8 CIRCUIT STUDIOS

Leveling-Up the Video Game Industry with Blockchains

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ABSTRACT

In 2017, the video game industry broke the previous year's record by reaching $116 billion in revenue (up 10.7 percent from 2016)[1]. Blockchains hold the promise of magnifying this feat by supporting an environment for digital assets that introduces new models for creating value, reducing intermediation in exchange, and enforcing asset ownership for gamers. However, gamers have very high expectations for intuitive user experiences, and if accessing the benefits of blockchains impedes their gameplay experience, the main value offered by blockchains is lost.

Developing with blockchains requires new technical and design approaches that must be accounted for if we are to create a bridge to the general and hardcore gaming audiences. Tools must also be provided for game developers to participate in the open blockchain economy so they can focus on what they do best: ***creating amazing content***.

8 Circuit Studios is applying a concurrent development approach to the challenges of using blockchains in games by providing a **platform**, creating **products** (video games), and releasing open source **protocols** for digital assets:

- A **Platform** designed for convenience for **gamers** and additional services for digital asset creation and management for **producers** (video game developers)
- **Products/Games** create the context that amplifies the experience with digital assets — thereby increasing their economic value
- **Protocols** enforce ownership of the digital assets and enable cross game integration — providing additional weight to digital assets' economic value

The primary **participants** in the video game ecosystem must be considered to address specific barriers to entry affecting the video game industry when attempting to use blockchains.

INTRODUCTION

Everybody plays.

Play is a drive so effective in evolution that it transcends our species[2].

The video game industry emerged from this human drive by three interacting social behaviors:

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[1] Wijman, Tom. "New Gaming Boom: Newzoo Ups Its 2017 Global Games Market Estimate…" Newzoo.com. https://newzoo.com/insights/articles/new-gaming-boom-newzoo-ups-its-2017-global-games-market-estimate-to-116-0bn-growing-to-143-5bn-in-2020/ (accessed Feb 6, 2018).

[2] Pellegrini, Anthony D., Danielle Dupuis. and Peter K.Smith. "Play in evolution and development" Science Direct. https://doi.org/10.1016/j.dr.2006.09.001 (accessed Feb 6, 2018).

- Commerce
- Technology
- Art

The video game industry is an ecosystem where centralized systems benefit gamers by creating, marketing, and distributing “AAA” games. Producers of video games primarily rely on these centralized systems to provide marketing, distribution, and mediate payment for the products they create. While this system has worked well in the past to connect producers and gamers, **blockchains are here** and they are already colliding with video games to provide insight into how the game industry will change in the near future[3]. Not only are blockchains providing a new way for producers to have a more direct relationship with their audiences, they are beginning to unlock economic value in unprecedented ways by changing gamers’ relationships with the games themselves[4].

As platforms like Facebook, YouTube, Twitch, and Steam rise to offer producers convenient ways to market and distribute their work, blockchains like Ethereum provide a way to more directly facilitate value exchange from gamers to producers by using code to mediate and enforce payment contracts. This kind of code-based enforcement is revolutionary in and of itself. However, this kind of authority model offers opportunities that were never before possible at scale. Gamers can now:

- Own their digital assets outside of a centralized system.
- Use the same digital assets *across* video games.

Authority enforcement on blockchains occur via **smart contracts**. While ownership is derived from this enforcement, benefiting from this kind of ownership is not easy for non-technical gamers. Producers of video games also face challenges because blockchains are a new data model that requires new ways of developing games. While demonstrating great promise, blockchains pose significant barriers to entry for both the producers of video game content and the gamers who enjoy their work.

What is needed is a system that provides gamers and producers of content *convenient access* to the benefits of blockchains while overcoming the design and technical challenges they present. Only then can producers demonstrate the new ways that blockchains will change the way gamers play the games and interact with each other.

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[3] Bowles, Nellie. “CryptoKitties, Explained ... Mostly.” NYTimes.com. https://www.nytimes.com/2017/12/28/style/cryptokitties-want-a-blockchain-snuggle.html (accessed Feb 6, 2018).

[4] Tepper, Fitz. “People have spent over $1M buying virtual cats on the Ethereum blockchain.” https://techcrunch.com/2017/12/03/people-have-spent-over-1m-buying-virtual-cats-on-the-ethereum-blockchain/ (accessed Feb 6, 2018).

