC gaming platform, GDC 2018, by Sergey Galyonkin, creator of Steam Spy [https://twvideo01.ubm-us.net/o1/vault/gdc2018/presentations/Steam\\_in\\_2017.pdf](https://twvideo01.ubm-us.net/o1/vault/gdc2018/presentations/Steam_in_2017.pdf)

<sup>3</sup> <https://www.mcvuk.com/development/mcv-investigates-the-growing-issue-of-discoverability-on-digital-storefronts>

## 1.3 The Power of the Blockchain

The union of gaming and blockchain is inevitable and the impact of this coupling is set to be just as significant as the emergence of ecommerce was for gaming a decade ago.

The power of the blockchain brings about significant benefits:

- Storing licenses on a decentralised ledger lowers the cost of proof of ownership and enables direct and peer-to-peer game and in-game item trading;
- Robust interfaces allow digital assets to be directly sold where discovery takes place, circumventing centralised marketplaces;
- Smart contracts remove the need for third parties in the payment process, making transactions much cheaper, faster and safer;
- Smart contracts can “trustlessly” and automatically distribute payments between stakeholders. For example, when a digital asset is resold, part of the payment can flow back to the original IP holder;
- Asset tokenisation provides developers with new ways to incentivise gamers and influencers – to help promote their games; and
- Full transparency is provided for everyone involved in the value chain.

Blockchain technology will fundamentally disrupt the value chain. Re-aligning the point at which games and in-game items are discovered, and the sale of those products take place. The blockchain allows new ways for gamers and influencers to be rewarded for the discoverability they provide. This is why blockchain has the potential to shift more revenue capture into the discoverability phase in the value chain.

## 1.4 A New Ecosystem: Bcommerce

Just like ecommerce enabled businesses to operate an online shopping platform, bcommerce offers a next generation ecosystem; where peer-to-peer trading is at its core. Through bcommerce, trade will be direct, liquid and frictionless, and sales will take place at the point of discovery.

This new ecosystem will:

- Enable game developers and gamers to “go direct”, removing the intermediary, a now superfluous layer in the value chain. This will result in greater margins for the developer and lower costs for the gamer;
- Ownership of digital items will increase value for the gamer;
- Align the interests of gamers with game developers. Proceeds are automatically shared between them allowing for a secondary market to develop; and
- Gamers and influencers are motivated to sell and market the product via social media channels.

Essentially, bcommerce will solve many problems associated with the discoverability of games, high distribution costs, licensing restrictions and market transparency.

## 2. The Bcommerce Economy

### 2.1 Stakeholders in the Bcommerce Economy

The video games industry comprises a number of key stakeholders, including:

**Game Developers & Publishers.** Both have a vested interest in adopting bcommerce because it will lower the cost of distribution, allow them to directly connect with and reward gamers, and increase the exposure of their games.

**Gamers.** Using bcommerce, gamers can discover new and interesting games while earning money through referrals and trade.

**Influencers.** Thanks to social media channels and video platforms such as YouTube and Twitch, the number of gaming channels that feature influencers has skyrocketed. As a result tiered influencer hierarchies are becoming a norm. Bcommerce gives *every* gamer the tools to become an influencer with a direct and instant revenue channel (see the 'Cases' below for examples).

**Decentralised Applications.** The digital distribution of games fuelled the growth of massively centralised PC and mobile gaming marketplaces like Steam, GOG, the App Store and Google Play. Bcommerce will break down this control and bring about improved market mechanics to benefit both game developers and gamers.

**Social Media.** Social media is considered the number one place for content discovery. Games are both played and reviewed on sites like Facebook, Reddit, Discord, Twitch, YouTube, and more. Bcommerce enables gamers to buy, sell and trade games and in-game items directly through these channels.

### 2.2 Value Proposition for Stakeholders

#### 2.2.1 Game Developers

##### **Sell Your Game**

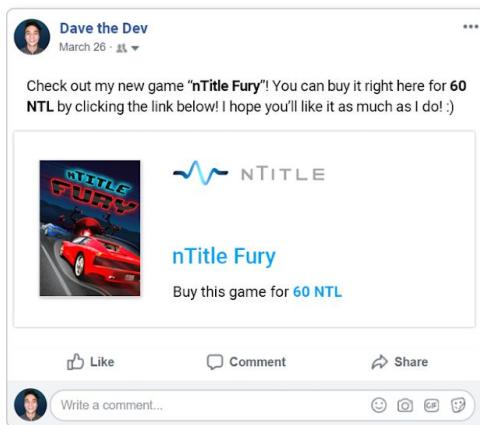
nTitle's bcommerce software tools allow game developers to define licensing terms: including price, revenue split ratios, duration of sale, resale allowance, instant payouts and other key terms. They also provide a great way to trade in-game assets without a third party. Trading items becomes highly secure and can generate extra revenue.

## Case 1 - Selling a Game

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### USE CASES

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## 1. Selling a Game

- 1 Dave the Dev just released an awesome new game and announces it on all his social media channels. His announcement includes a link allowing gamers to buy the game right away (for the price of 60 NTL).
- 2 Gabe the Gamer, who was looking forward to this new release, clicks Dave's link on social media. This opens a pop-up from nTitle with more info about the game, prompting him to send the required amount in NTL directly to Dave's nTitle wallet.
- 3 As soon as the transaction is confirmed, Dave instantly receives the 60 NTL\* in his wallet and the game license appears in Gabe's wallet. This allows him to download the game and start playing right away.

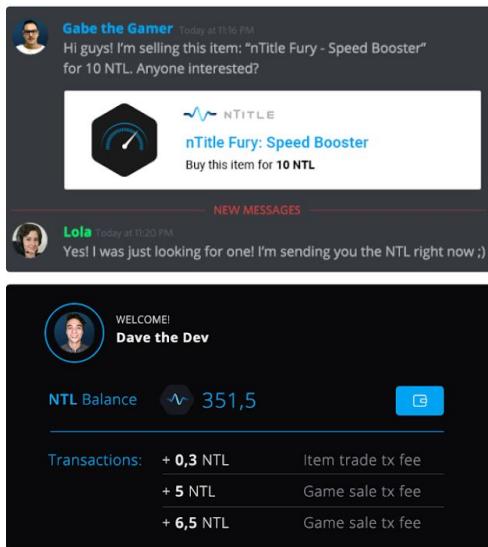
\*minus a small transaction fee

## Case 2 - Selling In-game Items

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### USE CASES

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## 2. Selling In-game Items

- 1 Gabe the Gamer has spent hours playing his new game. He has accumulated a large collection of rare items and skins. One item he no longer uses is prized by other gamers. He decides to sell it to earn some extra NTL.
- 2 Gabe creates a resale link for the item using nTitle's software, pings his gamer friends on Discord, and asks who wants to buy his item. His friend Lola does. She clicks the link, which prompts her to send the required NTL to the smart contract, which acts as escrow while Gabe transfers his item. Once both parties have fulfilled the terms set by Gabe, in a matter of seconds the item and NTL are exchanged. Lola can start using the item right away.
- 3 Now Gabe can spend that NTL on new items, new games, in other games or exchange it for other crypto.
- 4 Dave has set a transaction fee of 3% on the trade of in-game items, which he collects as soon as the exchange happens.

## Market Your Game

User generated promotion will be a key component of the nTitle bcommerce solution. Game developers can easily set the payout terms for referrals and commissions. Gamers and influencers can generate QR codes and links to promote games on social media or

while streaming – for instance, via nTitle's Twitch extension integration (discussed in section 3).

### Case 3 - Referrals

#### USE CASES

## 3. Referrals

Gabe the Gamer Today at 11:16 PM  
Wow, HAVING A BLAST with this game! Come join the fun!  
Buy the game via the link below to receive a 5% discount :)

nTitle Fury  
Buy this game for 60 NTL 57 NTL

Message #general

WELCOME!  
Dave the Dev

NTL Balance 631,50 NTL

Transactions:

Amount	Time Ago	Type
+ 51.3 NTL	3 sec. ago	referral sale
+ 51.3 NTL	7 sec. ago	referral sale
+ 51.3 NTL	20 sec. ago	referral sale

- 1 Now that Dave the Dev has sold his game to a number of his direct followers, he would like to incentivise them to promote his game. He decides to offer a 10% commission to all gamers who refer his game to their friends or followers and 5% discount to those who buy the game through a referral.
- 2 Gabe the Gamer is having lots of fun in his new game and knows that many of his gamer friends would love it as well. He generates a referral link to share it with them via his Discord group chat. Ten of his friends buy the game for a discounted price of 57 NTL (95% x 60 NTL). Gabe instantly receives 5.7 NTL (10%) per download, meaning he just received 57 NTL in total ( $10 \times 5.7$  NTL). This almost entirely covers the cost of the game he just bought.
- 3 Dave receives 10 more sales (with a discount of 5% for the ten buyers, and a referral fee of 10% for Gabe) which results in revenue of 513 NTL ( $(57 \text{ NTL} \times 10) - 57 \text{ NTL}$ ). This means that Dave earns 51.3 NTL per game sold via referrals, which is a total discount of 8.7 NTL (14.5% discount on the sale price of 60 NTL) which is still half as much as traditional game marketplaces take on commission of sales (30%).
- 4 Not only did he earn more money, he also got 10 new potential advocates for his game. He can only imagine what would happen if one of them became a famous gaming influencer!

## Fund Your Game

The nTitle bcommerce solution creates opportunities for the funding of new and in-development projects. nTitle's smart contract software can be used to crowdfund games and allows gamers to sponsor their favourite games for pre-releases and other in-game benefits. Game developers can analyse, plan, and forecast more accurately – which leads to better cash flow and allows them to allocate funding for development and marketing.

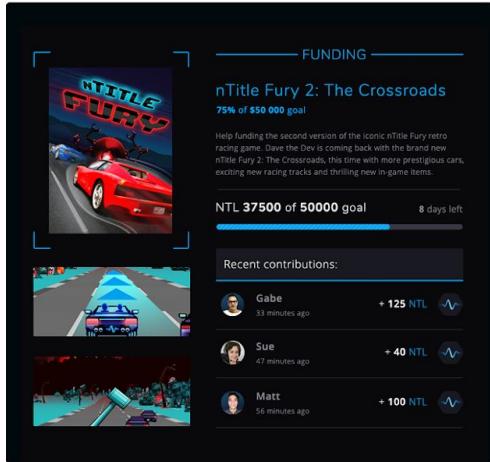
## Case 4 - Funding Games

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### USE CASES

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## 4. Crowdfunding



- 1 Dave the Dev has now earned some decent income via his game and decides to expand his team and start developing a new version of the game. However, he could use some extra money for this big project.
- 2 Dave decides to raise money via nTitle's crowdfunding tools. He sets a goal of 50,000 NTL, and decides what investors will receive depending on the amount they contribute. The rewards vary from limited edition in-game items to the game itself – or packages combining the two.
- 3 Dave knows that he will only receive the NTL if he reaches his goal. If not, all the contributed NTL will automatically be sent back to the contributors' wallets via the nTitle smart contract mechanism.
- 4 Based on data collected via the transparency of the blockchain, Dave can easily find out who his most successful influencers and referrers are. He decides to contact them in order to promote his crowdfunding campaign. They can create a QR code or referral link to bring people in and will receive a set percentage of their contributions.

