

# Analysis of Block Chain and Gaming

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**Abstract**— Recently block chain technology is emerging field nowadays. Block chain means linking different records using cryptography. Security of data, Trust and Smart contracts are key characteristics of block chain. Now Combining game theory with recent innovation attracts new players. In block chain gaming we don't have to rely on single server to play game as it is peer to peer network. Parallel gaming and hacker free storage making this technology more popular. In this paper we are analysing various block chain games in terms of online currency gain and versions change.

**Keywords**— Block chain, Ethereum, CryptoKitties, Spells of Genesis, Beyond the Void, Augmentors, HunterCoin

## I. INTRODUCTION

In short Blockchain is chain of records. It is secure chain of records. Many people think of blockchain as bitcoin generator but we go in detail that is not actual purpose of blockchain. It's distributed ledger technology that can track and record anything that has value. When we send any message we don't trust any third person in our communication but when it is about money why to trust third person? What is solution to remove intermediaries of our communication? So blockchain technology provides solution for such problem. Blockchain is chain of blocks or records so when we add any new information then new block will be added into chain. But if someone wants to change previous block of chain in that case new block will be added to change that information so it preserves previous block by adding new in chain. So this method tracks change in data by non destructive way.

How blockchain adds record in it? It is not the case that anyone can add block but before block to be added in blockchain one cryptographic puzzle needs to be solved which is shared with network computers this is the proof of work. After following these many steps next block will be added into the chain. No more intermediaries means no wastage of time and money as well.

There are 3 types of Blockchain which are public, private and Consortium (hybrid). If we consider public blockchain means open to all. In private blockchain only group of privileged user can access blocks of chain. But in hybrid blockchain some information is accessible but some is not. Following figure shows Blockchain adoption phases in organizations worldwide as of April 2018, by industry. These statistics are collected by **statista** which was published in June 2018.

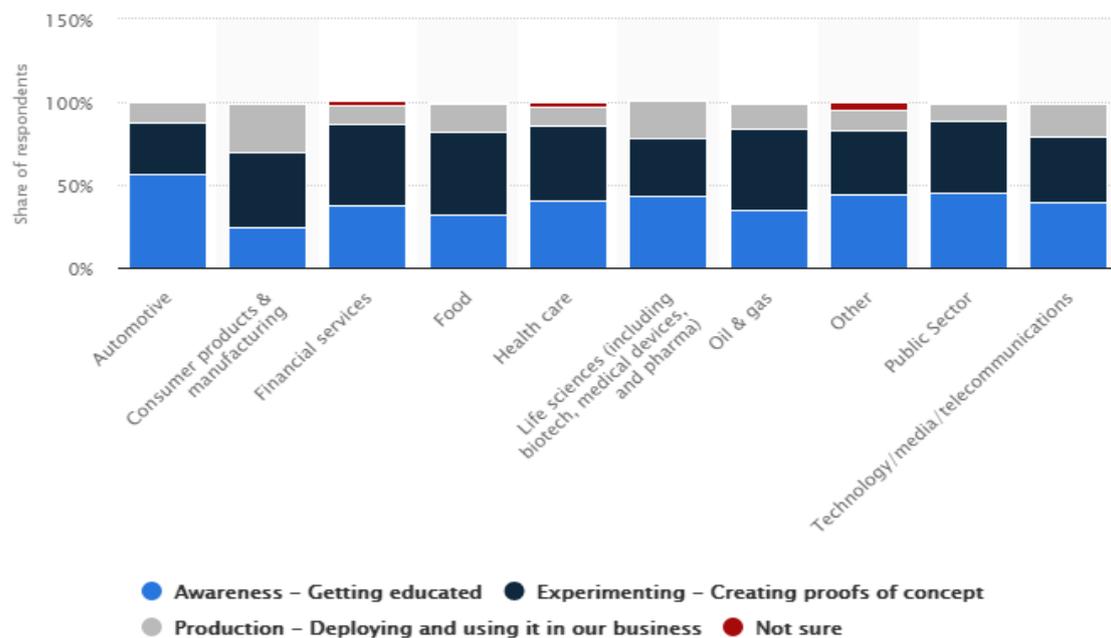


Fig. 1 Blockchain adoption phases in organizations worldwide as of April 2018, by industry

II. ONLINE GAMES AND BLOCKCHAIN

Blockchain Games are nothing but games that include blockchain technology. Blockchain games are more secure and transparent than traditional games as all information is stored on public blockchain network. There are some of the inherent features of blockchain because of which it is used in gaming industry as.

1) **Secure storage:**

Gaming companies face hacking of information so security is the issue which is solved through encryption technique of blockchain technology. So no issue of security and safety in blockchain based games.

