

# A study on the current state of the GameFi industry

## Abstract

Blockchain gaming is regarded as a new path for the future growth of the game industry. Cryptocurrencies have altered the world of virtual assets with the help of the blockchain system, enabling more players to take part in creating and sharing the value of the games. However, there are also views that blockchain games are just another type of Ponzi scheme. To gather the necessary variables for this article, we used Python to crawl CHAINPLAY. gg, a website that compiles information about blockchain games. In order to present the development status of blockchain games as completely as possible, we analyzed the game platform, game chain, game market cap, investor situation, investment platform situation, guilds situation, etc., in this article. Through analysis, we discovered that blockchain games are currently evolving in a very unbalanced "winner takes all" scenario.

## 1. Introduction

### 1.1. Background

Over the past few decades, the gaming industry has steadily changed and innovated, becoming a part of mainstream pop culture thanks to increased global interest. The gaming industry is currently estimated to be worth a staggering \$336 billion, potentially larger than all other media genres combined, according to a report by BITKRAFT Ventures and NAAVIK (BITKRAFT & NAAVIK, 2021).

The majority of players, however, have very few options to participate in the value without choosing the professional route because game developers and publishers hold complete ownership of everything that occurs in the games. But now, blockchain-based games are attempting to address this issue.

Blockchain is a cutting-edge implementation of distributed data storage, point-to-point transmission, consensus, encryption, and other Internet-era computing technology. Decentralization is its essential characteristic. Blockchain brings the following changes to the game industry: First of all, because blockchain data is transparent, players or outside organizations can audit the game rules, which increases trust in the gaming system. Second, players own virtual assets in blockchain games that have enormous market liquidity and are independent of the game operators. Encourage players to take a more active role in creating and sharing value within the game economy. Finally, unlike traditional games, blockchain games' user-generated content is saved by the players themselves. It has the potential to be shared across several games, incentivizing them to contribute to the creation of new content (Min et al., 2019).

## **2. Research Theme**

### **2.1 Research Topic**

Our research topic is the current state of blockchain gaming.

### **2.2 Related Concepts**

Blockchain game: a set of digital games created and implemented by the characteristics of blockchain technologies.

Play-to-Earn: commonly known as GameFi or P2E, empowers regular players to influence important gaming industry choices. To make money more efficiently, it has sparked the development of sizable online communities, in-game economies, and company structures. Each game has monetary incentives for participation and achievement (Cricket Star Manager, 2022).

NFTs: In virtual environments, NFTs can take the form of anything, including objects, music, and more. In the instance of GameFi, users can "earn" digital assets through gameplay, which they can then choose to exchange for real money (Cricket Star Manager, 2022).

### **2.3 Motivation**

The future of the gaming industry is thought to lie in blockchain gaming. However, a bad reputation for the new technology was created by numerous ICO frauds and worthless "air tokens." We are interested in what the blockchain game has brought. Therefore, it is important to research how blockchain games are progressing.

## **3. Methods**

CHAINPLAY is a blockchain game information website that aggregates a lot of information such as game's market cap, token price, genre, etc. The overall structure of this site is in the form of tables, with many small tables split into large tables. The clear structure helps us to locate elements quickly, but unfortunately, this site uses many dynamic rendering techniques, which causes some difficulties for our crawling.

We mainly use *selenium*, *bs4* and *pandas* to collect information and have crawled over 1,700 games to analyze the current state of the GameFi industry.

### **3.1. Variables**

#### **1) Basic information**

In the home page list, we focus on information such as game name, game detailed page link, game token name, blockchain, game genre, running platform, token price, token value

and game market value. It is worth mentioning that through the game detailed page link, we can get the contract address of the game token.

#	NAME	BLOCKCHAIN	GENRE	PLATFORM	PRICE	24H	VOLUME	MARKET CAP	LAST
1	Chain Of Legends CLEG	Strategy Mining PVP		\$0.0074	-3.54%	\$29,877	\$499,634		
2	Axie Infinity AXS	Breeding Card Game Metaverse	Android, iOS	\$8.93	23.54%	\$814,782,666	\$1,008,245,741		
3	The Sandbox SAND	Metaverse	PC	\$0.62	2.4%	\$241,011,055	\$958,609,179		
4	Decentraland MANA	Metaverse	Android, iOS	\$0.42	0.58%	\$97,885,862	\$761,304,327		
5	Enjin Coin ENJ	Metaverse	Android, iOS	\$0.31	-0.61%	\$33,153,448	\$314,586,909		
6	STEPN GMT	Collectible Move To Earn	Android, iOS	\$0.4	0.75%	\$55,273,588	\$241,236,372		
7	Gala Games GALA	Other	Android, iOS	\$0.026	2.68%	\$132,764,113	\$196,154,123		

Graph 3-1 Basic information (inspect the element)

## 2) Detailed information:

With the link to the game details page previously grabbed, we can access each game's detailed page to grab the token contract address, scholarship guild and partnered games.

Market Capitalization	Fully Diluted Market Cap	volume (24h)	Circulating Supply
\$982,997,739 +17.81%	\$2,347,276,819	\$850,851,794	113,071,193 41.87%

Graph 3-2 Detailed information (inspect the element)

Games: 1,861 Market Cap: 5,366,324,985 24H Volume: 1,675,079,988

**CHAINPLAY**

Games

Recent Crypto Gaming Funding Rounds

Recent Crypto Gaming Funding Rounds

The total amount of all funding rounds of the gaming category on the blockchain is \$317B. [Read more](#)

PROJECT	FUNDING ROUNDS	TOTAL FUNDING AMOUNT	INVESTORS	DATE
Skyweaver	Series A Round	\$40,000,000	Morgan Creek Capital Ubisoft	Oct 04, 2022
Theorycraft Games	td.px-2.5.smpx-3.75.py-2.5.text-left	128.89 x 45	Makers Fund al6z crypto	Sep 22, 2022
Project Eluüne	Color Font 15px Poppins, -apple-system, BlinkMacSystemFont, sans-serif Padding 10px 15px		Ancient8 Polygon	Oct 20, 2022
Vulcan Forged	Contrast Name Role Keyboard-focusable	17.85	SkyBridge Capital	Sep 22, 2022
UNIOVERSE	Seed Round	\$7,500,000	IGNIA Partners Polygon	Sep 20, 2022
Skyborne Legacy	Unknown Round	\$25,000,000	Pantera Capital Animoca Brands	Sep 10, 2022
Trial Xtreme	Seed Round	\$12,800,000	Blockchain Capital Merit Circle Investor	Sep 07, 2022
Glip	Unknown Round	\$2,500,000	Hashed Prime Venture Partners	Nov 30, 2022

Graph 3–3 Detailed information (inspect the element)

With URL (<https://chainplay.gg/funding-rounds/>), we can enter the page presenting the recent crypto gaming funding rounds. Here we target at the information including projects, funding rounds, total funding amount and investors.

All Rounds	Search			
Skyweaver	Series A Round	\$40,000,000	Morgan Creek Capital Ubisoft	Oct 04, 2022
Theorycraft Games	td.px-2.5.smpx-3.75.py-2.5.text-left	128.89 x 45	Makers Fund al6z crypto	Sep 22, 2022
Project Eluüne	Color Font 15px Poppins, -apple-system, BlinkMacSystemFont, sans-serif Padding 10px 15px		Ancient8 Polygon	Oct 20, 2022
Vulcan Forged	Contrast Name Role Keyboard-focusable	17.85	SkyBridge Capital	Sep 22, 2022
UNIOVERSE	Seed Round	\$7,500,000	IGNIA Partners Polygon	Sep 20, 2022
Skyborne Legacy	Unknown Round	\$25,000,000	Pantera Capital Animoca Brands	Sep 10, 2022
Trial Xtreme	Seed Round	\$12,800,000	Blockchain Capital Merit Circle Investor	Sep 07, 2022
Glip	Unknown Round	\$2,500,000	Hashed Prime Venture Partners	Nov 30, 2022

Graph 3–4 Detailed information (inspect the element)

Likewise, with URL (<https://chainplay.gg/investors/>), we can find the top venture capital firms investing in blockchain games. Here we target at all kinds of investor types, and the current ROI. And on "Gaming -ICO" page (URL: <https://chainplay.gg/gaming-ico/>), we target at the different tokens offering types as well as raised amount.