### 2.2.2 Gamers

nTitle's vision is for gamers to be able to truly own their games, their characters, weapons, and resources. They should be able to trade, sell and buy securely using nTitle instead of building up a profile on marketplaces where they have next to no control over their games and in-game items.

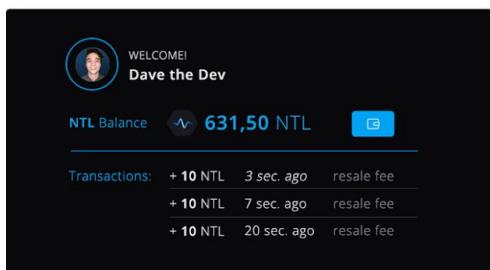
Digital affiliate keys can be coded into the license tokens sold by developers. This will allow gamers and game influencers to earn money, rewards or free games for helping to promote games through forums, social media and group chats. In-game items can also be resold along with its history giving each item the potential for increasing in value depending on its provenance (i.e. over time, the achievements of previous holders could influence the value of an item).

## Case 5 - Reselling a Game

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 USE CASES
 

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## 5. Reselling a Game

- 1 After a year of selling his first game, a successful crowdfunding campaign and a lot more game development, Dave the Dev has finally released his second game, an improved version of his first game. With the release of this new game, Dave decides to allow all gamers who own his first game to resell it; with the only condition that he gets 33% of the proceeds on every resale.
- 2 Gabe the Gamer, who was looking forward to buying the new version of the game, resells the older version to his friend Jason for 30 NTL. Gabe instantly receives 20 NTL, while Dave receives 10 NTL.
- 3 Gabe can now use the money he earned on reselling the old game towards purchasing the latest version of the game at the full price of 60 NTL.
- 4 Dave has acquired a new customer in Jason at no extra marketing cost. He can now focus on optimising his lifetime value.

### 2.2.3 Influencers

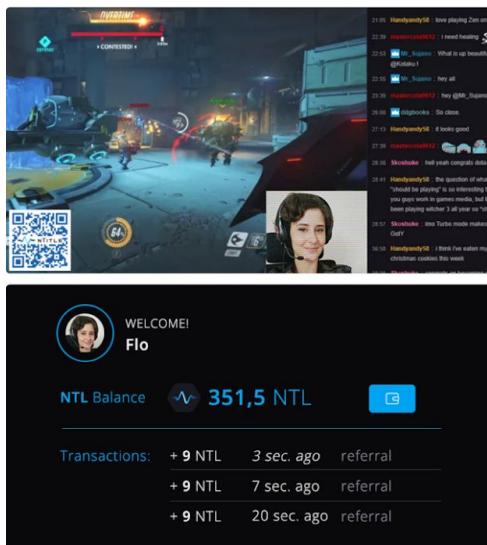
For any given game, skill and expertise are a must. However, being first to play is also very important for influencers. nTitle connects game developers to influencers, and provides a direct and instant revenue channel. Innovative referral and commission structures, set using nTitle's bcommerce solution, means a lower tier influencer has a better chance of becoming a “tier 1” influencer, and a regular gamer is empowered to become a brand advocate and influencer.

## Case 6 - Influencers

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### USE CASES

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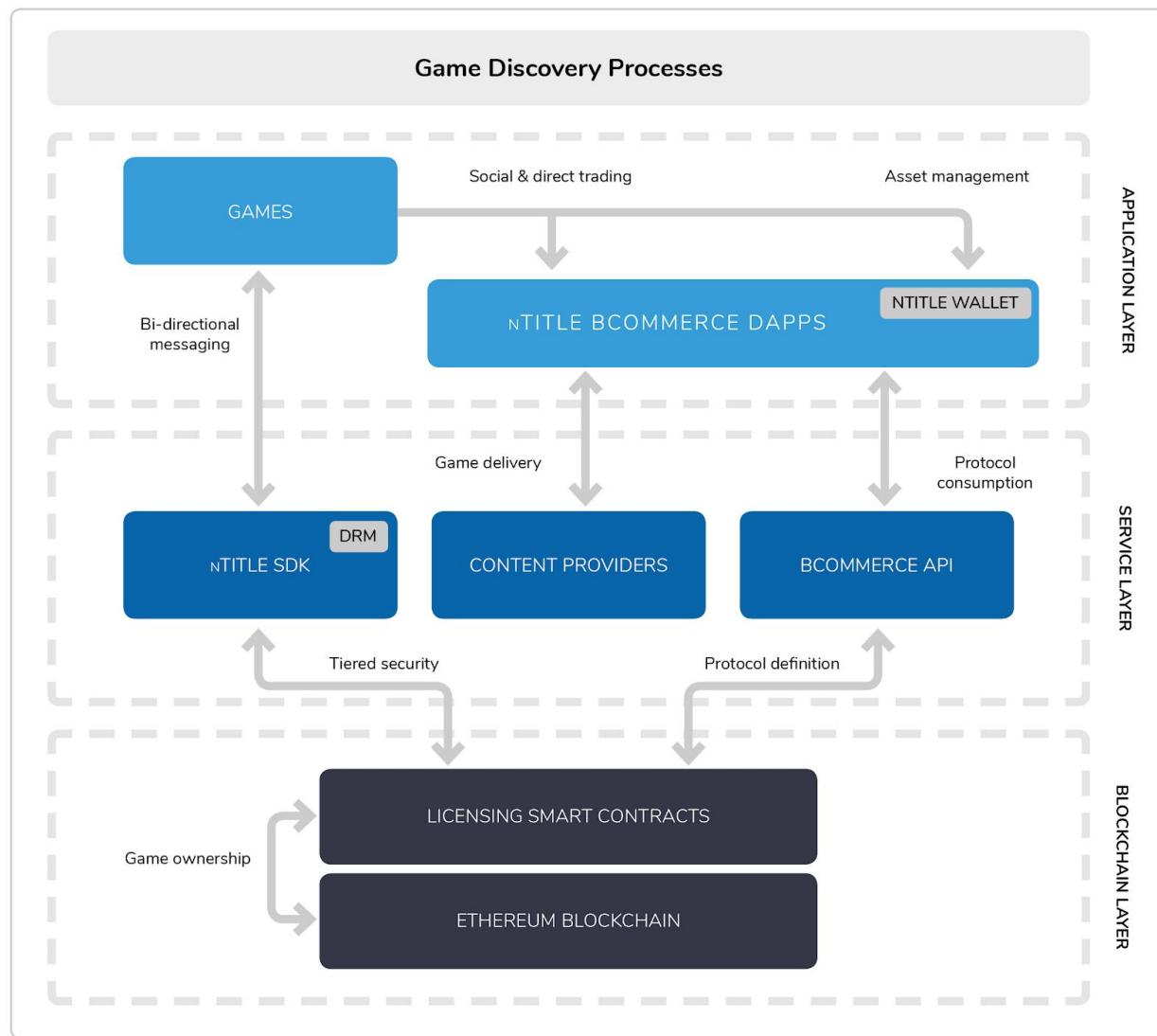
## 6. Influencers

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- 1 Dave the Dev's game gained some popularity and notices Flo the Influencer has picked it up and streams gameplay on Twitch. Dave decides to give Flo some extra incentives to share the game by configuring a 15% commission on sales via nTitle's Twitch Extension.
  - 2 Flo now has a dedicated QR code that appears on screen while streaming. Her thousands of viewers can now buy the game directly and join in on the fun. They'll even get a special discount, or special in-game item via her referral code!
  - 3 Flo sees her NTL balance skyrocketing while she is streaming Dave's game.
  - 4 Dave has now gone from a handful of gamers to thousands of new gamers within a matter of days.
-

### 3. The nTitle Platform

#### 3.1 Architecture



nTitle aims to change the world of gaming by introducing a family of products developed in-house by seasoned software engineers. Our mission is to provide frictionless bcommerce services for game developers, gamers and influencers, allowing them to seamlessly publish, market, and trade digital games between each other – at the same time as stimulating platform growth.

nTitle's architecture is split into three layers:

1. **The blockchain layer** stores digital identifiers of games and in-game items. It imprints them on the digital ledger and maps them to their respective owners. The

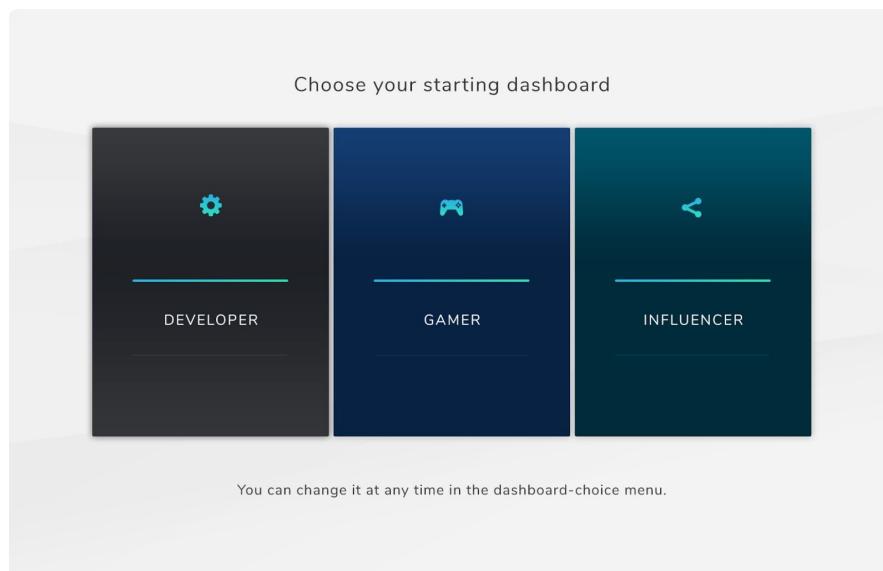
immutable and tamper-proof nature of the blockchain guarantees that no digital asset will change its owner without permission. nTitle selected Ethereum as its blockchain of choice, fully embracing the idea of transparent, decentralized, intermediary-free peer-to-peer trading of digital assets.