8 Circuit Studios has developed a functional system that will bridge the key technical and design challenges faced by producers and gamers as they begin to adopt blockchains into the game industry. 8 Circuit Studios' interoperating system consists of:

1. A Platform.
2. Products.
3. Protocols.

The primary **participants** in the video game ecosystem must be considered to address specific barriers to entry affecting the video game industry when attempting to use blockchains.

THE PARTICIPANTS

8 Circuit Studios has identified three key participants in the video game industry's ecosystem: **gamers**, **producers**, and **publishers**.

GAMERS

Gamers play and consume the products developed by producers and publishers. They demand engaging games that are easy to access and play.

Providing gamers authority over assets will require the following tools in a convenient and understandable format:

- Cryptocurrency wallets.
- Access to cryptocurrencies or tokens.
- Management tools for their digital assets.

The current myriad of tools and services of the blockchain economy are often confusing. What is currently needed for their use is obtaining a grasp of cryptocurrency systems which can be a challenging subject to apprehend. This creates a barrier to entry for the majority of gamers.

PRODUCERS

Producers develop digital assets. In order to produce the digital assets that can make use of the blockchain, producers require:

- Development and management tools for the digital assets they create or collaborate on.
- A way to participate in an open economy and receive fair compensation for their work.

The current tools and services for game engineers, designers, and artists working on blockchains are inadequate. Game developers need to focus on making the best possible games for the digital assets they create.

PUBLISHERS

Publishers develop games and distribute their intellectual property. They provide the worlds, or game environments, that host the digital assets.

Publishers entering into the blockchain economy require:

- A platform for distributing digital assets.
- A platform to participate in an open economy and receive fair compensation for their SKUs.

RESPONDING TO PARTICIPANTS' NEEDS

Solving the issues of convenience for a single participant group is how most developers are addressing the participants' requirements. However, this approach will not solve accessibility issues for the video game ecosystem that integrates blockchains. Making use of blockchains is challenging specifically because the participants cannot easily interact with each other. A combination of *concurrently applied* solutions is necessary to meet the needs of all participants to allow them to interact simply and effectively. In this way, the rewards of using the blockchain can be realized for all participants simultaneously.

THE SYSTEM

As an integrated blockchain video game ecosystem does not yet exist, 8 Circuit Studios is developing three system components concurrently to meet the participants' needs. These interlocking components are designed to address the specific needs of each participant group and the challenges they face when attempting to interact with each other:

1. **A Platform** that offers convenience, accessibility, and tools to all participants.
2. **Products** (games and digital assets) to provide an environment for digital assets.
3. **Protocols** to enforce ownership, allow asset evolution, and provide cross-game integration of digital assets.

Each component is designed to work in conjunction with the others seamlessly to provide an experience where the **gamer does not even know they are using a blockchain and yet still enjoy its benefits**. Focusing and iterating on this approach will reduce friction for new users and non-technical gamers as well as grow the blockchain-based video game ecosystem to all participants' advantage.

