

AppCoins

Redesigning the App Economy

The first ICO serving 200 million users

Version 0.52

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Abstract

The app economy has three main problems:

1. **Advertising**. Relies on many inefficient middlemen, increasing the cost of user acquisition for app developers, reducing transparency and generating fraudulent transactions. Nowadays, only 4% of the app downloads are triggered by advertising.
2. **App monetisation and in-app purchases (IAP)**. Still not massified and can be costly. IAPs rely on payment methods and flows that are not accessible to many users. Especially in emerging markets where the transactions costs are high, with significant margins being taken by payment processors and other FinTech middlemen. Currently, only 5% of users purchase items in apps.
3. **App approval**. Inefficient process related with users' cybersecurity and apps quality assurance that is currently being handled by each centralised app store with non-transparent flows and policies that affect developers' and users' trust.

The solution is AppCoins, an open and distributed protocol for app stores based on the Ethereum blockchain. It proposes to move all three flows to the blockchain. This removes intermediation and redistributes the value released in a way that creates incentives for end-users, developers and app stores alike.

In **advertising**, the protocol guarantees not only that the users install apps but that they pay attention to it for at least 2 minutes. AppCoins calls this *Cost Per Attention* (CPAt). The value invested by the developer in CPAt is used to award users with AppCoin tokens. **IAP** will grow with users using their earned AppCoins or by purchasing them through exchanges. **App approvals** are made universal and more transparent through a developer reputation system. The reputation is tied to the financial transactions on the public ledger and is auditable. A dispute system will be created so that AppCoin owners can vote to rank developers.

The AppCoins business model will have a considerable impact on the app economy. It enables a transition towards a circular economy, reusing value that was previously drained by intermediaries. For now, the AppCoins protocol will focus on the Android market, which has 81.7% of market share.

The first app store to integrate the AppCoins protocol is Aptoide. With over 200 million active users, 4 billion downloads and 6 years on the market, it is one of the biggest third-party Android app stores. Aptoide projects that more than 1.3 billion users will use app stores powered by AppCoins in 5 years.

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Table of Contents

Abstract **1**

1 AppCoins overview **3**

1.1 The solution 3

1.2 Strategies to promote AppCoins adoption 9

1.3 AppCoins Use Cases 10

2 Analysis of AppCoins Model and Impact **17**

2.1. Transparency and Openness 17

2.2. Closing the Loop Towards a Circular Economy 17

3 Business Case **19**

3.1 AppCoins adoption 19

3.2 In-store App Advertising 21

3.3 In-App Purchases 23

3.4 AppCoins added value to the App Economy 25

4 The App Store Foundation **28**

4.1 Overview 28

4.2 Objectives 29

4.3 Operational aspects for the ASF formation 29

5 Roadmap **30**

5.1 Organisational 30

5.2 Technical 31

5.3 Business 33

6 Token Allocation, Crowdsale and Bootstrap **33**

6.1 Token Allocation 33

6.2 Bootstrap strategy 37

7 AppCoins team **38**

8 About Aptoide **41**

9 References **44**

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1 AppCoins overview

1.1 The solution

AppCoins is an open and distributed protocol for app stores based on the Ethereum blockchain and smart contracts. It redesigns app advertising, in-app purchases (IAP) and app approval flows through a circular model. As a higher share of the advertising and IAP revenue is kept within the app ecosystem, more value is rooted back into the app economy. Being an open protocol, it also provides more transparency and trust. Multiple app stores can implement and benefit from this and stakeholders will contribute to its development and adoption. Furthermore, simple API integration will allow easy implementation.