2. **The service layer** is made of multiple components that act as middleware to facilitate communication between the game and the blockchain. They also serve (or stream) game data directly to the end users. For game content delivery, nTitle supports external content providers (like nTitle's official partner, Utomik), as well as IPFS – and allows developers to implement their own self-hosting scenarios.
3. **The application layer** contains several user facing bcommerce applications – using nTitle's liquid licensing framework as one coherent decentralized software ecosystem. The DApps allow users to easily publish, manage, sell, or influence all the digital goods that they own. nTitle applications are on the forefront of game discovery which is increasingly driven by rich social interaction.

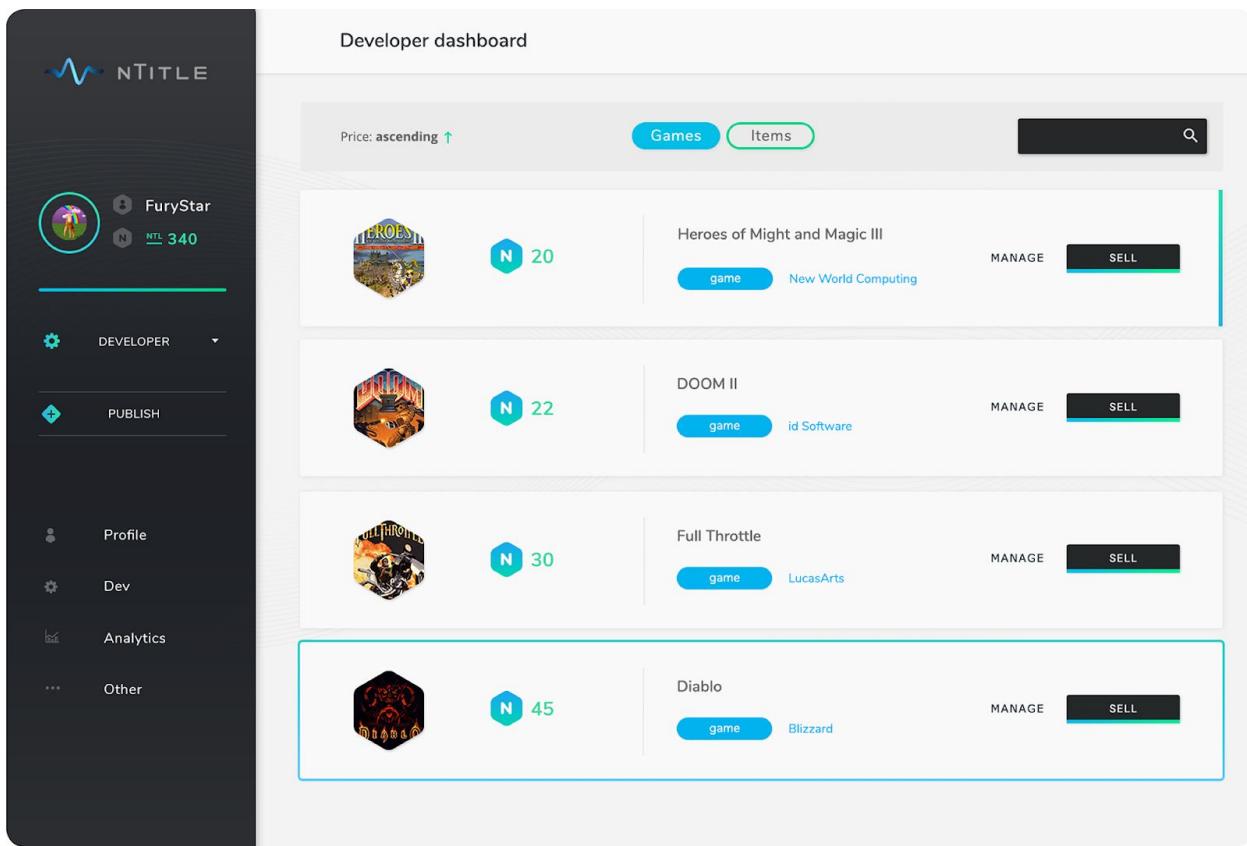
## 3.2 Web DApp

nTitle's web DApp supports three major customer groups: game developers, gamers, and influencers. Game developers list, publish, and sell their games; gamers list and resell games (if permitted to do so by the game developer); and influencers are opinion leaders who share and promote games on various social media channels.

The user must select a profile before entering a digital asset management dashboard. Each profile is connected to an Ethereum address, but it's also possible to switch between profiles from within the dashboard.



### 3.2.1 Game Developer Dashboard

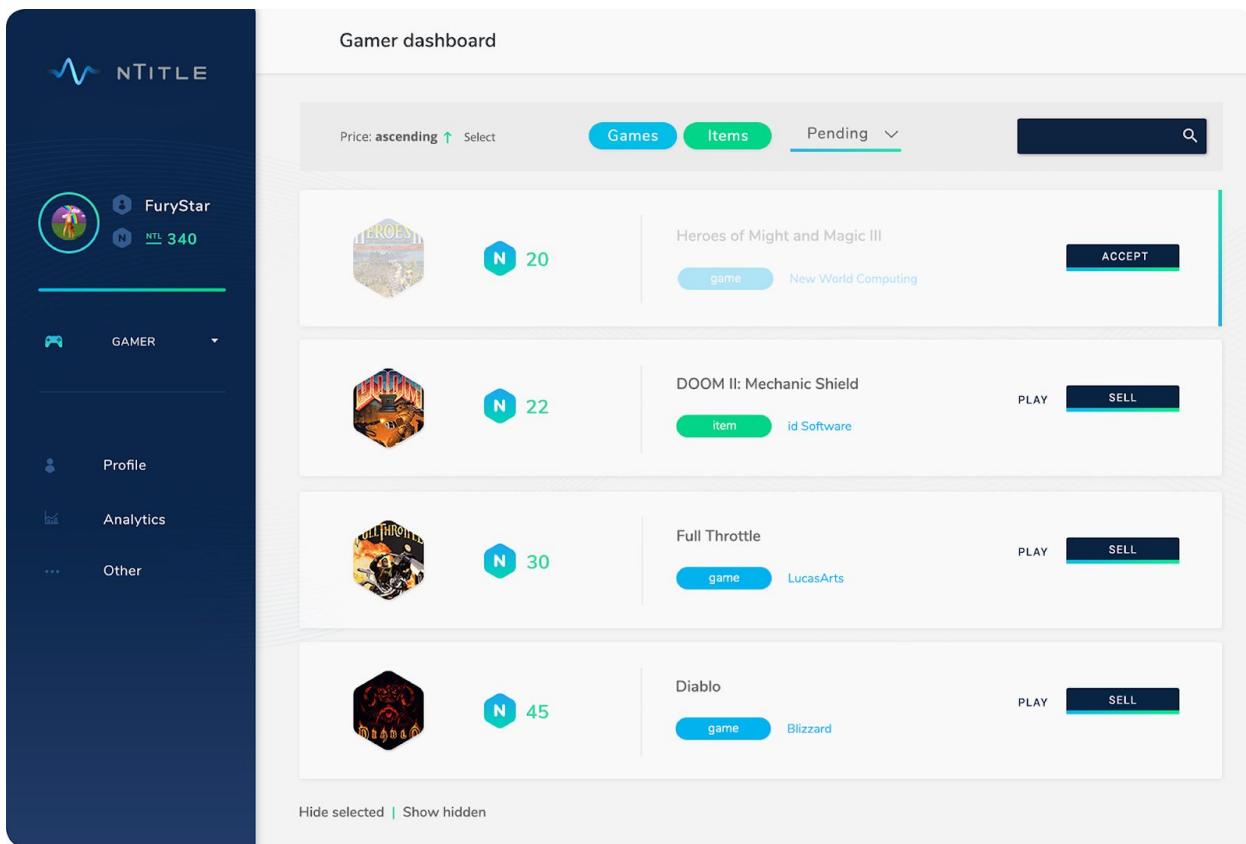


Game	NFT Price	Developer
Heroes of Might and Magic III	20	New World Computing
DOOM II	22	id Software
Full Throttle	30	LucasArts
Diablo	45	Blizzard

Developers can do everything from publish games, configure licensing terms, incentivise gamers and influencers, or sell their game in this dashboard. They can also check the analytics panel and switch to development mode, allowing for platform automation by accepting pre-defined JSON data.

Using the ‘Manage’ action, developers can control owned digital assets – allowing them to freeze or withdraw games; set commission percentages; generate links and QR codes; and easily share games on social media or via emails with gamers and influencers. The game developer also has the option to broadcast the game to influencers for marketing promotion here.

### 3.2.2 Gamer Dashboard

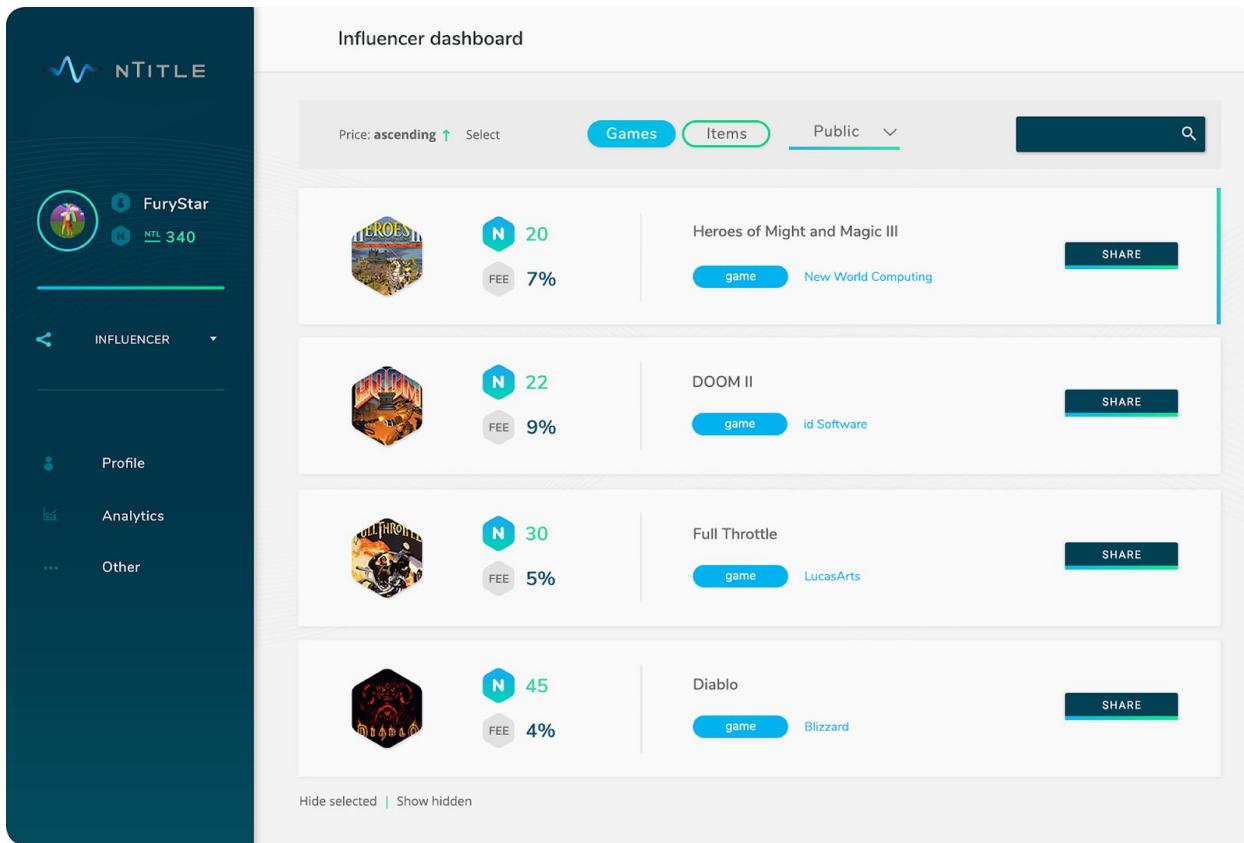


Structured in a very similar way to the others, while the Gamer dashboard doesn't allow users to publish games on nTitle, they can filter and view a list of their owned digital assets; including owned and 'trade pending' games. They can also accept incoming transactions from others, finalise trades, and secure ownership.