PLATFORM

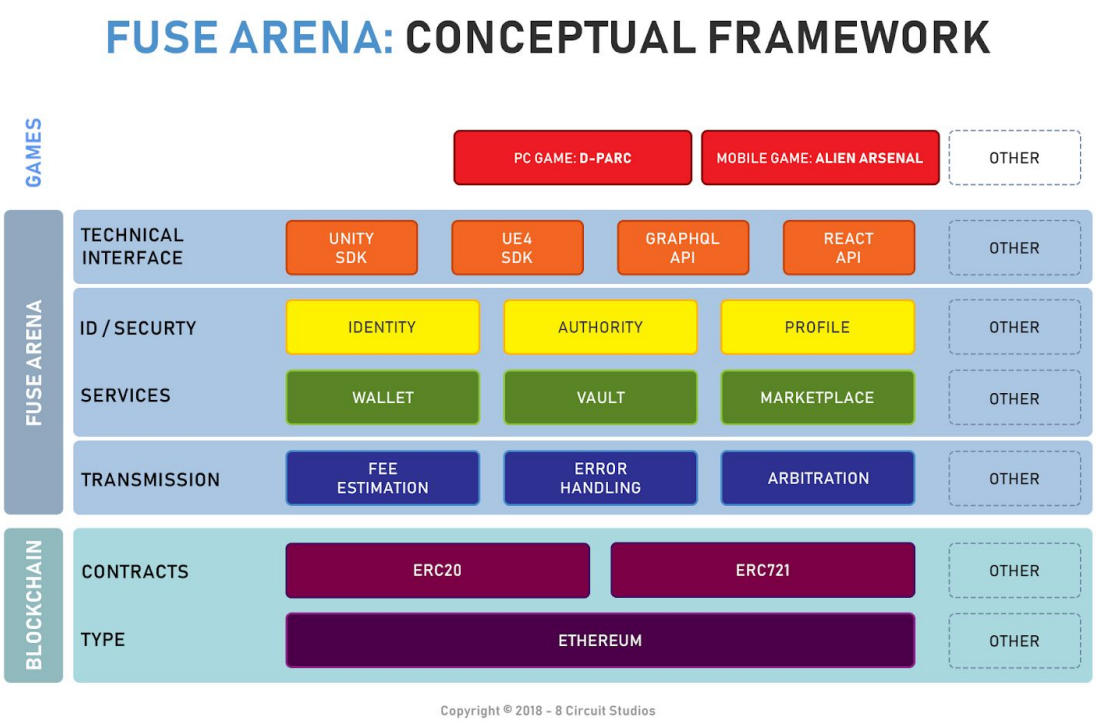
A blockchain, like Ethereum, allows for the creation of digital assets through smart contracts. While deploying smart contracts is relatively easy thing to do, using them cheaply-at-scale is an extraordinarily challenging prospect. Video games typically operate at the edge of innovation and have high requirements due to the expectations of gamers.

Because blockchains are structured with a new data model that requires new ways of approaching usability, the following barriers to entry currently exist:

- Understanding which are the correct tools for asset ownership.
- Once the correct tools are identified, having inadequate user experiences to
    - Store owned digital assets.
    - Manage owned digital assets.
- Low transaction throughput.
- Slow transaction times.
- Storage constraints for game data.

FUSE ARENA

To address the typical challenges faced with using blockchains, 8 Circuit Studios has developed a convenience platform called **Fuse Arena**. Fuse Arena is a portal to introduce gamers to the blockchain and provide a secure environment for using wallets, tokens, and managing digital assets. For the producer and publisher, the platform provides the tools necessary to develop and distribute their digital assets or use those digital assets within their game worlds.
The diagram below outlines the conceptual framework that Fuse Arena operates in as it manages the layered relationships between games and blockchains.



Fuse Arena interfaces with the Ethereum **blockchain** and creates and manages tokens via smart contracts. At the **transmission** level Fuse Arena provides error handling and fee estimation for the coordination of transactions. The **services** offered include a wallet and a vault to all users. The marketplace services are the mechanics to produce a full marketplace and allow gamers and producers to sell and purchase assets. The **identification** and **security** layer uses profiles that are provided through industrial authentication services. Finally, the technical interface accommodates standard development tools that make it easy to integrate games with the Fuse Arena platform.

While Fuse Arena underpins our convenience model for users, there remains a need to present thematic context for digital assets. For gamers, it is the the game itself that is the instrument which amplifies emotional experience and connection to the digital asset, thereby increasing their value.

VIDEO GAMES: ALIEN ARSENAL and D-PARC

Even in its current state, the relationship between video games and blockchains is *already* unlocking new ways to increase the value gamers perceive with the digital assets they own (or desire to acquire). This relationship is opening new revenue streams to producers through the digital assets they create.

While producers in the game development community have a culture of sharing and collaboration, knowledge on how to develop games in a cost effective manner using the **blockchain data model** is not adequately developed or distributed. For example:

1. Data that is normally free to save to hard disks or the cloud incur fees to save to the blockchain.
2. There is no clear indication which data is appropriate to save to the blockchain and which data is not appropriate given a blockchain's architecture.