All Investor Type ▾

Search

#	NAME	TOTAL INVESTMENT	CURRENT ROI	ATH ROI	TOP 3 ROI
1	Quest Capital Crypto Ventures	1	31.61x	336.94x	PlayDapp(31.61x)
2	Venture	130 x 16 Color #4B5563 Font 12px Poppins, -apple-system, BlinkMacSy...	31.61x	336.94x	PlayDapp(31.61x)
3	BLOCORE	Contrast Name Role generic	7.55	31.61x	336.94x PlayDapp(31.61x)
4	SCALAR CAPITAL	Keyboard-focusable Crypto Ventures	generic	23.31x	1,117x Yield Guild Games (23.27x)
5	Gumi Cryptos	6	23.31x	1,117x	Yield Guild Games (23.27x)
6	FlamingoDAO	2	23.31x	1,117x	Yield Guild Games (23.27x)
7	BlockTower Capital	3	20.26x	502.55x	PlayDapp(31.61x) Yield Guild Games (23.27x) League of Kingdoms (5.86x)

Graph 3–5 Detailed information (inspect the element)

All Type

NAME	PRICE	SALE PRICE	MARKET CAP	RAISED	ROI USD	ATH ROI	TYPE	TGE PLATFORM
METADOGE MTDU	-	-	-	\$20,000	-	-	IDO	Kingdom Game 4.0
Monsterra MSTR	-	\$0.2	-	\$92,000	-	-	IDO	Red Kite
Monsterra MSTR	-	\$0.2	-	\$131,000	-	97.7 x 131 Color #0F172A Font 15px Poppins, -apple-system, BlinkMacSy... Padding 10px 15px	td.px-2.5.sm:px-3.75.py-2.5.text-right	
Monsterra MSTR	-	\$0.2	-	\$150,000	-	-	IDO	gridcell
DEFY DEFY	-	\$0.02	-	\$200,000	-	-	gridcell	
GEMS – Esports 3.0 Platform GEMS	\$0	\$0	-	\$100,000	-	-	IDO	Kamakura
GEMS – Esports 3.0	en	en	-	en100,000	-	-	IDO	

Graph 3–6 Detailed information (inspect the element)

With URL (<https://chainplay.gg/fundraising-platforms/>), we can enter the page of fundraising platform. In this page we need to obtain the information, including IDO platforms, current ROI, all time high ROI, token generate events, and amount raised.

## Gaming Launchpads and IDO Platforms

Total Fundraised in Gaming Category on all IDO Platforms is \$176.13M [Read more](#)

# of Launchpads		Launchpad with highest ROI				
NAME	BLOCKCHAIN	RAISED	ENTRY			
GameFi	BNB, SOL, ETH, MATIC, XRP	0.13x	32.1x	39	\$5,144,600	\$132
TrustPad	BNB, SOL, ETH, MATIC, XRP	0.1x	13.66x	39	\$7,235,094	\$193.21
Red Kite	BNB, SOL, ETH, MATIC, XRP	0.15x	30.08x	38	\$4,987,382	\$40.66
Seedify	BNB, SOL, ETH, MATIC, XRP	0.2x	47.3x	33	\$9,223,747	\$269.98
Enjinstarter	BNB, SOL, ETH, MATIC, XRP	0.16x	39.77x	32	\$4,260,000	\$2.11
BSCStation	BNB, SOL, ETH, MATIC, XRP	0.05x	26.16x	31	\$4,262,750	\$158.4
DAO Maker	BNB, SOL, ETH, MATIC, XRP	0.64x	40.21x	27	\$4,051,000	\$222.75

```


<tr>
    <td>Launchpad with highest ROI</td>
  </tr>


```

The screenshot shows the browser's developer tools with the element inspector highlighting a specific table cell. The CSS selector for this element is `td.px-2.5.sm:px-3.75.py-2.5.text-left.text-roi`. The developer tools interface includes a sidebar with various tabs like '元素' (Elements), '控制台' (Console), and '样式' (Style). The right panel shows the detailed CSS properties for the selected element.

Graph 3–7 Detailed information (inspect the element)

By entering the URL (<https://chainplay.gg/guild-performance/>), we can access the guild performance page. In this page, we can get the information of Guilds name, market capitalization, and partnered games.

market cap		24h Trading Volume				
#	GUILD	PRICE	PARTNERED GAMES	INVESTORS		
1	Merit Circle MC	\$0.42 -0%	Merit Circle Market Cap <b>\$136,285,443</b>	-	22K	35
2	Yield Guild Games YGG	\$0.23 -0%	\$43,320,764	-	-	41
3	GuildFi GF	\$0.12 -0%	\$16,675,711	-	-	25

```


<tr>
    <td>Merit Circle Market Cap<br/>$136,285,443</td>
  </tr>


```

The screenshot shows the browser's developer tools with the element inspector highlighting a specific table cell. The CSS selector for this element is `td.px-2.5.sm:px-3.75.py-2.5.te`. The developer tools interface includes a sidebar with various tabs like '元素' (Elements), '控制台' (Console), and '样式' (Style). The right panel shows the detailed CSS properties for the selected element.

Graph 3–8 Detailed information (inspect the element)

## 4. Procedure

### 4.1. Basic information

For most of the elements in the home page list, we used the css selector in selenium to

locate and get the text, and put the information we got in the custom list.

```
BigName=[]
tokenname=[]
rowlink=[]
genre=[]
platform=[]
tokenprice=[]
updown=[]
tokenvolume=[]
marketcap=[]
infourl=[]

#爬游戏名字
elements = driver.find_elements(By.CSS_SELECTOR, 'table tbody tr[class="border-b hover:bg-gray-100"] div[class="flex-1 overflow-hidden"] p')
for a in range(len(elements)):
    BigName.append(elements[a].text)

#爬游戏详情页链接
elements = driver.find_elements(By.CSS_SELECTOR, 'a[class="flex flex-col lg:flex-row md:flex-row items-center"]')
for element in elements:
    infourl.append(element.get_attribute('href'))

#爬游戏代币名称
elements = driver.find_elements(By.CSS_SELECTOR, 'div[class="flex-1 overflow-hidden"] small')
for b in range(len(elements)):
    tokenname.append(elements[b].text)
```

Graph 4–1 Basic information (code)

The next page of the main list does not have a separate link, but loads on the main page when the button was clicked. So we use selenium to simulate the manual click on the next page and use for loops to crawl for information.

```
for i in range(34):
    time.sleep(0.5)
    button= driver.find_element(By.CSS_SELECTOR, 'button[class="w-8 h-8 flex items-center justify-center rounded-lg hover:bg-[#edf2f7] "]:nth-child(2)')
    button.click()
    time.sleep(1)

#循环爬后续页面游戏名字
elements = driver.find_elements(By.CSS_SELECTOR, 'table tbody tr[class="border-b hover:bg-gray-100"] div[class="flex-1 overflow-hidden"] p')
for n in range(len(elements)):
    BigName.append(elements[n].text)

#爬游戏详情页链接
elements = driver.find_elements(By.CSS_SELECTOR, 'a[class="flex flex-col lg:flex-row md:flex-row items-center"]')
for element in elements:
    infourl.append(element.get_attribute('href'))

#循环爬后续页面代币名字
elements = driver.find_elements(By.CSS_SELECTOR, 'div[class="flex-1 overflow-hidden"] small')
for m in range(len(elements)):
    tokenname.append(elements[m].text)
```

Graph 4–2 Basic information (code)

However, Blockchain and platform do not have any text attribute or value in the source code, the way texts appear on the website is by hovering over the icon. We couldn't solve the source code directly, but we found that the icons had corresponding hyperlinks that had the characters we wanted, so we crawled the hyperlink text and extracted the characters we wanted by string processing.

```
#爬区块链的图标链接
page=driver.page_source
soup=BeautifulSoup(page, "lxml")
b=soup.find_all('td', attrs={'class': 'px-1.5 sm:px-3.75 py-2.5 text-right'})
for data in b:
    j=[]
    for x in data.find_all('a'):
        j.append(x['href'])
    rowlink.append(j)

#爬游戏类型
elements = driver.find_elements(By.CSS_SELECTOR, 'td[class="px-2.5 sm:px-3.75 py-2.5 text-right text-3.25 capitalize"]')
for b in range(len(elements)):
    genre.append(elements[b].text)

#爬游戏运行平台
page=driver.page_source
soup=BeautifulSoup(page, "lxml")
b=soup.select('td[class="px-2.5 sm:px-3.75 py-2.5 text-right"] > div')
for data in b:
    j=[]
    for i in data.find_all('a'):
        j.append(i['href'])
    platform.append(j)
```