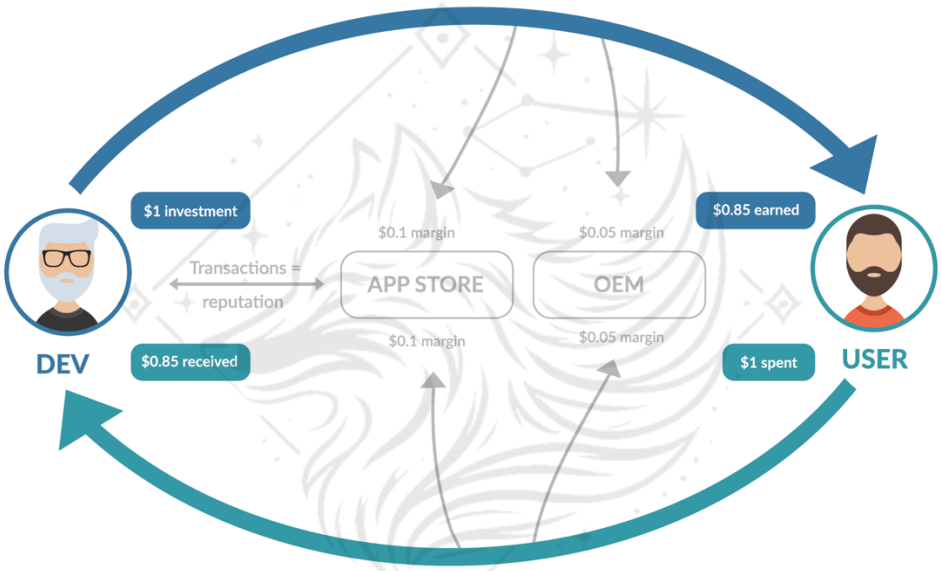
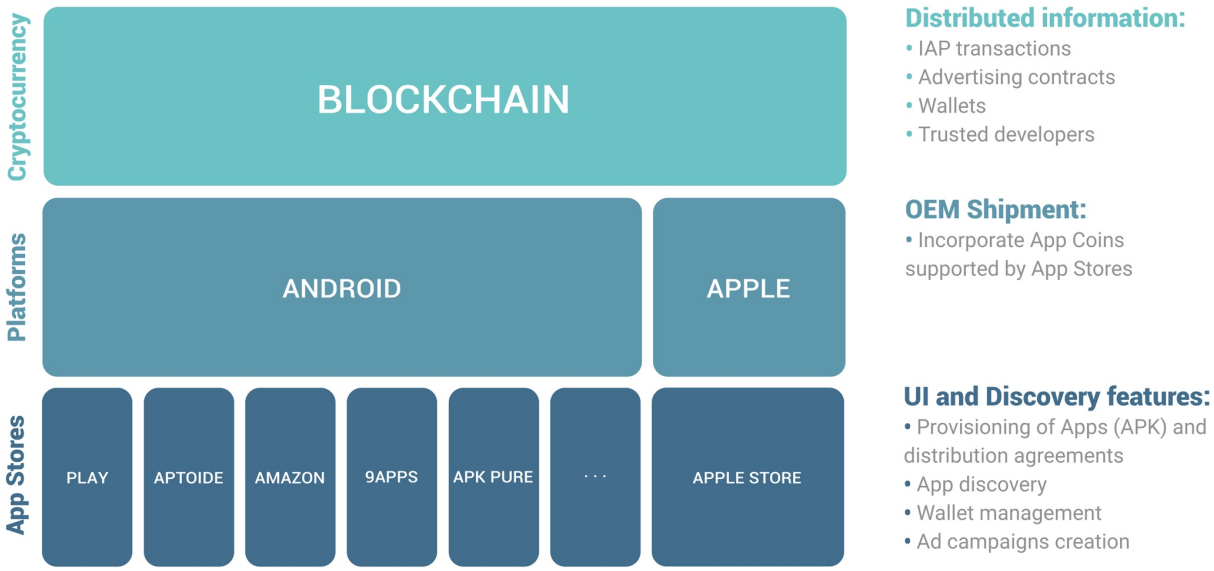


Figure 1 - AppCoins solution

Through AppCoins we can integrate app stores, users, developers, advertisers and OEMs. This system is app store agnostic, existing across different mobile platforms (Android & iOS). In AppCoins, the different app stores act as oracles of the smart contracts, which are associated with each of the platform's core transactions. This system creates a trust layer for the economy, rendering many middlemen obsolete. AppCoins aims to become the universal language of the app economy.

The protocol also includes a so-called *Proof-of-Attention* system. Users, app stores, and OEMs receive tokens through the Proof-of-Attention concept as a reward. Developers that want to advertise their apps can be sure that the user has installed and used it. The users reinvest their tokens via in-app purchases and this creates a virtuous loop that boosts the AppCoins economic growth.