8 Circuit Studios' solution is to directly demonstrate user experience design methodologies, platform capabilities, and economic models by releasing two games:

1. Alien Arsenal: Battle for the Blockchain (Mobile).
2. D-PARC (PC using the Unreal Engine).

ALIEN ARSENAL: BATTLE FOR THE BLOCKCHAIN

Collectible Alien Battle Game

Release Date: 2018

Alien Arsenal: Battle for the Blockchain is a mobile game where gamers collect, battle, and evolve adorable aliens to fight galactic bosses. It is designed to showcase game mechanics making use of the Ethereum blockchain and the 8 Bit Token economy.

D-PARC

Characters that can Live Forever on the Blockchain

Release Date: 2019

D-PARC is a deep space survival game about a starship-bound AI that must save 100,001 cryogenically frozen "heirloom" humans from the world they destroyed. It has an emphasis on narrative while weaving epic space fire-fights with first-person gameplay.

While these games will provide meaningful experiences and important context for digital assets, it is the digital assets themselves that offer the most exciting opportunities for gamers, producers, and publishers alike.

PROTOCOLS: SMART GAME OBJECTS

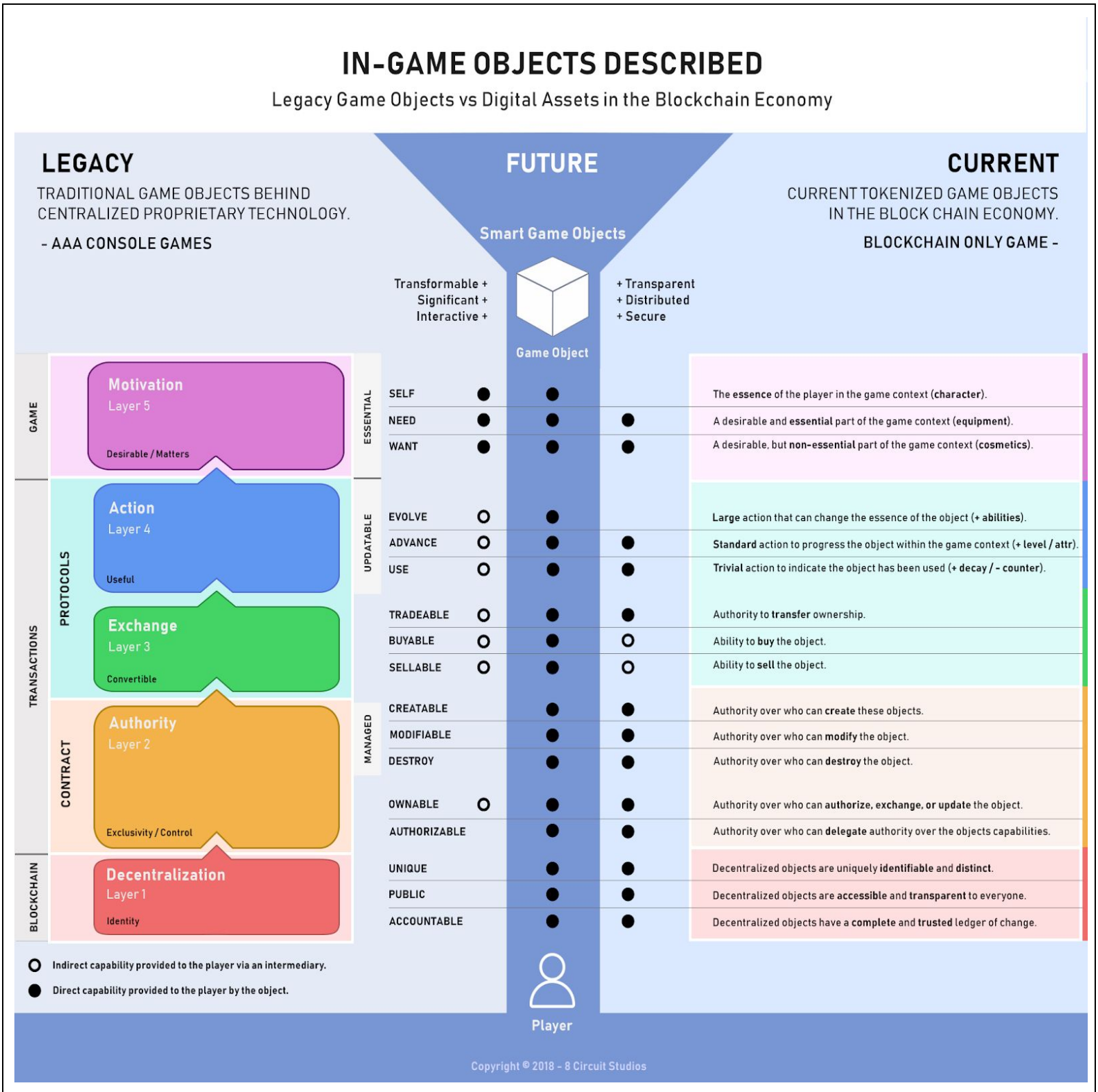
In-game assets (also known as in-game objects) have traditionally been restricted to the games and intellectual property they exist in. This was based on technological limitations and how intellectual property was defended at the time. These restrictions primarily benefited centralized systems in the industry. The potential value of digital assets was limited to other participants because they typically constrained ownership and authority.