The 'Share' button enables users to create referral links and QR codes for sharing via social media and email, while the 'Play' option allows them to begin downloading and playing the game right away.

If a game's licensing terms don't allow it to be directly resold or shared, the sell button is greyed out. If the developer chooses a timed release, this button becomes active within the timeframe set.

### 3.2.3 Influencer Dashboard



The screenshot displays the Influencer dashboard interface. On the left, a sidebar shows the influencer profile "FuryStar" with 340 NTL. The main area is titled "Influencer dashboard" and features a search bar with filters for "Price: ascending ↑ Select", "Games", "Items", and "Public". Below this, four game promotions are listed:

- Heroes of Might and Magic III** (N 20, FEE 7%)
- DOOM II** (N 22, FEE 9%)
- Full Throttle** (N 30, FEE 5%)
- Diablo** (N 45, FEE 4%)

Each promotion includes a "game" button, developer information (e.g., New World Computing, id Software, LucasArts, Blizzard), and a "SHARE" button.

Influencers have access to a range of features in this dashboard. They can search games by type, release date, number of players, and can select if the games they're promoting originate from public or private marketing deals. They're also able to contact developers directly for special deals and offers, and can see the commission percentage that's available for each game – particularly useful for private deals in which revenue sharing can be personalised.

In the same way as developers and gamers, influencers can share games on various social media channels and emails, using URL links and QR codes. One thing to be aware of – an influencer cannot promote games they directly own. They can also hide suggestions to promote or share games from both public and private deals.

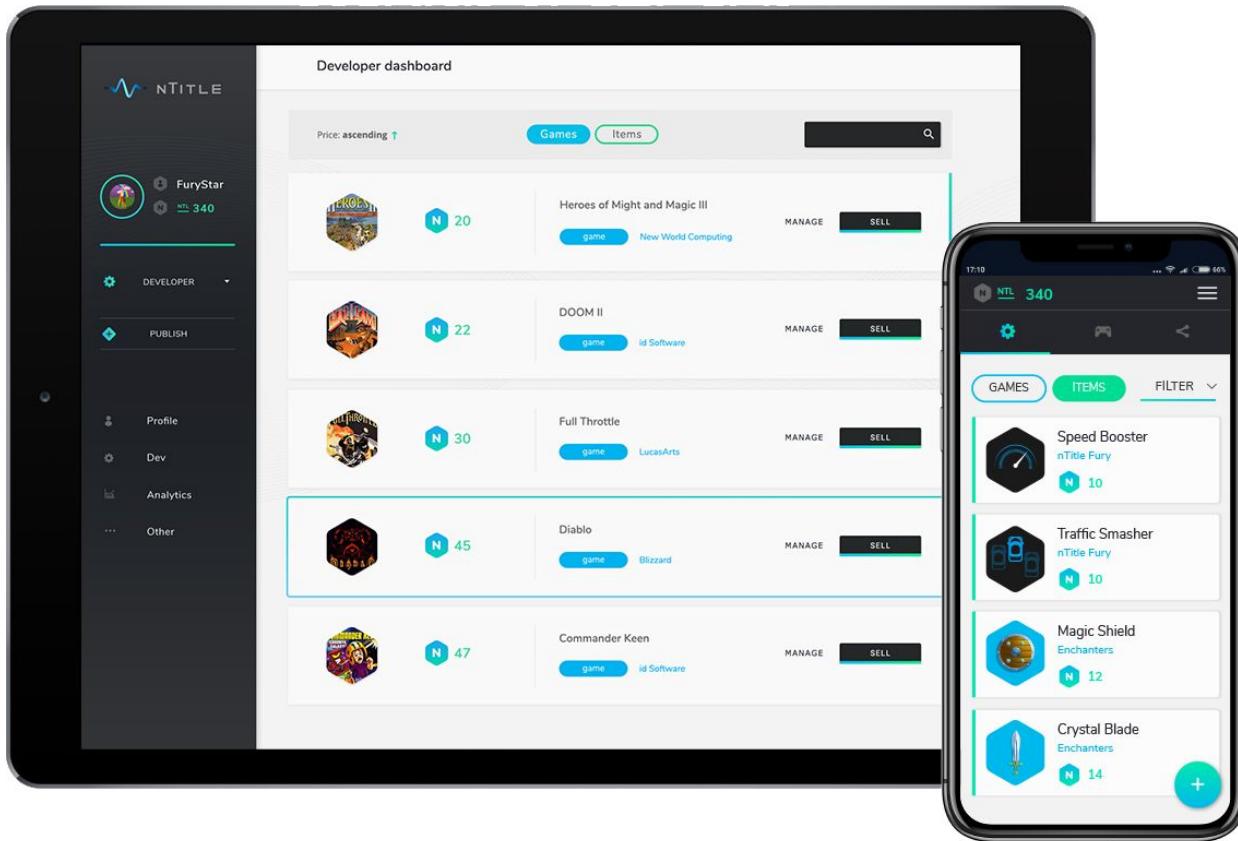
### 3.2.4 Analytics Dashboard

nTitle will display analytics for each of its users. The following is an example of game developer-oriented analytics:



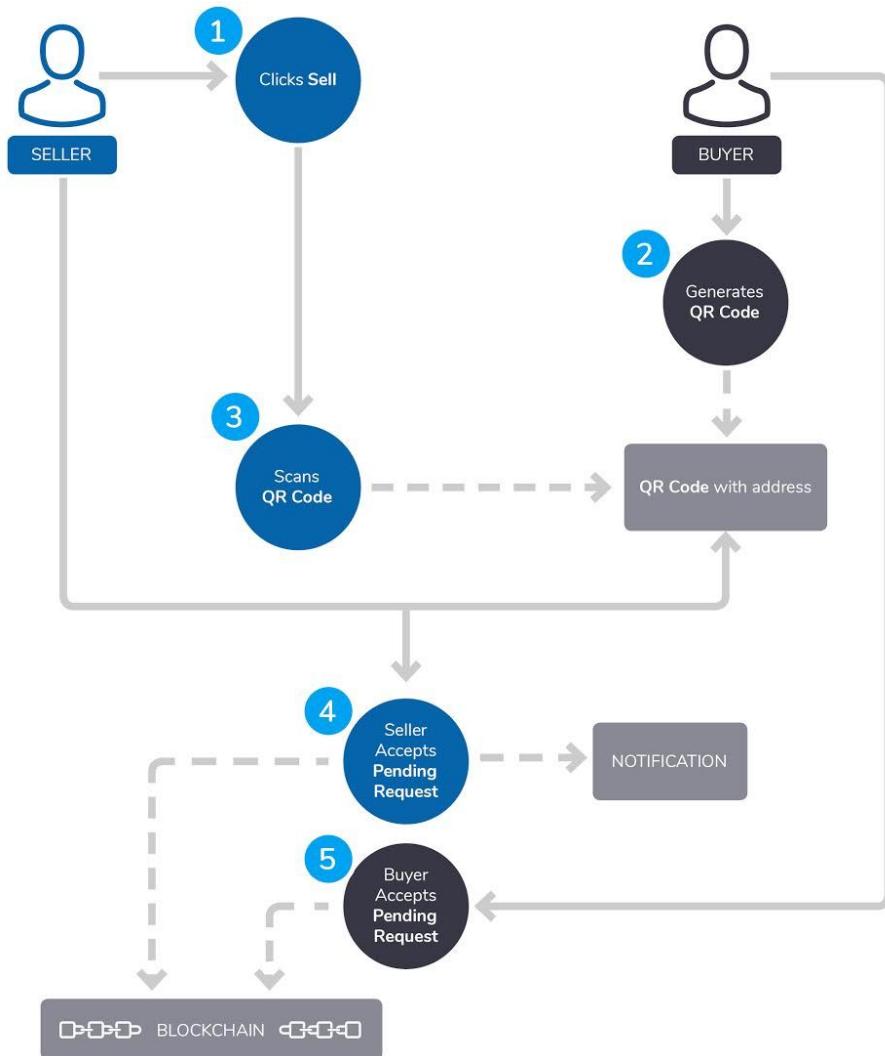
nTitle's Analytics screen is visible to all users. Similar to the other dashboards, on the left side of the screen, users can see their user avatar, Ethereum address, and NTL account balance. The main area shows several key statistics in real time: the Number of Transactions Per Game; the Number of Transactions Over Time; and Overall Platform Usage. We plan to add more data in the future.

### 3.3 Mobile DApp



nTitle's mobile DApp enables bcommerce for gaming on iOS and Android mobile devices. It mimics the functionality of nTitle's web service, but also aims to provide the convenience of social trading: allowing games and in-game items to be traded directly between peers using mobile devices working in close proximity to each other (for example, at technical conferences, gaming oriented events, parties, or meetings).

### 3.3.1 Social Trading



To initiate a direct trade, nTitle users can derive QR-code for every game and in-game item they own. The simplified process is as follows:

- ① In the nTitle mobile DApp, the game seller selects the game or in-game item from the list and clicks the 'Sell' button.
- ② The game buyer presents the QR-code from their Ethereum address.
- ③ The seller scans the buyer's QR-code using the mobile DApp's built-in scan functionality.
- ④ ⑤ Both seller and buyer are prompted to accept the pending transaction. By doing so, they finalise the trade.