### Graph 4–3 Basic information (code)

#### Graph 4–4 Basic information (code)

## Graph 4–5 Basic information (code)

## 4.2. Detailed information

The scholarship guild and partnered games are not different from the previous methods, just locate and get the text, but the token contract address is very special. The token address is an incomplete text both in the source code. But we found that when we clicked the copy button the full address appeared in the system clipboard. So we took selenium to simulate the click and used pandas to read the data from the clipboard.

```
import random
tokencontract=[]
scholarguild=[]
partneredgamenumber=[]

for i in infourl:
    driver.get(i)
    element = driver.find_element(By.CSS_SELECTOR, 'button[class="group uppercase "]:nth-of-type(2)')
    element.click()
    time.sleep(0.2)
    element = driver.find_element(By.CSS_SELECTOR, 'div[class="bg-gray-100 rounded-xl flex flex-row items-center px-3 py-[2px] "] button')
    element.click()
    data=pd.read_clipboard()
    data.columns.to_list()
    a=''.join(data.columns.to_list())
    tokencontract.append(a)

    element = driver.find_element(By.CSS_SELECTOR, 'button[class="group uppercase "]:nth-last-child(1)')
    element.click()
    time.sleep(0.2)
    elements=driver.find_elements(By.CSS_SELECTOR, 'tr td[class=" sticky px-2.5 sm:px-3.75 bg-white py-5 text-left sm:max-w-[13.75rem] sm:w-[13.75rem]"]')
    scholarguildin=[]
    for element in elements:
        scholarguildin.append(element.text)
    partneredgamenumberin=[]
    elements = driver.find_elements(By.CSS_SELECTOR, 'td[class="px-2.5 sm:px-3.75 py-2.5 text-right"]:nth-child(7)')
    for element in elements:
        partneredgamenumberin.append(element.text)

    scholarguild.append(scholarguildin)
    partneredgamenumber.append(partneredgamenumberin)
```

Graph 4–6 Detailed information (code)

For funding rounds and gaming ICOs, we used the css selector to get the information we want.

```
project=[]
funding_rounds=[]
total_funding_amount=[]
investors=[]
date=[]

elements= driver.find_elements(By.CSS_SELECTOR, 'table tbody div[class="flex-1 overflow-hidden"] a')
for element in range(len(elements)):
    project.append(elements[element].text)

elements=driver.find_elements(By.CSS_SELECTOR, 'td[class="px-2.5 sm:px-3.75 py-2.5 text-left"]')
for element in range(len(elements)):
    funding_rounds.append(elements[element].text)

elements=driver.find_elements(By.CSS_SELECTOR, 'td[class="px-2.5 sm:px-3.75 py-2.5 text-right"]')
for element in range(len(elements)):
    total_funding_amount.append(elements[element].text)

elements=driver.find_elements(By.CSS_SELECTOR, 'td[class="px-2.5 sm:px-3.75 py-2.5"]')
for element in range(len(elements)):
    investors.append(elements[element].text)

elements=driver.find_elements(By.CSS_SELECTOR, 'td[class="sticky z-10 left-0 pl-2.5 sm:pl-3.75 bg-white py-2.5"]')
for element in range(len(elements)):
    date.append(elements[element].text)
```

Graph 4–7 Detailed information (code)

```
name=[]
current_price=[]
sale_price=[]
market_cap=[]
raised=[]
roi_usd=[]
ath_roi=[]
type=[]
tge_platform=[]
ended=[]

elements=driver.find_elements(By.CSS_SELECTOR, 'table tbody a[class="text-3.25 sm:text-sm font-medium"]')
for element in range(len(elements)):
    name.append(elements[element].text)

elements=driver.find_elements(By.CSS_SELECTOR, 'tr[class="border-b hover:bg-gray-100"] td:nth-of-type(2)')
for element in range(len(elements)):
    current_price.append(elements[element].text)

elements=driver.find_elements(By.CSS_SELECTOR, 'tr[class="border-b hover:bg-gray-100"] td:nth-of-type(3)')
for element in range(len(elements)):
    sale_price.append(elements[element].text)

elements=driver.find_elements(By.CSS_SELECTOR, 'tr[class="border-b hover:bg-gray-100"] td:nth-of-type(4)')
for element in range(len(elements)):
    market_cap.append(elements[element].text)

elements=driver.find_elements(By.CSS_SELECTOR, 'tr[class="border-b hover:bg-gray-100"] td:nth-of-type(5)')
for element in range(len(elements)):
    raised.append(elements[element].text)
```

Graph 4–8 Detailed information (code)

For investors, we also used css selectors. But the investor type cannot be selected directly, so we got the link at first and extracted the investor type from it.

```

name=[]
investor_type=[]
total_investment=[]
current_roi=[]
ath_roi=[]
top3_roi=[]

page=driver.page_source
soup=BeautifulSoup(page,"lxml")
b=soup.select('div[class="flex-1 overflow-hidden"]')
for data in b:
    j=[]
    for i in data.find_all('a'):
        j.append(i['href'])
    name.append(j)

elements = driver.find_elements(By.CSS_SELECTOR, 'table tbody div[class="flex-1 overflow-hidden"] small')
for element in range(len(elements)):
    investor_type.append(elements[element].text)

elements = driver.find_elements(By.CSS_SELECTOR, 'td[class="px-2.5 sm:px-3.75 py-2.5 text-right"] ')
for element in range(len(elements)):
    total_investment.append(elements[element].text)

elements = driver.find_elements(By.CSS_SELECTOR, 'tr[class="border-b hover:bg-gray-100"] td:nth-of-type(4) ')
for element in range(len(elements)):
    current_roi.append(elements[element].text)

elements = driver.find_elements(By.CSS_SELECTOR, 'tr[class="border-b hover:bg-gray-100"] td:nth-of-type(5) ')
for element in range(len(elements)):
    ath_roi.append(elements[element].text)

```

Graph 4–9 Detailed information (code)

For fundraising platforms, we used the css selector to get the information we want. However, blockchain information cannot be obtained directly from the icon. So we first got the platform's detailed page link, and then got the blockchain name from the detailed page.

```

platform_name=[]
blockchain=[]
current_roi=[]
ath_roi=[]
tges=[]
raised=[]
entry=[]

link=[]
#平台名称
elements=browser.find_elements(By.CSS_SELECTOR, "tbody a.capitalize")
for element in elements:
    platform_name.append(element.text.strip())

#平台链接(为获得区块链做准备)
elements=browser.find_elements(By.CSS_SELECTOR, "tbody a.capitalize")
for element in elements:
    link.append(element.get_attribute("href"))

#当前投资回报率
elements=browser.find_elements(By.CSS_SELECTOR, "table>tbody>tr>td:nth-of-type(3)")
for element in elements:
    current_roi.append(element.text.strip())

```

Graph 4–10 Detailed information (code)

```

#区块链
for l in link:
    source=requests.get(l)
    page= bs.BeautifulSoup(source.content, 'html.parser')
    bcdata=page.find_all('img', attrs={"width":"20"})
    bc=[]
    for b in bcdata:
        bc.append(b["alt"])
    blockchain.append(bc)

```

Graph 4–11 Detailed information (code)

The procedure of crawling relevant information on the game guilds page is consistent with the above-mentioned part.

```

guild=[]
price=[]
market_cap=[]
discord=[]
partnered_games=[]
investors=[]
# 工会名称
elements=browser.find_elements(By.CSS_SELECTOR, ".capitalize")
for element in elements:
    guild.append(element.text.strip())
# 代币价格
elements=browser.find_elements(By.CSS_SELECTOR, "table .border-b p")
for element in elements:
    price.append(element.text.strip())
# 市值
elements=browser.find_elements(By.CSS_SELECTOR, 'tr.border-b td:nth-of-type(4) ')
for element in elements:
    market_cap.append(element.text.strip())

```

Graph 4–12 Detailed information (code)