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1.1.1 In-store App Advertising

Developers are willing to pay for app installs (via advertising) but there is fraud and high costs of intermediation (ad servers, tracking platforms, etc.). With the AppCoins protocol, advertising transactions are on the blockchain. Developers publish ad offers to a certain app store by creating a smart contract. The tracking of the app installation and usage occurs via *Proof-of-Attention,* reducing fraud. Each app store acts as an oracle, which unlocks developer's funds through a smart contract.

How it works:

- The developer pays for the user's attention (CPAt) – defined at a 2-minute threshold.
- The user receives 85% of advertising revenue in their wallet. This value can be used to pay for in-app purchases.
- The app stores will receive 10% of the revenue for distributing the APK and for being the oracle of the smart contract.
- OEMs who distribute the solution in their devices will receive 5% for the role of pre-loading the app stores and bringing their user base to the system.

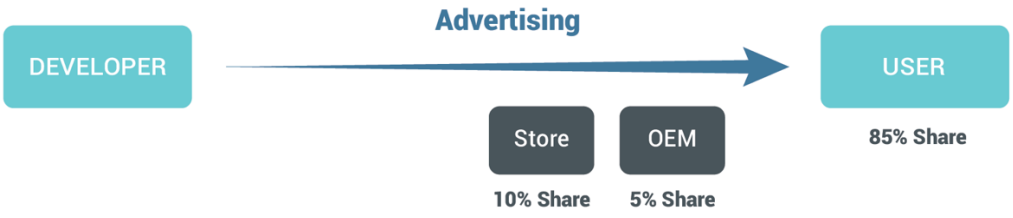


Figure 2- AppCoins advertising flow

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The app store will validate the time spent in the app without any intermediaries and will record it on the blockchain. Afterwards, a smart contract transfers AppCoins from the developer's wallet to the user's wallet, OEM, and app store.

Example for Advertising (Smart Contract 1)

When the app store (oracle) confirms the user attention (minimum time using the app) it stores the Proof-of-Attention on the blockchain. As soon as this happens, there's a transfer from the developer's wallet to the user's wallet (85%), app store (10%) and OEM (5%). The value of the transfer equals the ad bid.

1.1.2 In-app Purchases

Many users want to buy items inside apps, but often don't have the means (methods or money). AppCoins can be used to pay for IAP in any app store. Users may earn AppCoins by installing and paying attention to advertised apps, which is a way to engage and incentivise users to participate in the economy. Moreover, AppCoins will be available on several global platforms where users can exchange fiat currency for the tokens. It will also be possible to send/receive tokens to/from other users.

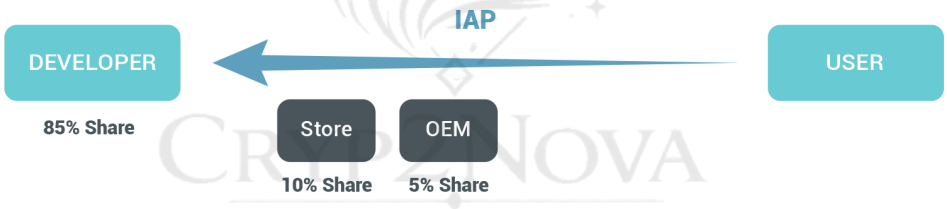


Figure 3 - AppCoin IAP flow

How it works:

- The price of each in-app item is catalogued in the blockchain, using the developer's private signature. After the sale, the user can continue to use the IAP item since the proof of payment is on the blockchain. Each user can also send non-consumed items to other users.
- Users buy in-app items with AppCoins earned from advertising, exchanged for fiat currency or sent by other peers (P2P transfers).

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- Developers receive 85% of the IAP transaction in their wallet directly from the user's wallet.
- The price can be dynamically established by the developer and may change during the app's lifetime.
- The app stores will get 10% of the revenue of purchases made by users, for the role of distributing the APK and as an oracle of the smart contract.
- AppCoins are independent of the store and can be used elsewhere for apps consumption, even across app platforms.
- OEMs (who distribute the solution in their devices) will receive 5% for the role of pre-loading the app stores adopting this solution.