2) **Reduction in cost :**

High price of game is the reason because of which players search for stolen games. But blockchain games are affordable because of micro transactions. Developers get profit by selling their power.

3) **Less fraud:**

In blockchain technology continuously searches for new techniques to reduce fraud. In business crypto economy helps to save millions using blockchain technology.

4) **Cost effective payment :**

In online games participants are participating from all over the world. Actual payment and mode of payments are more and different respectively. So participants have to pay much more fees to participate in online games.

As shown in figure decentralized network is maintained to provide access to gamers the ERC (Ethereum Request for Comment) tokens and blockchain wallets. All participants can easily exchange the coins to play game. Through blockchain network other participants can participate in the game described by “hashcashconsultants”

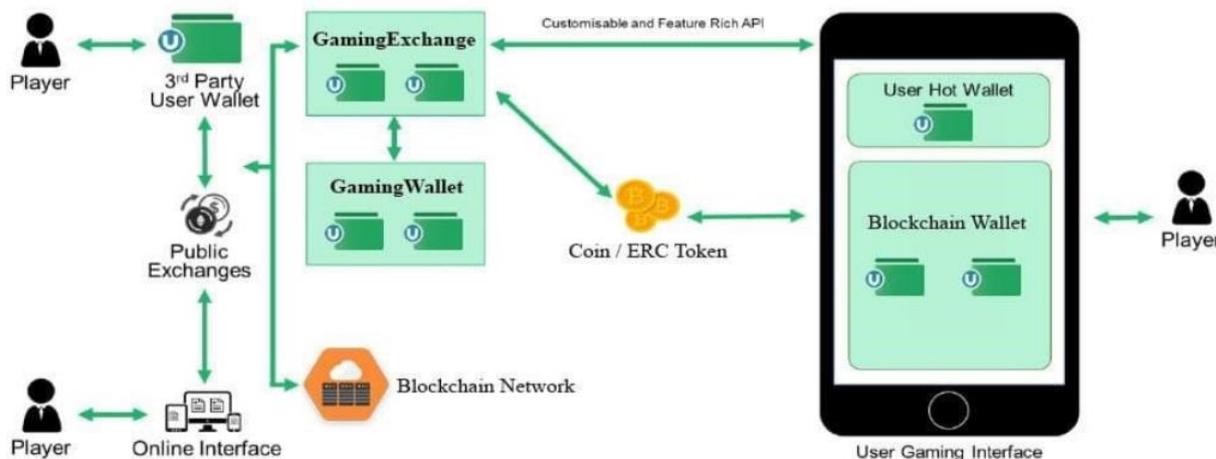


Fig. 2 Player to player coin exchange on blockchain network

III. CRYPTOCURRENCIES

A. **Ethereum:**

In Ethereum blockchain no need to mine bitcoins but ethers are earned to pay services and transaction fees.



Fig. 3 Ethereum Key Differentiations from Bitcoin

**B. Bitcoin:**

This original cryptocurrency allows peer to peer transaction avoiding double spending problem using blockchain.



Fig. 4 Bitcoin Key Features

**C. Dash:**

It is improved version of bitcoin as Anonymity and speed of transaction. Additional privacy is maintained by mixing of coin.

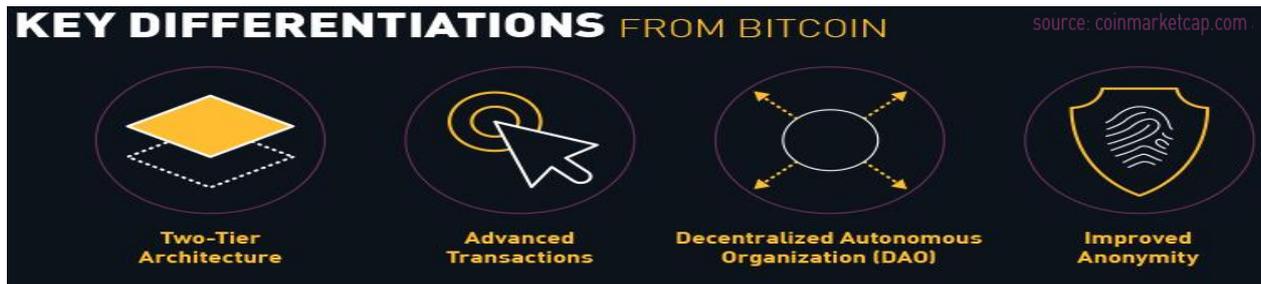


Fig. 5 Dash Key Differentiations from Bitcoin

**D. Ripple:**

It is Global Settlement Network.