## 5. Data format & Raw data

After finishing the steps above, we used pandas to store the basic information data in csv file.

```

import pandas as pd
tiny={"游戏名称":BigName,
      "代币名称":tokenname,
      "区块链":block1,
      "代币地址":tokencontract,
      "游戏类型":genreclean,
      "运行平台":plat1,
      "代币价格":tokenprice,
      "24小时涨跌":updown,
      "代币总价值":tokenvolume,
      "游戏市值":marketcap
      }
df=pd.DataFrame(tiny)
df.index=df.index + 1
df['爬取时间']=2022/11/12
df.to_csv('游戏除开奖学金.csv')
df

```

Graph 5–1 Data format (code)

	游戏名称	代币名称	区块链	代币地址	游戏类型	运行平台	代币价格	24小时涨跌	代币总价值	...
1	The Sandbox	SAND	ethereum	0x3845badade8e6dff049820680d1f14bd3903a5d0	Metaverse	windows	\$0.66	3.77%	\$319,989,103	\$1,009,
2	Decentraland	MANA	ethereum	0x0f5d2fb29fb7d3cfbee44a200298f468908cc942	Metaverse	browser	\$0.52	4.53%	\$159,534,152	\$941,
3	Axie Infinity	AXS	ethereum	0x715d400f88c167884bbcc41c5fea407ed4d2f8a0	Breeding, Card Game, Metaverse	android,ios,windows	\$7.28	2.62%	\$140,413,167	\$792,
4	Enjin Coin	ENJ	ethereum	0xf629cbd94d3791c9250152bd8dfbd380e2a3b9c	Metaverse	browser	\$0.36	2.7%	\$62,416,270	\$362,
5	STEPN	GMT	solana	0x3019bf2a2ef8040c242c9a4c5c4bd4c81678b2a1	Collectible, Move To Earn	browser,mobile	\$0.41	6.73%	\$159,166,037	\$245,
...	...	...	...	...	...	...	...	...	...	...
1734	Catheon Gaming	CATHEON	other		NoAddress	Other	browser	-	-	-
1735	Sky Meta		avalanche		NoAddress	Other	browser	-	-	-
1736	Bora		ethereum		NoAddress	Other	browser	-	-	-
1737	Champion Strike : Crypto Arena	STRICO	ethereum		NoAddress	Move To Earn	ios,android	-	-	-
1738	Ruler Of The Land: Era Of Factions	SIV	ethereum,polygon		NoAddress	Card Game	browser	-	-	-

Graph 5–2 Raw main form (1738 rows × 11 columns)

Here is the table of funding rounds, we also used pandas to store information.

```
import pandas as pd
tiny={"Project":project,
      "Funding Rounds":funding_rounds,
      "Total Funding Amount":total_funding_amount,
      "Date": date
     }

df=pd.DataFrame(tiny)
df.index=df.index + 1
df
```

Graph 5–3 Data format (code)

	Project	Funding Rounds	Total Funding Amount	Date
1	Xternity	Pre-Seed Round	\$4,500,000	Nov 08, 2022
2	Play Ember	Pre-Seed Round	\$2,300,000	Nov 16, 2022
3	Heroic Story	Seed Round	\$6,000,000	Nov 17, 2022
4	Arcade	Seed Round	\$3,200,000	Oct 19, 2022
5	Metaverse Magna	Seed Round	\$3,200,000	Sep 05, 2022
...	...	...	...	...
463	Gourmet Galaxy	Strategic Round	-	Jan 15, 2021
464	Antler Interactive	Seed Round	\$2,100,000	Jan 06, 2021
465	Exeedme	Seed Round	\$750,000	Dec 21, 2020
466	Axie Infinity	Strategic Round	\$860,000	Nov 20, 2020
467	Infinite Fleet	Strategic Round	\$3,100,000	Aug 06, 2020

467 rows × 4 columns

Graph 5–4 Raw scholarship form (467 rows × 4 columns)

And we used the same method to output the table "Gaming ICOs" and "investors".

```
import pandas as pd
tiny={"Name":name,
      "Current Price":current_price,
      "Sale Price":sale_price,
      "Market Cap":market_cap,
      "Raised":raised,
      "ROI Usd":roi_usd,
      "Ath ROI":ath_roi,
      "Type":type,
      "Tge Platform":tge_platform,
      "Ended":ended
     }
df=pd.DataFrame(tiny)
df.index=df.index + 1
df
```

Graph 5–5 Data format (code)

	Name	Current Price	Sale Price	Market Cap	Raised	ROI Usd	Ath ROI	Type	Tge Platform	Ended
1	METADOGE MTDU	-	-	-	\$20,000	-	-	IDO	Kingdom Game	4.0 Aug 18
2	Monsterra MSTR	-	\$0.2	-	\$92,000	-	-	IDO	Red Kite	Aug 16
3	Monsterra MSTR	-	\$0.2	-	\$131,000	-	-	IDO	GameFi	Aug 16
4	Monsterra MSTR	-	\$0.2	-	\$150,000	-	-	IDO	Poolz	Aug 16
5	DEFY DEFY	-	\$0.02	-	\$200,000	-	-	IDO	Polkastarter	Aug 15
...	...	...	...	...	...	...	...	...	...	...
818	Rage.Fan RAGE	\$0	\$0.04	\$212,957	\$100,000	0.04x	-	IDO	Poolz	Mar 31
819	GamyFi GFX	\$0.04	\$1	\$138,673	\$40,000	0.04x	-	IDO	ZENDIT	Mar 29
820	ChainGuardians CGG	-	\$0.12	-	\$216,000	-	-	IDO	Polkastarter	Mar 10
821	My Neighbor Alice ALICE	\$1.21	\$0.12	\$69,037,707	\$100,000	9.68x	-	IDO	DAO Maker	Feb 03
822	Seascape Crowns CWS	\$0.33	\$1	\$1,270,368	\$60,000	0.34x	-	IDO	DAO Maker	Jan 27

822 rows × 10 columns

Graph 5–6 Raw scholarship form (822 rows × 10 columns)

```
import pandas as pd
tiny={"Name":name1,
      "Investor Type":investor_type,
      "Total Investment":total_investment,
      "Current ROI":current_roi,
      "Ath ROI":ath_roi,
      "Top3 ROI":top3_roi
     }

df=pd.DataFrame(tiny)
df.index=df.index + 1
df
```

Graph 5–7 Data format (code)

	Name	Investor Type	Total Investment	Current ROI	Ath ROI	Top3 ROI
1	quest-capital	Crypto Ventures	1	31.61x	336.94x	PlayDapp(31.61x )
2	vestigium		1	31.61x	336.94x	PlayDapp(31.61x )
3	blocore		4	31.61x	336.94x	PlayDapp(31.61x )
4	scalar-capital	Crypto Ventures	2	25.08x	1,117x	Yield Guild Games(24.9x )
5	gumi-cryptos		4	25.08x	1,117x	Yield Guild Games(24.9x )
...	...	...	...	...	...	...
720	milky-way	Venture Capital	-	-	-	
721	molten-ventures	Venture Capital	-	-	-	
722	2050	Venture Capital	-	-	-	
723	brevan-howard	Venture Capital	-	-	-	
724	morgan-creek-digital	Venture Capital	-	-	-	

724 rows × 6 columns

Graph 5–8 Raw scholarship form (724 rows × 6 columns)

We also generated a table of games, scholarship guilds, and guild partner games.