The blockchain is updated with the transaction outcome and ownership is mapped to the buyer's Ethereum address.

## 3.4 The nTitle SDK

nTitle aims to cover all of the licensing needs of the market, starting from independent game developers all the way to triple-AAA game development studios. Offering a full spectrum of services requires an innovative approach to securing digital assets, which nTitle aims to provide with its open-source software development kit – which is compatible with all market-leading game development engines.

nTitle's SDK uses off-chain wrappers for license validation and license state management. Both new and existing games can be wrapped in a custom logic layer that performs on-chain license validation.

The process to validate a license takes three essential steps:

1. Authenticate gamer
2. Validate if the gamer is allowed to play the game (\*is *entitled* to the game license).
3. Validate whether the developer has authorised the game license for the gamer (\*for higher security tiers only).

### 3.4.1 Tiered Security

Once a game is published on nTitle's platform, game developers can select one of four available security tiers. These tiers are presented in order of increasing security against game license violations – and aim to cover all of licensing needs of the market.

1. **DRM-free.** It offers proof-of-ownership functionality to imprint gamers licensing rights on the blockchain. No license check is performed by the game and there is no requirement for the license to be authorised by the game developer.
2. **License registry + license check.** Same as the first option, but additionally the game (wrapped in nTitle SDK) performs an on-chain license check in order to validate gamers' *entitlements* checking their allowances to play the game.
3. **License registry + license check + game developer's authorisation.** As per the second option, but the game developer is also obliged to authorise the license on-chain. This is a defence mechanism against spoofing attacks and a secure way to verify whether a given blockchain record is valid.
4. **License registry + license check + expiring game developer's authorisation.** Similar to the third option, but additionally a game developer's authorisation expires and must be regularly re-authorised. nTitle will introduce daemons working on game developer's behalf. This strengthened solution provides additional defence against spoofing attacks for games that have transferred ownership.

## 3.5 Smart Contracts

Smart contracts are Turing-complete scripts executed at the same time on all blockchain network nodes. They help align the interests of the gamer and game developer by removing any insecurity or uncertainty from each transaction. These agreements are

executed on the blockchain, secured by state-of-the-art cryptography, and validated by network participants. nTitle smart contracts are robust options for instant payouts and revenue sharing options between two or more parties – and completely eliminate the need for intermediaries.

The main strength of the licensing smart contracts lies in the flexibility it provides to the game developer. Here are just a few examples of the functionalities offered:

The nTitle smart contract...

- Stores a list of associated game/in-game item identifiers that are mapped to respective owners
- Allows new games/in-game items to be published together with configurable licensing terms
- Supports a limited and unlimited supply of licenses
- Allows games/in-game items to be resold
- Allows games/in-game items to be gifted
- Allow licenses to be revoked and refunded
- Allows pending transactions to be accepted or declined by the buyer
- Supports revenue distribution ratios together with accounts to distribute to
- Supports conditions of transfer and resale – such as sell-by dates or timed purchases
- Stores an optional license expiration time
- Incorporates metadata like URLs into a game's physical files

All Ethereum smart contracts are recorded on the blockchain, and the ledger records each contract's current state.

## 3.6 Content Delivery

After a successful seller-buyer transaction, every major publishing platform needs a way to issue game files to the new owner. nTitle is no different here. In fact it enhances game download mechanics – giving gamers and game developers more ways to access content. For game developers, the platform provides three ways to host the game files: IPFS, Utomik, or self-hosting.

### 3.6.1 IPFS

IPFS (InterPlanetary File System) is a peer-to-peer, distributed file system that binds a network of computing devices together in order to create a single, coherent filesystem. IPFS allows files to be stored, managed, and versioned over time in a decentralized network of computer nodes. nTitle's platform, through its user-friendly interface, bridges directly into the IPFS network, allowing developers to easily store their files on a peer-to-peer, bittorrent-like network – one that competes with traditional cloud-based content delivery solutions.

### 3.6.2 Utomik

nTitle is an official partner of Utomik. Utomik runs a subscription-based service with more than 1,000 available games. Their platform runs games from some of the biggest brands in the industry: including Sega, Ubisoft, Epic, Warner Brothers, Disney and many others. Their patented technology provides gamers with a unique way of experiencing each game almost instantly – while the game is being downloaded.

### 3.6.3 Self-hosting

nTitle supports interface for the game developers to self-host game files, for example on platforms like Amazon AWS EC1. This option requires a valid URL that points to the game files and provides a means to manage them, which is required for patching, versioning and bundling.

## 4. Market Opportunity

The gaming market consists of mobile & tablet, PC and console gaming. Games can be categorised between Pay-to-Play (P2P) games and Free-to-Play (F2P) games, both with different characteristics in their revenue models. Over the years a shift has taken place from P2P towards F2P games, principally due to the ever-increasing number of games being released. In 2017 it is estimated that the F2P category of games captured 75% of the revenue share.

### 4.1 Size of the Gaming Market

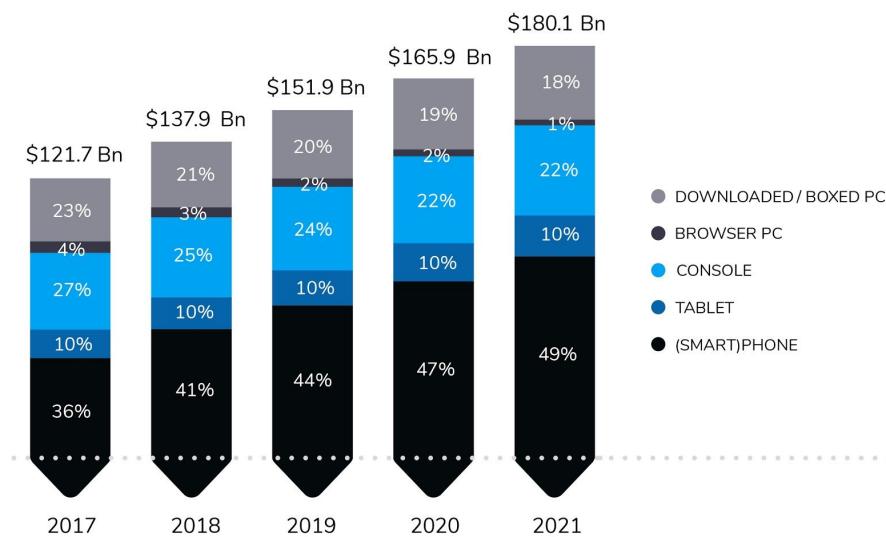
With around 2.3 billion gamers worldwide<sup>4</sup> and USD \$121.7 billion in revenue<sup>5</sup>, gaming represent the biggest entertainment industry in the world. It is only expected to grow, with experts projecting it to exceed USD \$165.9 billion in annual volume by 2020.

<sup>4</sup> <https://mygaming.co.za/news/features/89913-there-are-1-8-billion-gamers-in-the-world-and-pc-gaming-dominates-the-market.html>

<sup>5</sup> <https://newzoo.com/insights/articles/global-games-market-reaches-137-9-billion-in-2018-mobile-games-take-half/>

## SEGMENT BREAKDOWN OF GLOBAL GAMES REVENUES

TOWARD 2021



Source: Newzoo | April 2018 Quarterly Update

## 4.2 nTitle's Primary Market

nTitle will focus on the PC games market for both F2P and P2P. Our technology works for both the game and in-game item licences. nTitle will focus initially on boxed/downloaded PC Games (\$28.6 bn) and Browser PC Games (\$4.3 bn). With our solution, game developers can circumvent Steam completely, increasing their potential income by up to 30%. Steam dominates the PC game market and had a yearly revenue of \$4.3bn<sup>6</sup> over 2017.

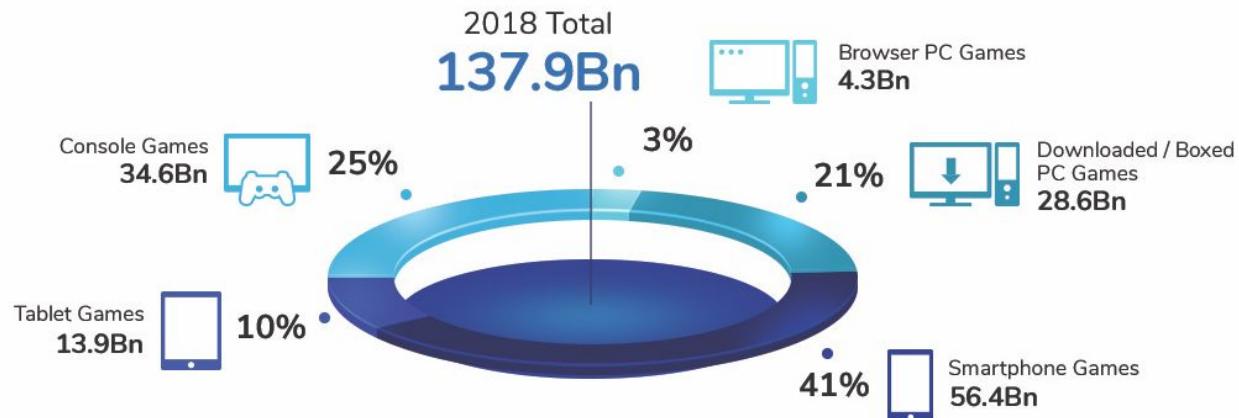
nTitle's software also makes game and in-game trade a reality. This market is currently estimated at \$2 bn<sup>7</sup>. The bcommerce solution has huge potential to grow this revenue stream for game developers.