1.1.3 Developer's Ranking

A developer's reputation is based on their transactional history on the blockchain. The reputation of all listed apps is tied to the developer's reputation. It becomes easy to secure the platform since app approval is automated.

Nowadays, users already have tools like comments, ratings and malware flags to rank apps and, inherently, developers. These important feedbacks are analyzed by quality assurance teams, which is an inefficient and costly service. AppCoins protocol provides an automated governance system for app approval based on the developer's ranking. This brings huge efficiency to the quality assurance and apps approval processes.

Furthermore, the proposed developer's ranking will (1) promote transparency in the app approval process of app stores, defining a trust circle with different levels as well as rewards; and (2) a system that promotes the engagement of users in this ranking, performed by a dispute system with incentives. AppCoins ensures an improved experience for users and developers and makes app stores safer from malicious software.

How it works:

The developers' apps ranking system is stored in the distributed blockchain, which the app stores have access to. Management of this "Chain of Trust" is performed by the community/industry, cooperating in an efficient way.

The AppCoins "chain of trust" model exhibits three different types of reputation for developers:

Trusted: The apps of a Trusted developer are considered safe.

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Critical: Apps not considered safe and therefore blacklisted.

Unknown: Preliminary status referring to developers before any app has been uploaded. Once an uploaded app is considered safe, the status changes to Trusted. If the app is deemed unsafe, it changes to Critical.

For a **Trusted Ranking**:

There are different “trusted” rank levels and they will be automatically calculated depending on the amount of IAP and advertising transactions in the blockchain.

The trusted status is defined by the interaction or volume of transactions of apps and not the downloads.

The higher the developer engagement in paying for ads, the higher the user engagement, measured both in proof-of-attention and IAP.

The popularity of apps will influence the trusted ranking of a developer. Top games and apps will by default have more transactions (ads and IAP) and, therefore, will enjoy a higher trusted rank.

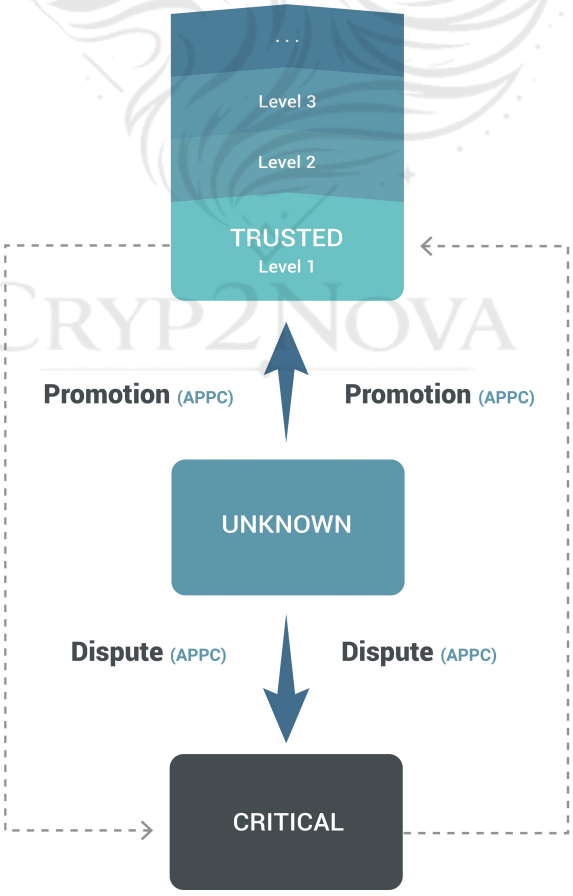


Figure 4 - AppCoins developer's ranking

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Example:

A developer uploads an app for the first time and is classified as Unknown. By creating an advertising campaign to acquire users, thus creating a transaction flow, the ranking moves from Unknown to Trusted. Users purchase in-app items and, by creating more transactions, increase the level of trust of the developer in the process.

For the **Dispute system** (giving a “critical” classification):

When malware is detected in an app or if a user wants to report a low-quality app, the dispute system will use a consensus protocol to mitigate the dispute. AppCoins will play a critical role in this.