	游戏名称	A	B
0	The Sandbox	Earn Guild,Yield Guild Games,UniX Gaming,Block...	68,41,36,31,17
1	Decentraland	Earn Guild	68
2	Axie Infinity	Cosmic Guild,GuildFi,Good Games Guild,Yield Gu...	15,25,77,41,10,36,36,15,25,31,10,28,40,17,7
3	Enjin Coin		
4	STEPN		
...	...	...	...
1733	Catheon Gaming	Earn Guild	68
1734	Sky Meta	Cosmic Guild	15
1735	Bora	GuildFi	25
1736	Champion Strike : Crypto Arena		
1737	Ruler Of The Land: Era Of Factions		

Graph 5–9 Raw scholarship form (1738 rows × 3 columns)

The table of the game guilds, including token price, market capitalization, discord index, number of partnered games, and investors.

	guilds name	token price	market cap	discord	number of partnered games	investors
1	Merit Circle MC	\$0.71	\$210,343,311	22K	34	BitScale Capital\nMaven 11 Capital\nDeFiance C...
2	Yield Guild Games YGG	\$0.3	\$57,012,988	80K	38	Mechanism Capital\nDelphi Digital\nAnimoca Bra...
3	GuildFi GF	\$0.13	\$19,010,793	54K	23	Alameda Research\nAnimoca Brands\nCoin98 Ventu...
4	Blockchain Space GUILD	\$0.04	\$6,158,756	-	36	Animoca Brands\nInfinity Ventures Crypto\nSpar...
5	Blackpool BPT	\$0.41	\$3,128,230	4K	17	Delphi Digital\nPlay Ventures\nCherry Ventures...
6	PathDAO PATH	\$0.01	\$2,736,262	31K	39	Newtribe Capital\nMerit Circle Investor\nMaste...
7	Avocado DAO AVG	\$0.08	\$2,078,839	-	33	PNYX Ventures\nBinance Smart Chain\nAnimoca Br...
8	UniX Gaming UNIX	\$0.05	\$2,020,464	195K	36	6KStarter\nBanter Capital\nBaseTwo\nSL2 Capita...
9	Perion PERC	\$0.25	\$1,896,678	41K	9	Chris Laurent\nRob Salha\nCluster Capital\nAni...
10	Play It Forward DAO PIF	\$0	\$333,489	815	25	NxGen\nDweb3 Capital\nSL2 Capital\nDouble Peak...
11	Good Games Guild GGG	\$0.05	-	44K	75	Kyros Ventures\nExNetwork Capital\nAU21 Capital...
12	Earn Guild EARN	\$0.01	-	-	58	Dutch Crypto Investors\nOIG Oracles Investment...
13	MetaGaming Guild MGG	\$0	-	27K	41	LD Capital\nDAO Maker Investor\nlcetea Labs\nM...
14	YGG Sea SEA	-	-	-	40	Infinity Ventures Crypto\nEmfarsis\nPetrock Ca...
15	Bayz	-	-	26K	31	Infinity Ventures Crypto\nBITKRAFT Ventures\nY...
16	IndiGG INDI	\$0.11	-	-	28	YGG SEA\nHyperedge Capital\nDune Ventures\nTra...
17	Ancient8	-	-	85K	15	Hashed\nPantera Capital
18	Cosmic Guild CGG	-	-	14K	14	Alameda Research\nDeFiance Capital\nBinance La...
19	Hooga Gaming	-	-	8K	10	Impossible Finance Investor\nHooga Hooga Ventures
20	Salad Ventures	-	-	5K	10	Winklevoss Capital\nAlameda Research\nCrossbea...
21	SNACKCLUB	-	-	37K	8	Animoca Brands\nFormless Capital\nOP Crypto\nJ...
22	Loot Squad	-	-	14K	7	Delphi Digital\nFirst Serve Partners\nVolt Cap...

Graph 5–10 Raw guilds form (22 rows × 6 columns)

## 5.1. Data processing

As is shown in Graph 5–9, there is no one-to-one correspondence between the number of scholarship guilds and collaborations, so we used the explode function that comes with pandas to split this table and rename the columns.

```

df2['A']=df2['A'].map(lambda x:x.split(','))
df2['B']=df2['B'].map(lambda x:x.split(','))
df3=df2.explode(list('AB'))
df3

```

	游戏名称	A	B
0	The Sandbox	Earn Guild	68
0	The Sandbox	Yield Guild Games	41
0	The Sandbox	UniX Gaming	36
0	The Sandbox	Blockchain Space	36
0	The Sandbox	Bayz	31
...	...	...	...
1733	Catheon Gaming	Earn Guild	68
1734	Sky Meta	Cosmic Guild	15
1735	Bora	GuildFi	25
1736	Champion Strike : Crypto Arena		
1737	Ruler Of The Land: Era Of Factions		

Graph 5–11 Exploded scholarship form (1738 rows × 3 columns)

```

df3.index=df3.index - 1
df3.rename(columns={'A':'设立奖学金的公会','B':'公会合作游戏数量'},inplace=True)
df3['爬取时间']='2022/11/12'
df3

```

	游戏名称	设立奖学金的公会	公会合作游戏数量	爬取时间
1	The Sandbox	Earn Guild	68	2022/11/12
1	The Sandbox	Yield Guild Games	41	2022/11/12
1	The Sandbox	UniX Gaming	36	2022/11/12
1	The Sandbox	Blockchain Space	36	2022/11/12
1	The Sandbox	Bayz	31	2022/11/12
...	...	...	...	...
1734	Catheon Gaming	Earn Guild	68	2022/11/12
1735	Sky Meta	Cosmic Guild	15	2022/11/12
1736	Bora	GuildFi	25	2022/11/12
1737	Champion Strike : Crypto Arena			2022/11/12
1738	Ruler Of The Land: Era Of Factions			2022/11/12

Graph 5–12 Exploded scholarship form (1738 rows × 3 columns)

We merged the main form and the scholarship form to produce a complete main form. Finally, we exported the table for further analysis and visualization in excel.

```
df4=pd.concat([df,df3],axis=1,join='outer')
df4
```

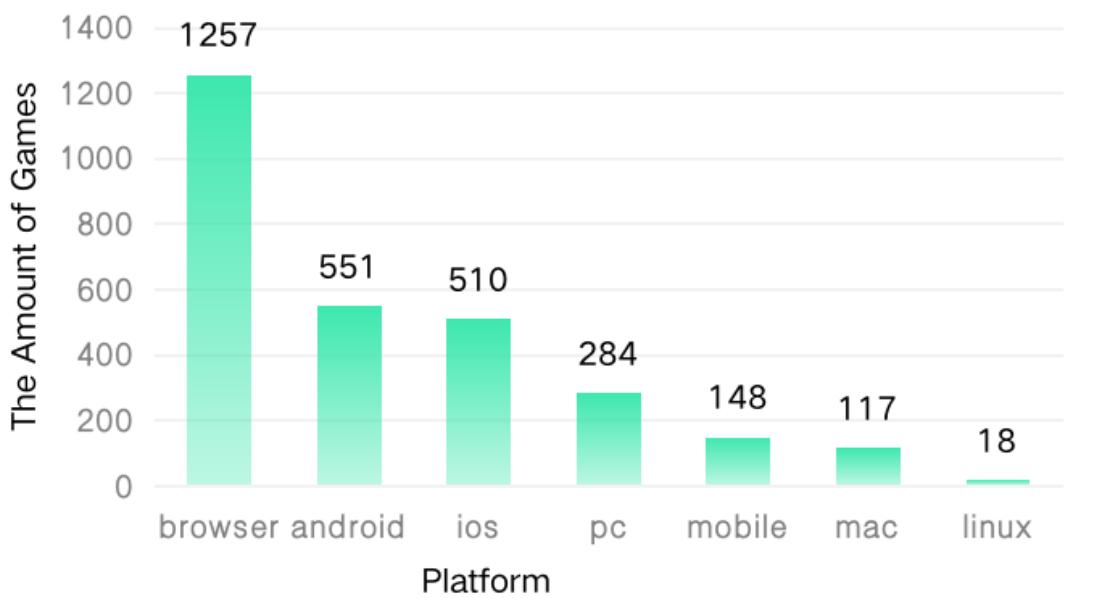
	游戏名称	代币名称	区块链	代币地址	游戏类型	运行平台	代币价格	24小时涨跌	代币总价值	游戏市值	流通量
1	The Sandbox	SAND	ethereum	0x3845badade8e6dff049820680d1f14bd3903a5d0	Metaverse	windows	\$0.66	3.77%	\$319,989,103	\$1,009,803,249	5.0000000000000005e-05
1	The Sandbox	SAND	ethereum	0x3845badade8e6dff049820680d1f14bd3903a5d0	Metaverse	windows	\$0.66	3.77%	\$319,989,103	\$1,009,803,249	5.0000000000000005e-05
1	The Sandbox	SAND	ethereum	0x3845badade8e6dff049820680d1f14bd3903a5d0	Metaverse	windows	\$0.66	3.77%	\$319,989,103	\$1,009,803,249	5.0000000000000005e-05
1	The Sandbox	SAND	ethereum	0x3845badade8e6dff049820680d1f14bd3903a5d0	Metaverse	windows	\$0.66	3.77%	\$319,989,103	\$1,009,803,249	5.0000000000000005e-05
1	The Sandbox	SAND	ethereum	0x3845badade8e6dff049820680d1f14bd3903a5d0	Metaverse	windows	\$0.66	3.77%	\$319,989,103	\$1,009,803,249	5.0000000000000005e-05
...	...	...	...	...	...	...	...	...	...	...	...
1734	Catheon Gaming	CATHEON	other		NoAddress	Other	browser	-	-	-	-
1735	Sky Meta		avalanche		NoAddress	Other	browser	-	-	-	-
1736	Bora		ethereum		NoAddress	Other	browser	-	-	-	-
1737	Champion Strike : Crypto Arena	STRICO	ethereum		NoAddress	Move To Earn	ios,android	-	-	-	-
1738	Ruler Of The Land: Era Of Factions	SIV	ethereum,polygon		NoAddress	Card Game	browser	-	-	-	-