<sup>6</sup> [https://twvideo01.ubm-us.net/o1/vault/gdc2018/presentations/Steam\\_in\\_2017.pdf](https://twvideo01.ubm-us.net/o1/vault/gdc2018/presentations/Steam_in_2017.pdf)

<sup>7</sup>

<https://www.forbes.com/sites/maggiemcgrath/2014/03/18/gamestop-sinking-as-wal-mart-targets-2-billion-video-game-trade-in-business/#37bc425d4114>

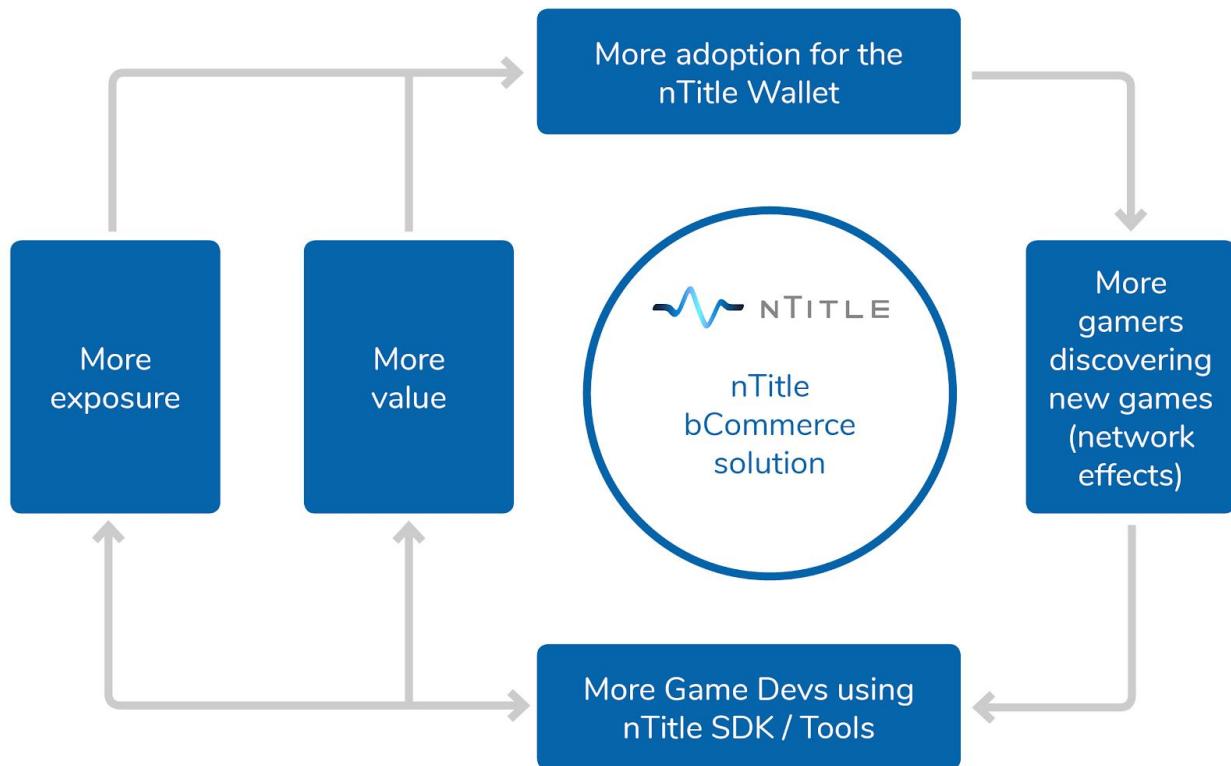
## 2018 Global Games Market REVENUES PER SEGMENT (USD \$)



Source: Newzoo | April 2018 Quarterly Update

## 5. Go To Market

### 5.1 The nTitle Flywheel



As game developers create games connected to the blockchain via nTitle SDKs, they realise more exposure through community and influencer marketing, and achieve higher returns on games and in-game assets sold and traded. Gamers are incentivised to adopt the nTitle wallet - they can earn instantly through referrals and commissions, and have a tradeable value for their games and in-game assets. The network effect of wallet adoption will lead to more gamers discovering and playing more games. This in turn will fuel further adoption of the nTitle SDKs by game developers.

The two drivers identified for sustainable growth are:

**1. More value**

- a. Game developers will earn up to 30% more and reap new revenue streams from the trading markets of games and in-game items.
- b. For the gamer, games and in-game assets now have tradeable value
- c. Connecting games to the blockchain brings new and innovative game economies and ultimately better gaming experiences.

**2. More exposure**

- a. Gamers are incentivised and rewarded for promoting their games using social media.
- b. Influencers are empowered through direct and instant revenue channels integrated with streaming sites.

For nTitle there are two key barriers of adoption. For the game developer, it is the SDK adoption to connect their games to the blockchain. For the consumer (the gamer), it is the adoption of the nTitle wallet. So how is nTitle going to overcome these barriers?

## 5.2 Onboarding Game Developers

To drive the onboarding of game developers, nTitle has introduced the independent game developer program – the objective is to back innovation in game development and support projects that would benefit the most from the blockchain. It gives game developers the means to access the bcommerce market and kick start growth and adoption in the nTitle project.

The funds will be used to develop the game itself, to assist with nTitle SDK integration and testing and for incentive purposes for the gamers playing the game. This means that there will be several independent “III” games launched in Q1 2019 using the nTitle bcommerce solution.

Following the ICO, in Q1 2019, nTitle will introduce a game development accelerator program funded by the NTL tokens held in the company reserve. These will be locked up for a minimum of one year and be released to fund blockchain games when they reach their development milestones.

The development of the nTitle SDKs supporting the Unreal, Unity, Godot, Lumberyard HTML5 engines will be complete, tested and certified by Q4 2018. Partnerships with game engines will be finalised so that the nTitle SDKs can be published in their asset stores or for technology development projects.

We have allocated a portion of the supply of tokens to form strategic partnerships in the gaming industry that suits well to the ecosystem, including game associations, game incubators, game porters & adaptors and middleware companies.

## 5.3 Onboarding Gamers

New games sponsored by the independent game developer fund will be sold exclusively using nTitle's bcommerce solution. This will drive initial adoption of the nTitle wallet by gamers.

A referral program will allow gamers to earn every time a referee purchases in the nTitle wallet. The referral program will be piloted with initial games released using nTitle's bcommerce software, giving the game developers full control over the percentages that gamers can earn through referrals. All referrals will be trustlessly recorded, calculated and disbursed using smart contract technology.

Gamers can also take part to earn. This will be in the form of participation in betas, reporting bugs, reviewing games, and incentive schemes – such as sharing content on social media.

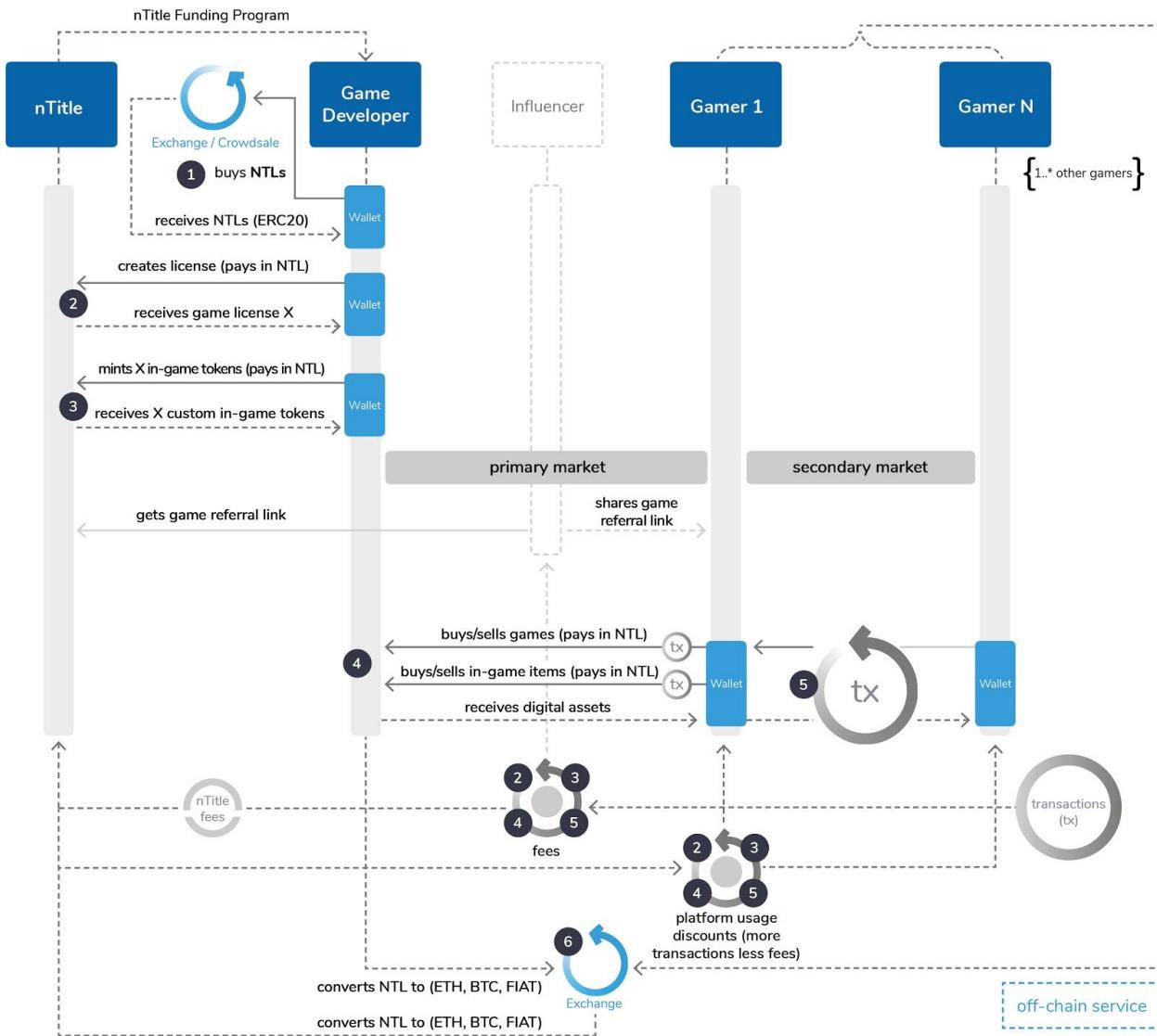
# 6. Token Model

## 6.1 Token Overview

NTL, the token used in the nTitle ecosystem, is a fully ERC-20 compliant: a freely exchangeable token issued on top of the Ethereum blockchain network. NTL is used to drive smart contract mechanics at the protocol level, and also as a payment for digital goods stored on the platform, acting as a pure medium of exchange.

At its core, nTitle supports the creation and trading of digital game licenses and factorised in-game items. In order to initiate these operations and start trading on the platform, the platform user needs to obtain NTL tokens. The only way NTL tokens can be obtained is through nTitle's crowdsale, an exchange or bought through an OTC market.

## 6.2 NTL Token Use Case



A game developer can publish his games on the nTitle platform and derive licenses which he can later sell on the primary market. He can also “mint” in-game items and credits for each of his games; in both cases payment is issued in NTL. Every transaction by the game developer incurs a small fee that is paid straight to nTitle.

As the gamer is allowed to resell game and in-game items he owns, the creation of a dynamic and robust secondary market is established. The game developer pre-configures the licensing terms which ultimately influences the market behaviour for each sequential trade. Every transaction by the gamer on the secondary market also incurs a small fee that is paid straight to nTitle and to the game developer.