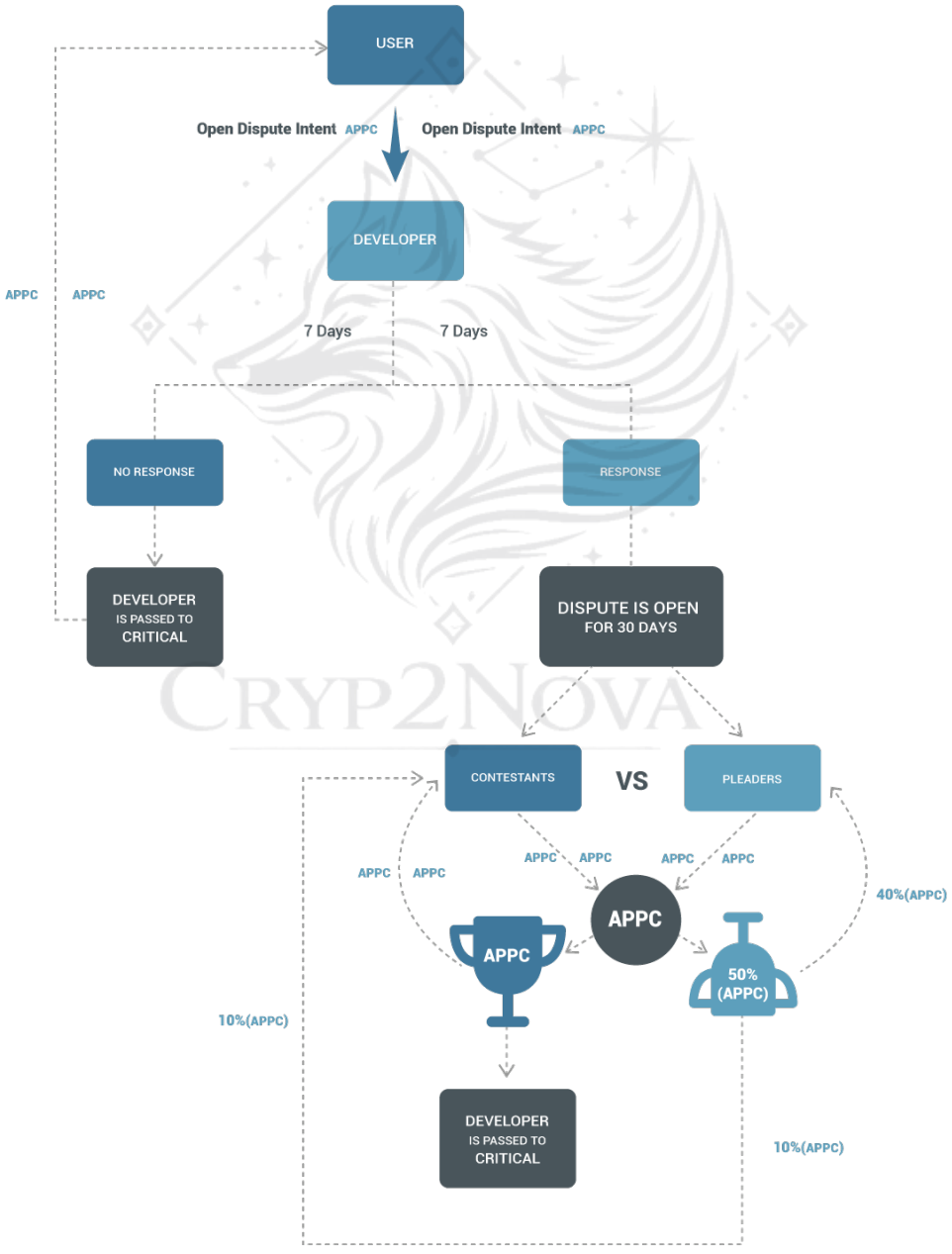


Figure 5 - Ranking dispute

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- The opening of a dispute intent - blockchain will allow 7 days in order for other users to respond to a negative classification (intent).
- In case of no response – the developer's reputation drops down to critical status;
- In case of a response - The user pays a fee in AppCoins to respond and the dispute is open for 30 days so other users can also respond similarly. The dispute will have 2 sides:
- Contestants (bad ranking side)
- Pleaders (developer's side – who want the developer to keep a good ranking)
- After the 30 days, the side that has most AppCoins will win. If the Contestants side wins, the developer is classified as Critical, if the Pleaders side wins, the developer stays or becomes classified as Trusted, so a 50%+1 evaluation of the side that wins.
- There is an incentive mechanism: the side that wins will get their AppCoins invested in the dispute refunded. The side that loses will also get refunded with the AppCoins invested minus 10%. The 10% taken out of the "losing side" will be divided by the winning side (proportional to the amount that user put in).