Blockchains offer an alternative approach to digital assets and exchange between peers[5]. Ownership and authority over one's digital assets alone is enough to disrupt the game industry's intermediated business models.

THE NEW PARADIGM OF DIGITAL ASSETS

The diagram on the next page outlines the distinctions between the three models of in-game objects as it relates to digital assets and what is possible using the blockchains. This guide outlines the approach to developing Smart Game Objects for D-PARC and Alien Arsenal: Battle for the Blockchain. It will serve as the foundation for the release of 8 Circuit Studios proposals for protocol development.

[5] Nasdaq.com. "Using the Blockchain to Track Assets for Proof of Ownership." https://www.nasdaq.com/article/using-the-blockchain-to-track-assets-for-proof-of-ownership-cm715872 (accessed Feb 6, 2018).



8 Circuit Studios will develop Smart Game Objects for its initial products to field-test within the 8 Circuit Studios economy.

8Bit ECONOMY

On July 17th, 2017, 8 Circuit Studios made available its **8Bit Token** in its Wave 1 token sale. It is **currently live** on the Ethereum blockchain[6].

The 8Bit Token (symbol: 8BT) offers a gateway for all participants to engage in the video game blockchain ecosystem. More importantly it will power the very gameplay that makes 8 Circuit Studios blockchain-based games unique. The 8BT currency model will be familiar to most gamers as it will operate similarly to any in-game currency facilitating in-game purchases. It is also the critical link that connects gamers with producers.

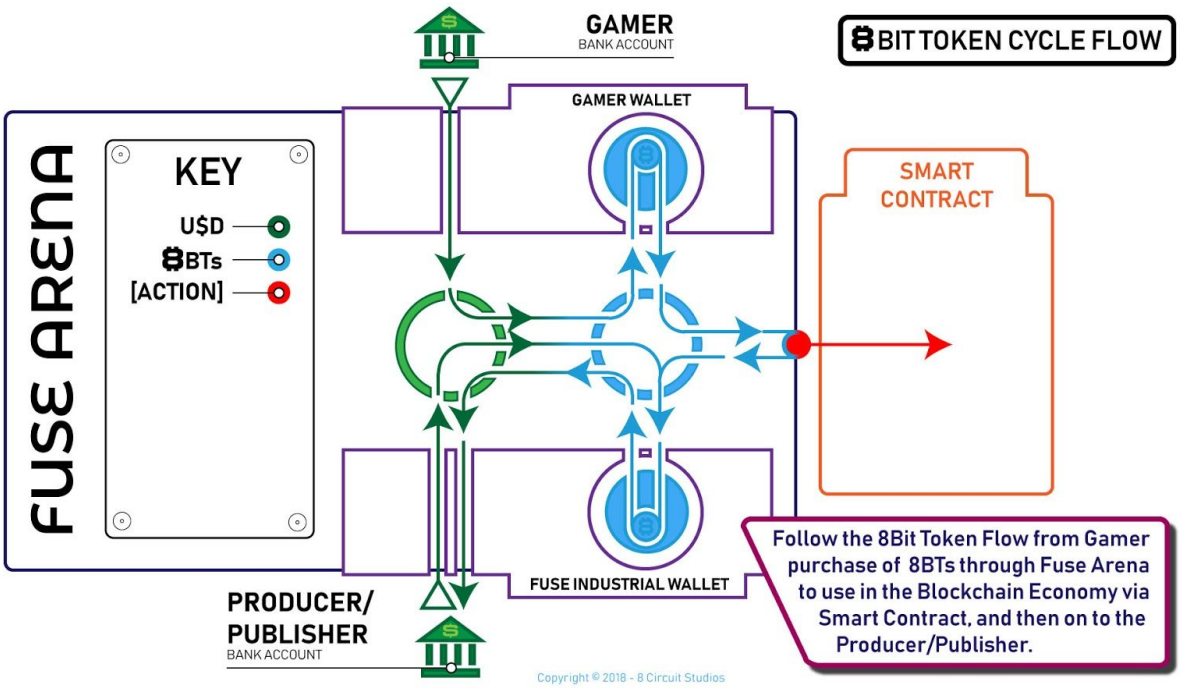
For the gamer, there are also two main advantages over traditional in-game currencies:

1. There is a hard limit of 100,000,000 8Bit Tokens — no more will ever be created.
2. 8Bit Tokens are not restricted within a standalone game or a platform dependent game.

As an ERC20 token, the 8BT is fully transferable by the managing authority (owner) of the token [7] and not restricted to the walled garden of an in-game economy.

The diagram on the following page outlines the 8Bit Token cycle flow. It follows how a gamer acquires 8Bit Tokens for use in the 8Bit Token economy enabled game (outlined at the contract layer as the Smart Contract). From there it indicates how the producer receives tokens from their work via the Smart Contract. For the publisher, the producer model applies.

[6] Etherscan.io. ERC20-TOKEN 8 Circuit Studios Token.
https://etherscan.io/token/0x20f4eb38c210490839cdd7bc60636171abb7bf94
[7] TheEthereumWiki.com. “ERC20 Token Standard.”
https://theethereum.wiki/w/index.php/ERC20_Token_Standard (accessed Feb 6, 2018).



A NEW ECOSYSTEM

In a mature ecosystem, specialized participants are positioned to provide the required means to support production, distribution, and consumption. The introduction of video games into the blockchain economy has resulted in a market that focuses on specific aspects of the ecosystem and they primarily operate independently from one other.

8 Circuit Studios has developed the three interlocking components of a system that caters to the needs of all three primary participants within a video game ecosystem. Fuse Arena offers convenience while offering tools for them to manage their digital assets. It will also provide blockchain access and development tools for producers and publishers.

Initially, 8 Circuit Studios will function as two of the participants of the ecosystem — the publisher and the producer — developing both the games and the digital assets that will populate them.

Two games are currently in production: Alien Arsenal: Battle for the Blockchain for mobile devices and D-PARC for the PC market to demonstrate our proposal for game design and technical architecture using the Ethereum blockchain and the 8Bit token economy.

8 Circuit Studios uses the ERC20 and ERC721 standards as the basis of the 8Bit Tokens and Smart Game Objects. Once the Smart Game Objects are field tested in Alien Arsenal: Battle for

the Blockchain and D-PARC, the contracts will be the first proposals released to the community for protocol development using the open source software model.

TIMELINE HIGHLIGHTS

1. Q2 2017
    a. 8 Circuit Studios Start
2. Q3 2017
    a. Wave 1 Token Sale
    b. Fuse Arena Technical Prototype
    c. D-PARC Pre-Alpha
3. Q2 2018
    a. Fuse Arena MVP
    b. Beta Release - Alien Arsenal: Battle for the Blockchain
    c. V1 Release - Alien Arsenal: Battle for the Blockchain
4. Q3 2018
    a. Producer and Publisher Collaboration
5. Q4 2018
    a. Token Sale Wave 2 Open Sale
    b. Unity and Unreal API/SDK's
6. Q2 2019
    a. Alpha - D-PARC

PRESS START

The three tiered system outlined in this whitepaper is an 8 Circuit Studios' approach. 8 Circuit Studios believes that gamers will quickly understand the power of blockchains when they do not have to struggle to access and use them. Once producers and publisher observe successful economic models, a portal to a new video game industry will have arrived.