## 6.3 The Token Economy

### 6.3.1 Licenses and In-game Tokens

#### Licences

Game licenses are sold in NTL. The purchaser (game developer, creator or publisher) submits NTL to the “token factory”, which mints the license token, and then sends the NTL (minus a small fee) to the game developer. The game developer has the choice of when the NTL is exchanged to ETH and then to fiat. If the developer wants to sell the game at a fixed price in ETH, the factory token will query the NTL token contract for how many NTL will be required. If everything is done in fiat, nTitle will automatically convert to ETH and then to NTL and back. In the beginning, this will be done using a 3rd party exchange API with the goal of implementing nTitle’s proprietary conversion tool.

#### In-game tokens & credits

Game tokens are created by a generated application license token contract. In-game purchases can be in an application-specific currency. Developers can sell items for currency and redeem for ETH or fiat.

In-game purchases can likewise either be pegged to fiat, or better, priced in the currency of the game, and the in-game token would operate like NTL as a market maker. In this case, the developer can sell in-game items, while taking a small fee from all in-game transactions.

### 6.3.2 Liquidity Between Custom Tokens

Our token factory mints custom tokens per client. These tokens might not always be tradable right away. As gamers obtain these tokens and want to trade them they will need two things:

1. To be able to trade the in-game item for a liquid cryptocurrency that can be used to buy other games and/or in-game items or can be converted back into ETH/BTC and eventually into fiat.
2. A transparent market where prices for different items are compared in one cryptocurrency: e.g. where Item A costs 0,5 NTL, Item B costs 1 NTL.

### 6.3.3 Crowdfunding of Rewards

nTitle will also offer a ‘game crowdfunding’ smart contract. For any game developer that wants to introduce a new game that’s currently in development onto the platform, they will have to submit a proposal, which will include information about the game, the specific period of time during which the crowdfunding offer will be available and also the minimum amount of NTL they want to have staked in order to join the platform. NTL

holders that want that game to be developed and introduced on to the platform will be able to stake NTL using the smart contract during the developers crowdfunding event. If the minimum amount is not raised, the NTL is returned to the original holder. If the crowdsale is successful, the NTL is given to the game developer. The stakers will be able to use the NTL toward the price of the game, at a price set by the developer.

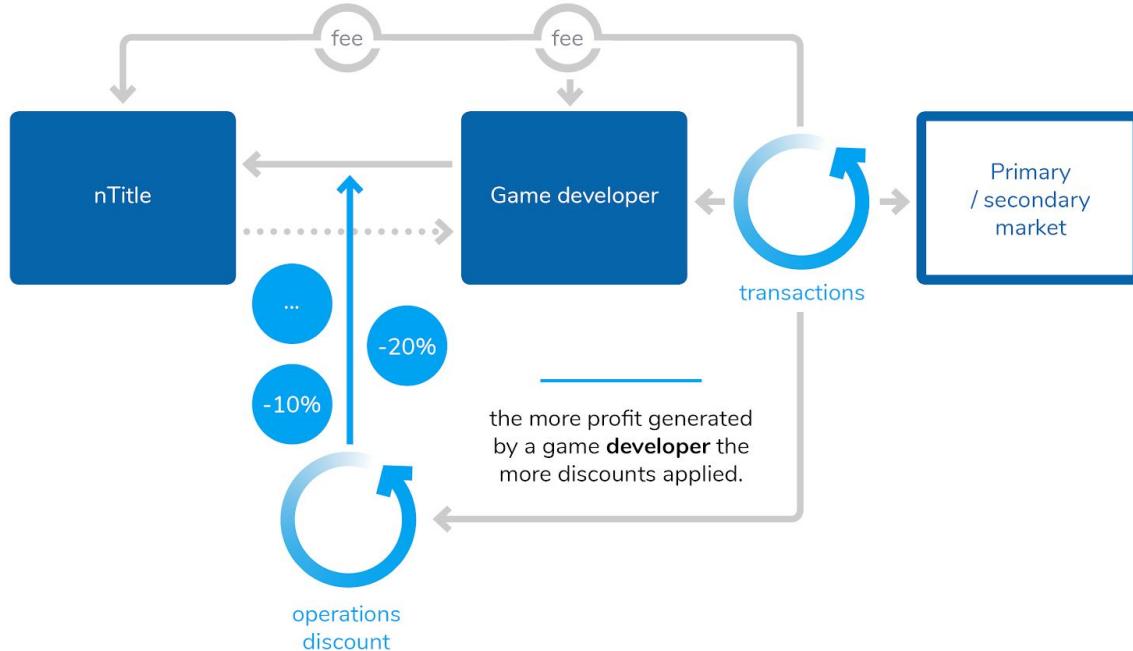
Functioning like well established crowdfunding for-rewards platforms, the crowdsale also allows the game developer to offer extra rewards against NTL, including but not limited to early access to the game during its development, in-game items and/or in-game perks (potentially exclusively available during the crowdsale period), exclusive backstage access to the game development process. The game developer will freely define the options available based on the nature of its game and can allow these rewards to be traded on the platform.

### 6.3.4 Platform Discounts

Both the game developer and the gamer can have various discounts applied to their activities on the platform.

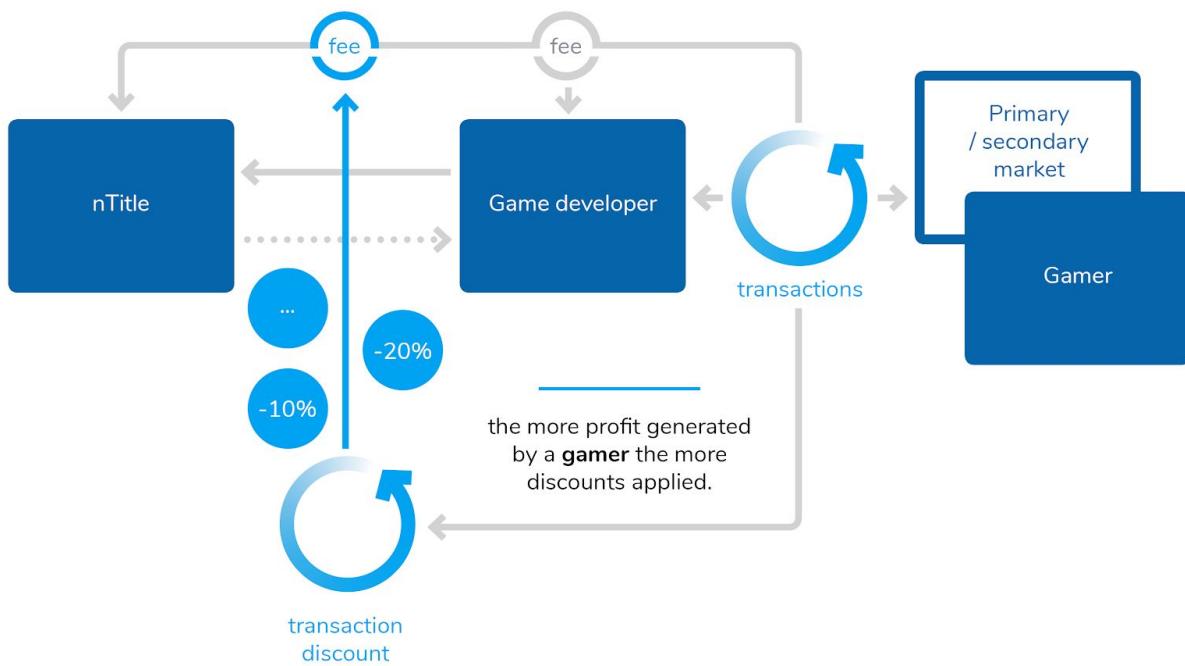
#### Game Developer: Discount on license/in-game items creation

The discount is derived from the trade activity of a game developer's license and in-game items on the primary and secondary markets, as per the diagram below:

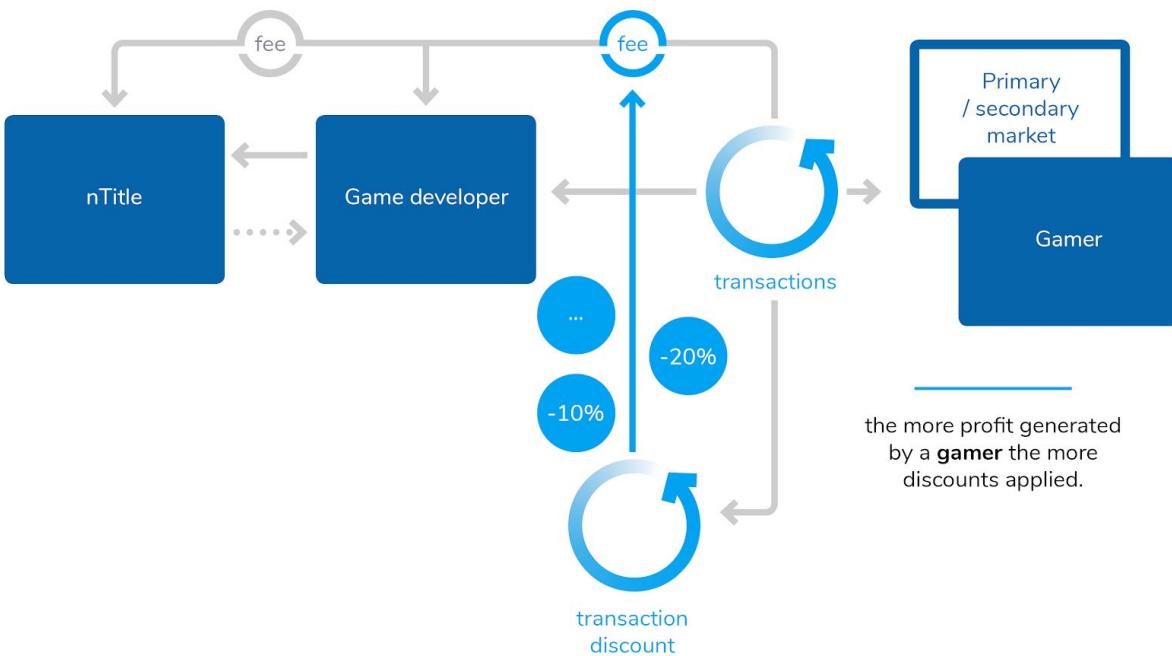


## Gamer: Discounts on trading of license/in-game items

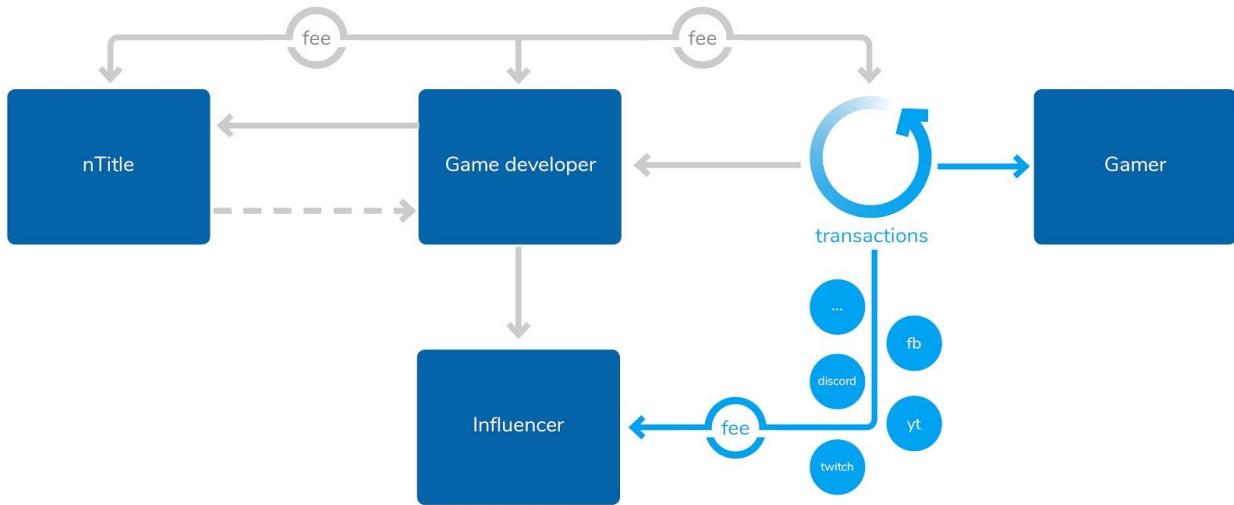
Discounts offered by nTitle are generated by gamer activity on the entire platform (by trading assets from every developer), and are configurable by nTitle, as per the diagram below:



Discounts offered by the game developer are generated by gamer activity on the platform (by trading assets from a specific game developer), and are configurable by the game developer, as per the diagram below:



## Influencer: Direct earnings from fees



The rule here is simple – the more transactions, the lower the fees for all parties involved in the trade.

## 6.4 nTitle Scaling Solution

nTitle have partnered up with [Parsec Labs](#) to launch the first ever smart-contract capable Plasma chain. Parsec Labs built the first decentralized poker platform live on the Ethereum blockchain and also a world's first real-time decentralized application. As any team working on an end-user facing Dapp, they found out they needed a scaling solution first and focused their research attention on building a Plasma chain capable of processing smart contracts. For this effort, they were [awarded a grant](#) from the Ethereum foundation. nTitle-supported games will go live on a dedicated plasma chain, secured by the Ethereum network. It uses proof-of-stake for consensus - a distributed way to run the chain. Security is guaranteed by the Plasma protocol design: the user can withdraw tokens and in-game items (non-fungible tokens) to the Ethereum main chain.

Similar to gas in Ethereum, the NTL token will be used to pay transaction fees on the nTitle plasma side chain. Ntitle and Parsec will kickstart the Plasma chain, but any independent validator can participate in the network. The NTL token can be viewed as stake in an ecosystem that can develop into completely decentralised that can live on independent from the nTitle legal entity.

## 7. Team and Advisors

### 7.1 Background

The nTitle project started in August 2017 and was born out of Connaxis, a digital agency established over 10 years ago with offices in Europe, North America and South America. It was founded by Peter van Grinsven, Managing Director & Founder of Connaxis and CEO of nTitle.

Connaxis has built a successful team of digital professionals who provide a full stack of services including ecommerce strategy, webshop design and development, email marketing, social media marketing and conversion rate optimisation. It has successfully launched previous digital platforms such as Expatica, the largest online expatriate platform, and Guerra Creativa, the second largest online marketplace for design services.

Connaxis has also established a sub-division of the agency, Connaxis Blockchain Solutions, which delivers expertise for many blockchain and smart contract projects, the most notable project being the MakerDAO project.

### 7.2 The Team



**Peter van Grinsven, CEO**

Peter is a serial entrepreneur. After receiving his Masters Degree from Maastricht University, he started at PWC as an internet business consultant. He has launched several successful platforms including Expatica and Guerra Creativa. His company, Connaxis, which has offices in 6 locations, creates magical new experiences via innovative technologies. Connaxis has focused on blockchain technologies since 2015.



**Freddy Bucknell, COO**

Freddy is a Chartered Accountant of the Institute of Chartered Accountants of England and Wales. The majority of his career so far has been at Deloitte LLP. He has worked in the UK Financial Services Audit and Advisory team and led engagements for a range of clients in banking, insurance and asset finance. He has also worked as a Manager in the Banking & Capital Markets Division in London, leading engagements for FTSE 250 clients.



**Marcin Gierlak, CTO**

Marcin has a strong background in software engineering, formerly working at IBM and HID Global, including cloud, mobile platforms, cryptography and security, system level programming, and systems development life cycle. He has experience in developing and implementing concepts and technologies for IoT, hands-on experience with Ethereum/Solidity, blockchain technologies, distributed ledger, cryptocurrencies and Smart Contracts.

**Bas van Oostveen, Blockchain Lead**

Bas is a blockchain expert that mined his first Bitcoin in 2010. With over 20 years of IT experience in security and open source software, he has created engineering departments, lead architecture design, development & management of several high volume internet and security platforms. These include real-time trading, digital media platforms with over 9,000 websites, sustaining traffic of over 4gbit/s, combining micropayments, credit-card handling and fraud detection/prevention.

**Victor Kashirin, UX/Front End**

Victor's range of professional interests includes front-end development, UX and UI design, data analytics and visualisation. He has experience in doing academic research, developing enterprise applications for large corporations as well as helping to shape environmental agendas through research, data preparation and presentation. On the front-end side, he is most curious about making blockchain-enabled applications accessible, intuitive and reliable.



**Szymon Bury, Mobile/Web Developer**

Szymon is a front-end developer, with significant experience in hybrid mobile development and well-grounded aspirations for full stack development. He is a former mobile and web developer at Phenomaly and IT specialist at Unima 2000. Recently he stepped into the world of digital ledgers, mastering techniques around React, Ionic and web3.js driven development of decentralised applications.

**Vincent Bonhomme, Business Development**

Vince has over 11 years experience in the game industry, starting out in quality assurance, with four years as a localisation manager and three years as a General Manager. He resides in Tokyo, Japan, and now manages the Asia region for ExeQuo and Lionbridge Game Services. He has worked on 100+ titles including dozens of AAA games. He is also the co-founder of Tabletop Pixel, an indie studio based in Tokyo that creates HTML5 and Unity games.

**Marlena Pawlukowska, Web Developer**

Marlena gained extensive experience in web development and digital marketing at several leading digital agencies. She has an eye for good design and a meticulous attention to quality and detail and is addicted to following the newest trends and searching for smart solutions. Her work is driven by a conviction that only from a well-balanced mixture of tech, design and creativity can you craft digital experiences that people fall in love with.



**Guido Hakkenberg, Community Manager**

Guido is a multicultural former Business & Innovation graduate whose passion for technology innovation has led him to the world of blockchain and cryptocurrencies. He has experience in social media and community management having previously worked on several clients of the specialised social media solutions agency Cirlad. He speaks fluent English, French and Dutch, and has a conversational level of Japanese.

**Anna Walo Nowakowska, Graphic Designer**

Anna is a graphic designer with a comprehensive skill set who values high quality design and attention to detail. She graduated from the Academy of Fine Arts in 2012 and has over 10 years of experience in brand design, packaging and web design. She accepts no half-measures and demands high standards from herself and those around her. Anna tends to geek out over brand design and typography.

**Enver Altuntas, Marketing Manager**

Enver has significant experience in digital marketing, working as a private marketing consultant and leading several marketing teams. He has worked for a number of companies, from startups to large multinationals, to digitize their marketing operations and grow online. He is an avid gamer for over 15 years and in the crypto-world for some time now. He is combining his passion for marketing, gaming and crypto all at once at nTitle.



**Edward Hewett, Marketing & Communications**

Edward brings a wealth of experience after 10 years in motorsport, having won 3 F1 World Championships and worked in Marketing, Brand Representation and Product Development for the likes of Alpinestars and RedBull Racing. He is a long term and active member of the crypto community, as both an investor and ICO researcher. He has a great passion and strong belief in the positive effects that Blockchain technology can bring.



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## 7.3 Advisors

**Gavin Nicol - CTO, Context Labs**

Gavin has been a technology leader and innovator for 25+ years working at research centres, startups and corporations in Japan, US and Netherlands. A founding member of the World Wide Web Consortium (W3C), he played a significant role in the development and prototype implementation of the HTML, HTTP, XML, XSL, DOM, XPath, SVG, XQuery and XLink standards. He has influenced many of the technologies underlying the modern web and is considered "the father of I18N on the WWW".

**Anthony Eufemio - CTO, DigixDAO**

Anthony is a 19 year veteran of the software development, computer security, and IT industries. He is the Chief Technology Officer and Co-Founder of Digix Global, the world's first smart asset company and performed the first ever fully on-chain Ethereum crowdsale. As an early adopter and contributor in the Ethereum ecosystem, he sent the first ever live Ethereum transaction, deployed the first 'dummy' contract and developed several open source Ethereum tools and libraries.



**Gareth Lewis - Solidity Expert**

Gareth is the Head of Technology for Poland and Eastern Europe at a top-tier investment bank. He is an experienced leader in FinTech with expertise in blockchain research and emerging financial technologies. In May 2018, Gareth was awarded a grant from the Ethereum Foundation to develop his project on the Ethereum blockchain (a cryptowallet incorporating smart contract custody).

**Michael Widjaja - Managing Director, Accenture**

Michael is a retired Accenture Partner and acted as Chief Executive of the Technology Architecture Consulting Practice for Latin America as well as Global Head of Application Security Technology Practice, working with global clients throughout Latin America, Europe, United States and Asia. He was responsible for delivering, managing and selling IT programs of complex software solutions.

**Reinout te Brake - Managing Partner, GWC Investments**

Reinout is well known in the international gaming business - publishers, developers, entrepreneurs and CEOs of large corporations seek his advice on technical, operational, strategic and commercial matters. His company GWC Investments is a consultancy and (seed) investment firm offering online gaming expertise within the gaming industry. It consists of a team of highly experienced gaming professionals and industry veterans in the field of Esports, iGaming and (mobile) gaming.



**Richard van Barneveld - Strategic Director, Utomik Inc.**

Richard's areas of expertise include strategic business planning, corporate business development and fundraising for tech startups. He is the Strategic Director and Founder of Utomik Inc., a game subscription service with partners from Disney, Take2, Ubisoft, Warner and more. Prior to that he was Strategic Director at Kalydo, which powers games for game publishers & developers from companies that include The Cartoon Network (Turner), Gungho, Gameforge, COG, Chiyu, Gamigo and Gravity.