App stores can decide themselves if they want to hide or remove the app if it is classified as critical.

1.2 Strategies to promote AppCoins adoption

There are several factors that will encourage the adoption of AppCoins protocol among users and developers.

1. **The initial support of Aptoide**, a third-party app store with 200 million users and more than 15 thousand developers enrolled. AppCoins will benefit, since the beginning, of this wide user base and partnerships.
2. **The creation of the App Store Foundation** (section 4.), which will have the aim of encouraging other app stores to adopt AppCoins. Inherently, these app stores will promote the adoption of the protocol by their customers and partners.
3. **The users' compensation system**, not found in any app store, is a catalyst of more in-app purchases and of accessibility for new paying customers to be active in the app economy.
4. **The trust** of customers on the this blockchain based payment mechanism for mobile apps (inherent to blockchain).

Complementing these factors, 20% of the tokens are reserved for bootstrapping the adoption of users, developers and OEMs. The specific actions are presented in section 6.2.. On the section 3 is presented a reasoned business case to sustain these strategies and forecast the evolution of adoption of AppCoins.

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1.3 AppCoins Use Cases

In this section AppCoins use cases for both the consumer and business sides are explained.

1.3.1 Users with no payment system access



Everson

15 years old user with no payment method access

"I have an Android device and I love to play games. I would love to purchase gems on Clash of Clans. 80 of those cost only R$2.99, but I don't have access to a payment method neither do my parents."

Facts

In countries like Brazil users still prefer **Bank Transfer (35%)** to **Credit Card (21%)**

AppCoins Benefits

Everson can obtain AppCoins from his friends or by trying other apps

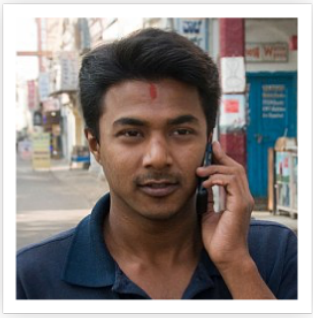
Everson has an Android smartphone and loves to play games. He would love to purchase in-app items. But the problem is that he doesn't have a credit card or an easy way of sending money to his game wallet.

Consumers in emerging economies such as Brazil still prefer to rely on bank transfer (35%), credit/debit card (21%) and mobile carrier billing/SMS (16%) for in-app transactions [16]. Digital wallets account for only 15% of all transactions. Few of Everson's friends have a credit card. Even fewer do payments online, although he and his friends all own smartphones.

The father of one of his friends has a credit card and is able to pay through his phone. Everson's friend offers to send him 10 AppCoin tokens in exchange for local fiat money. All he has to do is install an AppCoins affiliated app store. Then he can start using his AppCoins through their IAP system on his favourite Android games.

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1.3.2 Users with low financial resources



Arun

User with low financial resources

"I can't afford to do in-app purchases, but I love trying new apps. I also have a Youtube channel, and if possible I would like to share my opinions about apps and in-app items!"

Facts

In India **only 3%** of users do in-app purchases.

AppCoins Benefits

Arun can receive coins for trying new apps, which allow him to try in-app item purchases

Arun has a small YouTube channel talking about Android apps. Most of his audience are his friends. He's always looking for free alternative apps to well-known tools. Arun also looks for freemium games that he can play offline. Arun doesn't have a lot of money to spend. Many of his followers on YouTube ask him to review premium features of apps, but he is unable to buy them. If only he could earn some free credit to unlock those features through IAPs. In India, only 3% (compared to 5% globally) of smartphone app users buy in-app items [1].

These problems are solved once he tries AppCoins. Now he plays an important role in the app economy. AppCoins value his willingness and availability to try new apps and games. The more time he spends using new apps, the more APPC he obtains.