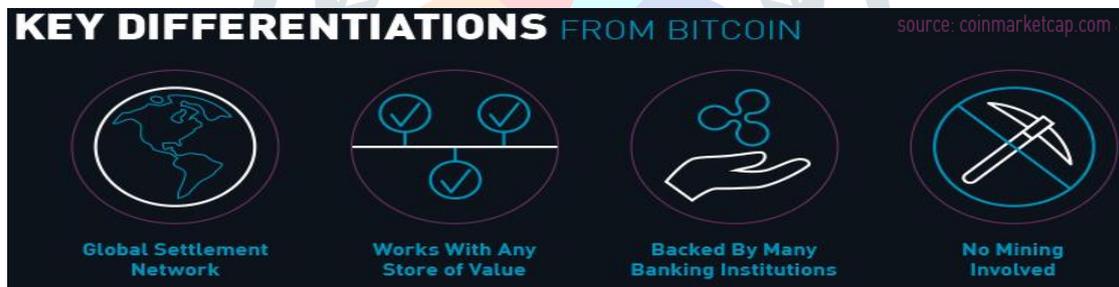


Fig. 6 Ripple Key Differentiations from Bitcoin

**E. Litecoin:**

To Mine Bitcoins very costly and specialized hardware requirement for that alternative currency comes into existence that is Litecoin.

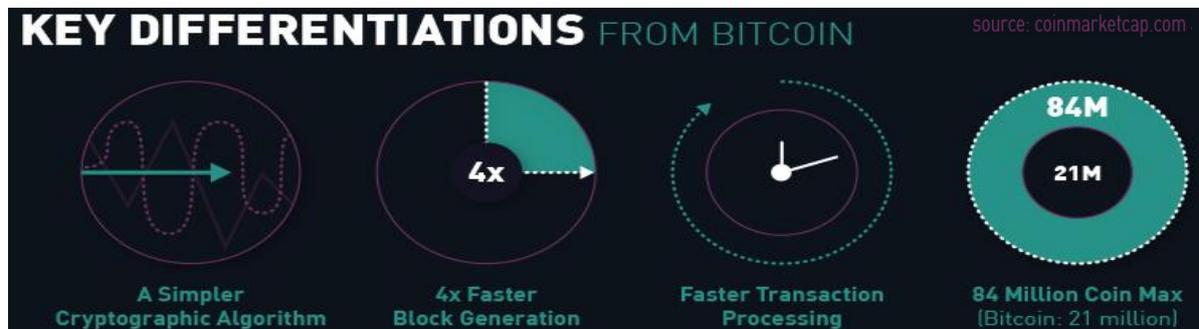


Fig. 7 Litecoin Key Differentiations from Bitcoin

### 1. CryptoKitties

Blockchain based game where gamer can purchase, sell and breed virtual cats. CryptoKitties is not cryptocurrency but we can buy kitty with ether digital currency and it is deployed on Ethereum platform. These cats carry unique identity that is the reason no one can copy our kitty. These CryptoKitties are of different pattern, eye shape, eye colour, back colour, mouth shape and appearance. Each CryptoKitty carries unique non fungible token (NFT).

On the Ethereum blockchain a smart contract tracks ownership of each CryptoKitty. The CryptoKitties game focuses on adorable and breedable creature crypto virtual cats. No one can destroy or replicate your CryptoKitty. The kitty offspring production includes complex algorithms so this process is same like breeding biological cats. Genesis kitten was sold for 100 thousand dollars. Following are categories of cats that someone can purchase.

- a) **Fancy Cats:** These are limited-edition Kitties bred through a unique genetic recipe.
- b) **Exclusive Cats:** These are extremely unique cats not obtained through breeding but are made for special occasions.
- c) **Special Edition Cats:** These are cool Kitties not obtained through breeding but have limited edition art.
- d) **Latest Cattributes:** These Kitties are nothing but newly discovered traits to Purchase or sire with.

### 2. Spells of Genesis

The Spells of Genesis is Card based game. In this game gamer can battle, trade and collect heros to fight against rivals. Cryptocurrency used in this game is **bitcoin** or **bit crystals** not on Ether. Gamer can collect and combine cards to have strongest deck for fighting with enemies. The cards are used in arcade shooter to kill enemies using magical spell. The 6 types of cards categorized into Fire, Earth, Ice, Water, Light and Dark. Those cards are used for

- a) **Fire Card:** The Fire card is used to destroy enemies by fireballs attack from sky.
- b) **Earth Card:** The Earth card is used to defend enemy through solid walls and shields
- c) **Ice Card:** The Ice card is used to freeze enemies and slowing down attacks of enemies.
- d) **Water Card:** The water card is used to heal wounds of comrades.
- e) **Light Card:** The Light card is the guardian of the light which used to empower allies by helping them on battlefield.
- f) **Dark Card:** The Dark Card is creatures of darkness which is used to weaken enemies by dark tricks and cunning.