Graph 5–13 Main form (2010 rows × 14 columns)

## 6. Visualization and Results

*Which platforms are easier to play Blockchain games?*

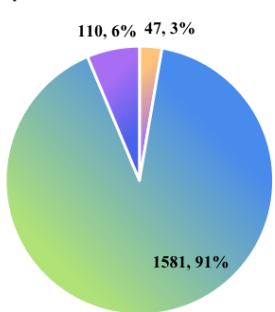
## The Amount of Games in Different Platforms



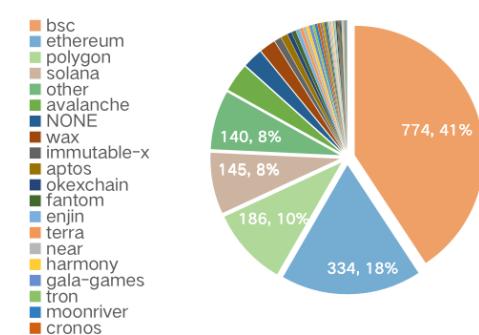
In the current network environment, the most widely used platform for blockchain games is browser, with 1257 games adapted. Android and iOS followed with 551 and 510 games respectively. But there may be a trend towards simultaneous development of Android and iOS and other mobile environments, after all, it is the era of mobile terminals.

*How many games have launched on the blockchains? How about the distribution of single-chain games and multi-chain games? Which is the most popular blockchain for the games*

Proportion of Game chains

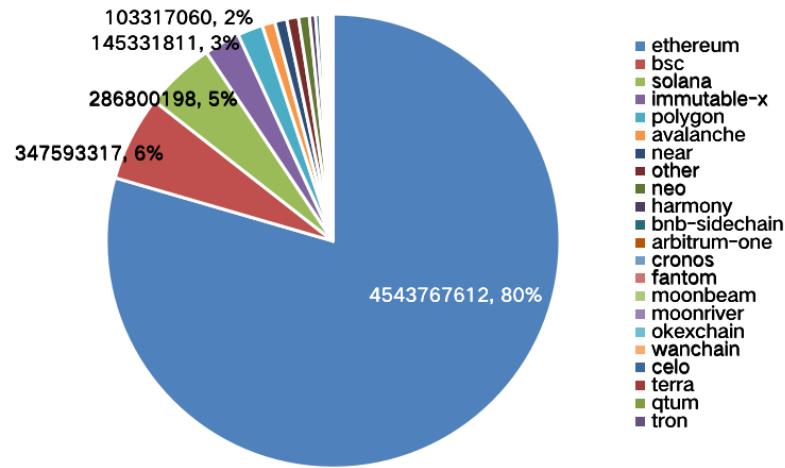


Total Amount of Games on Block Chain



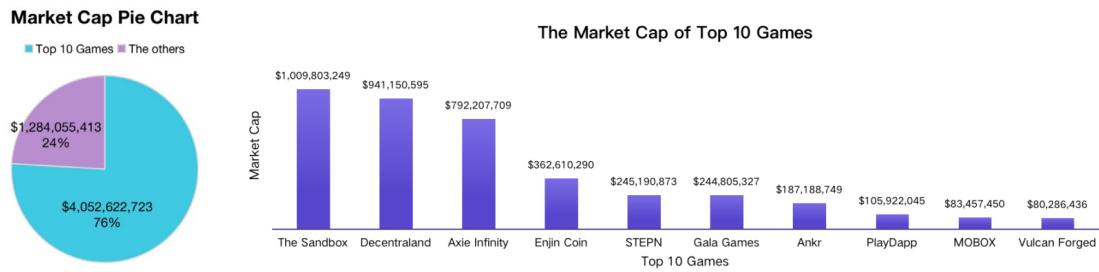
■ None ■ Single-chain ■ Multi-chain

## Market Value of Different Games on Chian



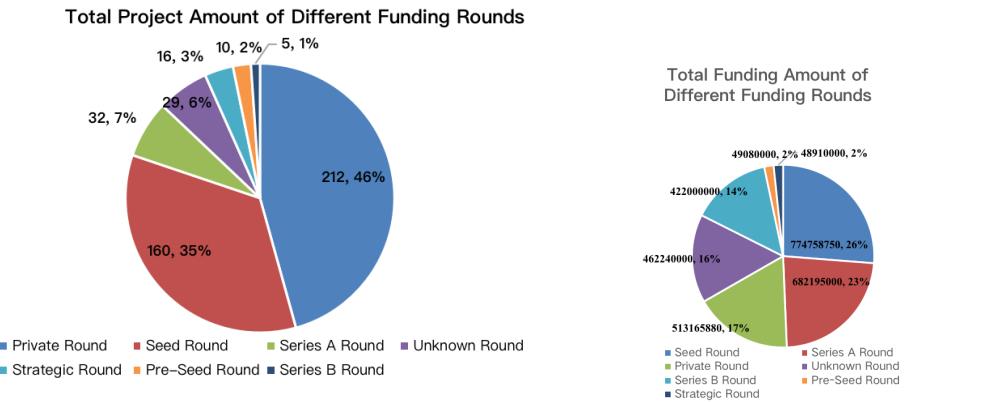
Among the games that have been launched, 94% of the games have been on the blockchain, and only 6% of the remain have not yet been on the blockchain. The vast majority of blockchain games are single-chain, accounting for 91%. In terms of the amounts of games and the market cap of games, Ethereum and BSC both occupy the top 2 positions. BSC is dominant in the number of games selected (774 games, accounting for 41% of the total number of games); And Ethereum contributes 80% of the game market value with \$4.544 billion, which is absolutely dominant.

*What do **Market Cap** talk about blockchain games market?*

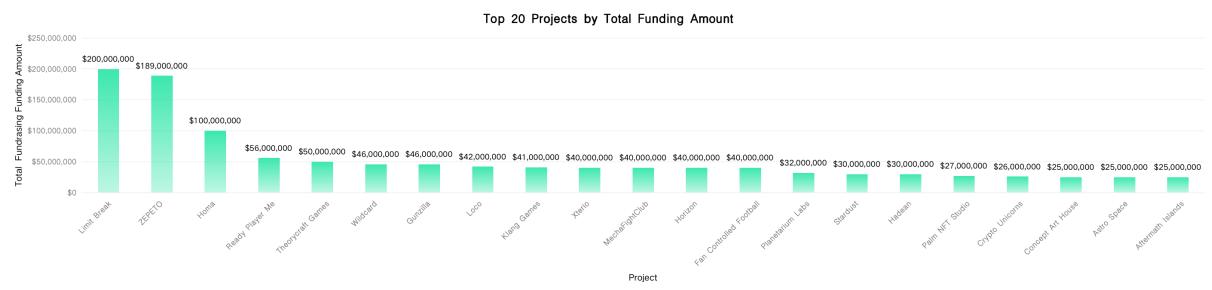


The market capitalization of blockchain games released by the top 10 games account for 76% proportion that it has a great impact on the entire blockchain games market. The Sandbox has the highest market valuation at over \$1 billion, followed by Decentraland with \$941 million and Axie Infinity with \$792 million, occupying second and third places respectively, far ahead of other games.

**How many games are currently running fundraising funding rounds? How much fundraising funding amount does each funding rounds raise separately? Which projects are most favored by capital ?**

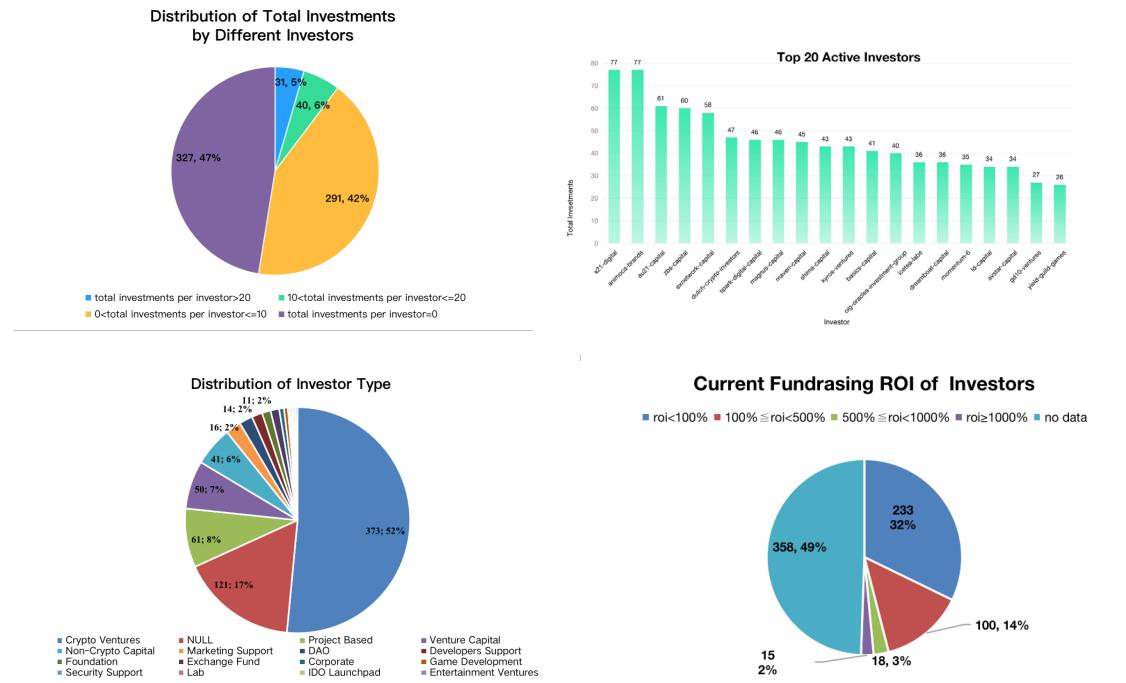


There are 464 projects in the fundraising funding round, with a total fundraising funding amount about \$2,952 million, of which up to 46% of the game projects are in the private round, but the funding amount of this round is smaller. The seed round is the largest fundraising funding amount, accounting for 23% of the total funding amount, and the second one is the Sereies A round, accounting for 23%.



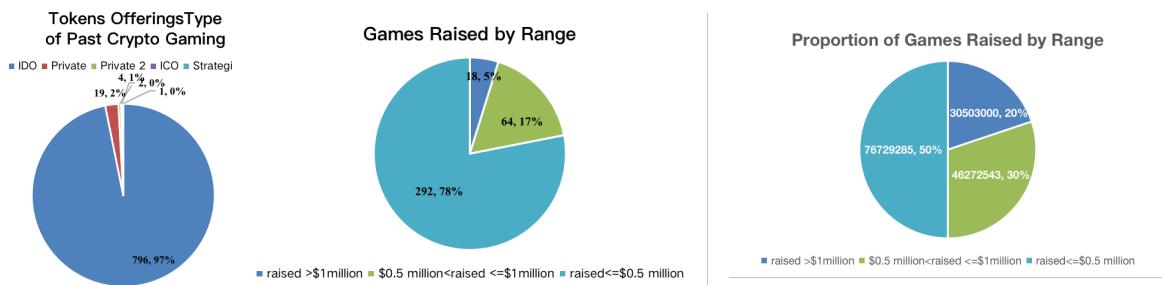
The Limit Break project has the largest funding amount, which makes us interested in it. Founded by former Machine Zone CEO Gabriel Leydon, Limit Break is dedicated to transforming the gaming industry through FREE-TO-OWN (F2O) NARRATIVE. Such a huge funding amount maybe have a lot to do with the previous success of Limit break founder Gabriel Leydon, whose mobile game company Machine Zone has developed a number of best-selling games, including " Game of War: Fire Age", "Mobile Strik" and "Final Fantasy XV: A New Empire".

*Which investor type is the most popular of the Venture Capital Firms ? What is the current situation of the blockchain games Investors?*

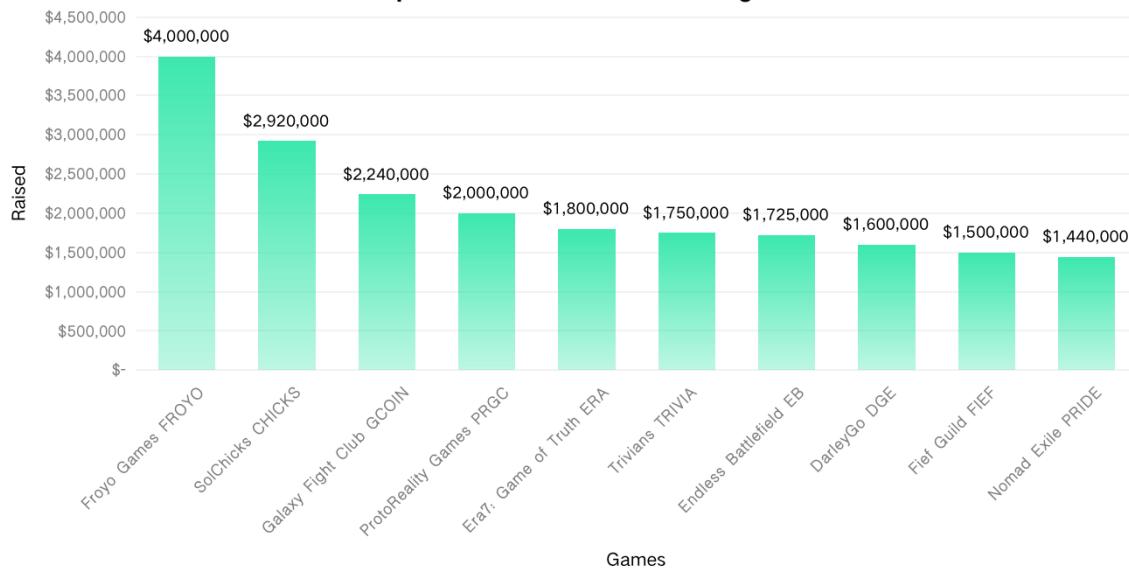


When it comes to fundraising investors, there are a total of 689 investors. However, it can be assumed that nearly half (47%) of the companies are not actively investing and have not made any investments in the blockchain games yet. Only 11% of the investors can invest in more than 10 projects. The most active companies are X21 Digital and Animoca Brands, both with 77 investments. And ignoring 49% of no data, 32% of current fundraising ROI of investors is less than 100%, meaning that more than half of the investors are losing money at the current stage.