Before starting game, gamer must have at least 4 cards to start game & creates deck using 4 cards. The fusion of duplicate cards is necessary to create stronger one. There are 4 types of Rarity Common, Rare, Epic and Legendary. Basically rarity means quality and power of the card. It is found at the bottom of any card. In Spells of Genesis 2 types of cards are use one is In- Game cards and other is blockchain cards. The **book of orbs** is the digital wallet through which we can trade or exchange cards. Askian Merchants offer blockchain cards. There are 3 types of blockchain cards pubic, Premium and Special Cards. The Book of Orbs is book keeping notebook where gamer can keep track of own cards as well as collected BitCrystals.

### 3. Beyond the Void

Beyond the void is Blockchain game that uses **Nexium** (NXC) currency and Ethereum tool for development. This Multiplayer Online Battle Arena (MOBA) is free to play. In this Real-Time Strategy (RTS) game, gamers play to conquer entire solar system. This game is combination of action and strategies. The Gamer can use Nexium to buy unique and original items in game. The blockchain network registers event cards, spaceship skins, and portraits. So no problem of true ownership as it is registered on blockchain network.

The game provides very simple interface and 2 game maps. Through mission map gamer can streamline movements. The main resource of the game is Cube. The most powerful warship in the galaxy is Mothership. The 2 powerful skills of mothership are passive and ultimate skills. While playing this game one principle gamer have to understand is "Lose Mothership and lose game". Another important element of this game is Event card. Each Event card has special effect on the game. The Five houses of game with principles are

- a) **HIGNOS HOUSE:** "Beliefs Promise, Technology Ensures"
- b) **TREXAR HOUSE:** "Duty. Justice. Honor"
- c) **VUNHUMA HOUSE:** "Harmony Is The Only Way Forward"
- d) **VISGALT HOUSE:** "The Weak Serve The Strong"
- e) **XOLETSA HOUSE:** "Its Opaqueness Is Its Shield; Its Devotion, A Blade"

#### 4. Augmentors

It is really surprising when gaming characters come in reality. But due to technology advancement in augmented reality this change is possible. Augmented reality used in many fields for presentations and designing but now this is used in gaming. Augmentors game consist of virtual reality with 3D modelling and Augmentors as characters. This game works on Augmented Reality so many gamers loved to play. This is hybrid strategy game where gamer challenges another player on online platform. We can travel in space through this game where resources gathering and take over neutral plant is gamer's strategy. There are 3 strategies to play this game as Economy, Combat, and Defence.

There is a collection of 50 cyborgs, monsters and Gods from which gamer can choose players to play. It works on bitcoin blockchain. In 2019, this game will migrate on Ethereum blockchain. If gamer purchases pack from store then it includes 2 creatures, 4 relics, 3 skins and 2 spells. The Common, Rare, Epic and Legendary are 4 relics of Augmentors. The gold, some emeralds is also available in the pack.

The Gamer can download this game free of cost on their phone. User can select both the creatures for battle. The customization of creatures is also possible. To purchase relics and creature **Databits** currency is used. Each creature has token ID to indicate value. Online creature trading is possible and a **counterparty wallet** is used for such transactions.

#### 5. HunterCoin

The HunterCoin is the Massive Multiplayer Online Cryptocurrency Game (MMOCG). It is really decentralized type of game that works on blockchain. This game is the fork of Namecoin and the brainchild of SnailBrain. After registration of name user receives 2 extra characters. The Gamer earns HunterCoin when they play this game. In this game gamer can choose team when creates character. There are 4 teams Red, Blue, Green and Yellow. In first appearance very large map is visible where visibility of other team's movement is possible. This game comes with chat window. The Gamer can earn coins for teamwork and use of strategy.

It is very simple game where gamer need to mine coins, picks and mines them to another point. When opponent stops you have to feign and move forward. No need to learn hardware and its implementation of the crypto-currency algorithms. This game is nothing but top down 2D virtual world. The coin trading or exchange is possible through wallet in the form of bitcoin.

#### CONCLUSION

Technology advancement creates huge impact on every field. In past the purpose of gamers was only entertainment. But many online games offer digital currency to play and trade game characters. But when currency comes at back security becomes prime concern. So to offer secure transaction blockchain comes into existence. The Security and previous information is preserved in blockchain technology. The game characters and gamers information is maintained in each encrypted block so unique identity and secure payment without including third party is possible. In augmented reality with blockchain gaming virtually characters come in existence into real world. Some cons need to overcome in multiplayer game are slow speed and problem of real time game. Many changes yet to introduce in this technology.

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