*On the Gaming ICOs page, what was the past crypto gaming tokens offering type? How much fundraising has been for these games that have already been on public sale? What were their distribution trends? Which game was the biggest fundraiser?*

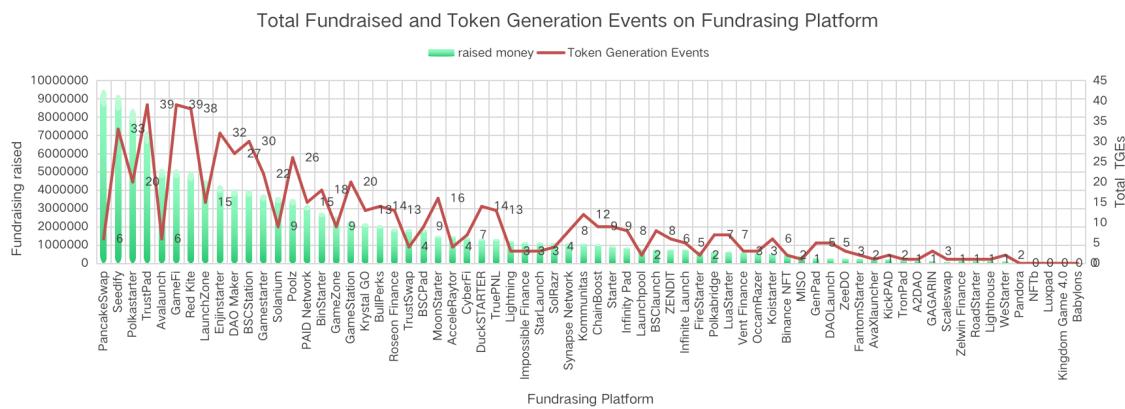


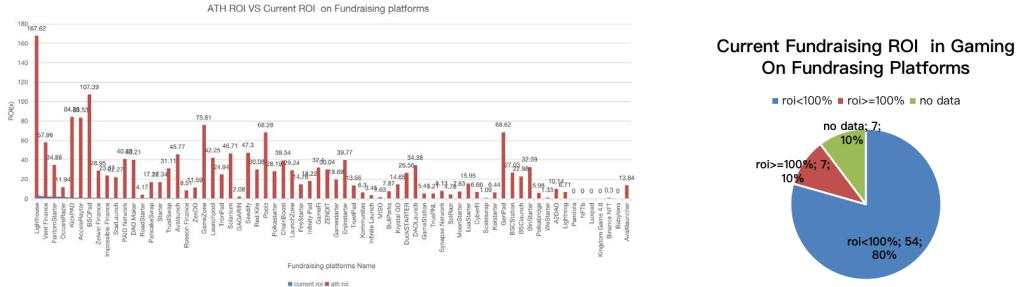
### Top 10 Raised Games Of Gaming ICOs



A total of 822 token offers were made for 374 games, 796 of which chose the IDO type, accounting for 97% of the sale type, occupying an absolute choice. For the 374 games, 292 of the funds raised by a single game were concentrated in the range of less than \$500,000, accounting for 78%. Therefore, the corresponding total amount of funds raised was relatively high, with 7,6729,285 dollars, nearly 50% of the total amount raised by all games. Although there are only 18 games raised fund more than 1 million raised, their total raised fund still account for 20% of the total raised. Among them, the game with the biggest raised is Froyo Games FROYO, with 4 million dollars.

*What is the size of the fundraising amount for games on all IDO platform? What is the past situation and current situation of the blockchain gaming launchpads on all IDO platform?*

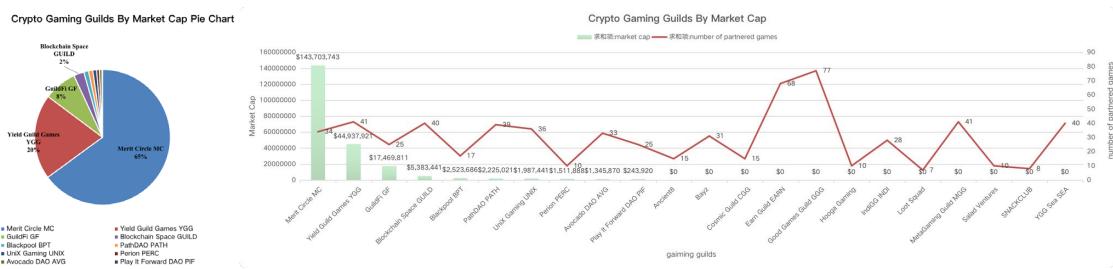




Total fundraised in gaming category on all IDO platforms is \$124.97M. The fundraising platform chosen by games is not overly concentrated, and the platform with the highest fundraising amount is PancakeSwap, which has \$9,487,500. Comparing the number of raised money and Token Generation Events on different fundraising platforms, we can find that, for projects with high fund-raised funds, their Token Generation Events show a downward trend of fluctuation. In other words, projects with high fund-raising funds generally may have more Token Generation Events.

By comparing the number of fundraising funds and Token Generation Events on different platforms, we can find that there is an overall correlation between them, and projects with high fundraising amounts are generally more Token Generation Events. Through the histogram comparison table of All Time High ROI and Current ROI, it can be seen that the fundraising platform has formed a clear downward trend between the historical high and the current market, and current return on investment is not ideal. This can be seen by taking a deeper look at the current fundraising ROI pie chart: nearly 80% of current ROI of fundraising games is less than 100%, while there are 10% of games that have no data. The current ROI of fundraising games on IDO platforms and investor which we discussed before reflect that low return on fundraising investment has become the mainstream trend of the blockchain game markets, and the current blockchain games market is sluggish.

**Which gaming guilds are most favored by capital? Is the market cap of the guild related to the number of games released?**

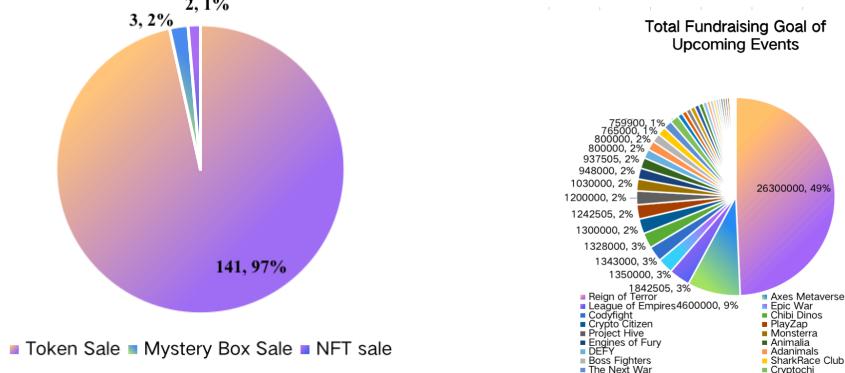


In the 22 gaming guilds, only 10 of them reported their game market cap, of which Merit Circle MC has 65% of the total market cap at \$143,703,743 followed by Yield Guild Games YGG with 20% of the market cap; However, as can be seen from the line chart, the number of partner games of the guild is not positively correlated with the market cap of

the guilds.

*How many upcoming events in the process of fundraising? Which IDO platform is the most popular and what are the reasons behind it?*

### Sale Type of Upcoming Events



## 7. Conclusions

It is debatable whether blockchain games, an emerging trend in game development, can take the gaming industry in a new direction. The primary purpose of this research is to explore the current development status of blockchain games. To create a more thorough description, we crawled as much of Chainplay.gg's relevant content about blockchain games. The analysis of the blockchain game platform, chain, game market value, investor situation, investment platform situation and game guild expanded our understanding of the development status of blockchain games.

The data analysis results show that 91% of games on the platform are single-chain games, and mobile terminals and browsers are both the leading platforms for users to play.

In terms of blockchain, the number of games on the bsc and Ethereum account for nearly 60% of the total. And Ethereum makes up 80% of the market value of games, which is overwhelming. The top 10 games that Chainplay.gg released in their market capitalization for blockchain games make up 76% of the total market capitalization.

As for funding projects, most of the projects are still in the seed round and private placement stage, which accounts for 81% of the total number of projects. Projects in the seed round raised the most funds, accounting for 23% of the total funding amount. At the same time, the Limit Break project is the one with the most funding.

Regarding fundraising investors, about 52% of venture capital firms are of Crypto Ventures. As for Initial Coin Offering, 5% of games raised more than \$1 million, and these games accounted for 20 per cent of the total funds raised.

From the perspective of return on investment, 32% of investors, who make up the vast majority of all investors, have an investment return rate of less than 100%, and 80% of the fundraising platforms have an investment return rate of less than 100%. Of course, at the same time, only a few investors have obtained high profits. Based on the analysis results above, we argued that the current state of blockchain games is a very unbalanced "winner takes all" situation, and related investments are risky.

Also, this study has some limitations: First, we cannot conduct a long-term dynamic data monitor because our data scraping capability is still in its infancy. Second, there might be an easier way to do all the data crawling; our code needs to be simplified.

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Cricket Star Manager (2022). Play-to-Earn: The New Crypto Standard Changing the Future of Online Gaming. Medium. <https://medium.com/@cricketstarmanager/play-to-earn-the-new-crypto-standard-changing-the-future-of-online-gaming-6472bbb55252>

Min, T., Wang, H., Guo, Y., & Cai, W. (2019). Blockchain Games: A Survey. 2019 IEEE Conference on Games (CoG). <https://doi.org/10.1109/CIG.2019.8848111>