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1.3.3 Indie Developers



Growstrong Studios
Indie Developer

"We want to ensure our Marketing expenditures have results."



Facts

Developers have a hard time being noticed. The **1000th** most popular app has only **0,2%** of the market.



AppCoins Benefits

Growstrong Studios can obtain a much higher ROI on mobile advertising.

Growstrong Studios is an indie developer. They have been doing paid advertising on app stores to acquire new users. They have noticed two different patterns:

1. A lot of traffic is fraudulent, as the installs they are receiving are not real users; and
2. Many of the real users don't spend more than a few seconds on the app. So far, all of their marketing investment has been wasted.

Mobile app developers still suffer from App Discovery issues, especially indie developers. The 1000th most popular app in the market only has 0,2% of the users [2]. Breaking through the noise is still the no. 1 issue faced by indie developers. Current mobile advertising is not a solution either. Mobile ad fraud losses may reach $16.4 billion in 2017 [3]. A lot of mobile advertising is ineffective; only 4% of app installs are triggered by advertising. Also, ad fraud practices such as false clicks and installs are rampant.

After testing AppCoins, Growstrong Studios conclude that it makes it considerably more difficult to fake installs or actions. This reduces fraud and guarantees that the users at least try the app, increasing the chances of retention. To further boost conversion, they award the user a few AppCoins for the install and attention. They can even run promotions for them, such as offering items with a special AppCoins price. It's a win-win.

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1.3.4 Top Developers



Mega
Top Developer

"We want to optimise our monetisation efforts and improve our R&D processes."



Facts

Top developers have unbalanced app portfolios. **Very few apps earn most revenue.**



AppCoins Benefits

Mega gets a more efficient monetisation and user acquisition process.

Mega is one of the top developers in the world. It has an app portfolio that includes mobile games that rank amongst the top 100 most popular. It keeps introducing new apps in the market, but it's getting harder to get these new games noticed. The market is overcrowded and the acquisition efforts are very costly. In the meantime, Mega's cash cows won't last forever. Despite being a top developer they still run the risk of losing market share to the app economy's long tail.

Analysing app development companies at Google Play Store we can infer that some top developers may have unbalanced app portfolios. Supercell for example — a leading mobile app development studio — has most of their downloads from a single game.

Mega's new app development processes can be improved with the extra cash flows coming from the AppCoins economy. This allows them to put better apps in the market faster. Users also have more financial power to enjoy the paid in-app experiences.

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1.3.5 Independent App Stores



MainApps
Independent App Store

"We want to improve our quality assurance processes and verify the reputation of developers beforehand."



Facts

Independent app stores are a large part of the industry. The **revenue** of independent app stores combined **matches Google Play's**.



AppCoins Benefits

MainApps obtains a standardised and transparent quality assurance system.

MainApps is an independent Android app store that has a critical issue: the difficulty to confirm the identity of developers. They need to confirm these identities to control the quality of new app uploads. To solve that, they have their own quality assurance process, but that process is only partially automated.

The combined revenue of independent App Stores in 2017 nearly matches Google Play's revenue at $20 Billion [4]. These are important players which have struggled with app quality issues [5].

AppCoins allows MainApps to check the blockchain to determine the developer's reputation based on previous transaction data and disputes. This way, MainApps can benefit from a standard transparent global quality assurance system.

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1.3.6 Regional App Stores



Markyt

Regional App Store

"We want access to the best app content from top developers, but top developers don't fell secure uploading their apps to regional app stores."

Facts

99% of **app store revenue** in **China** comes from **regional app stores.** Regional stores are also important in Russia, India, S. America and M. East.

AppCoins Benefits

Markyt has an easier access to top content.

Markyt is a regional Android app store. One of the main problems that it faces is the difficulty in obtaining access to global content. They have very good relations with local developers, and they have good processes to certify their identities, given that there are fewer. The main problem is getting global top developers to submit their own content to an app store they don't know, especially given the difficulties with their QA processes.

Approximately 99% of the app economy revenue in China comes from regional app stores [6]. Regional app stores are important in regions such as Russia, China, India, South-America [7] and the Middle-East [8]. They all experience problems with lack of access to AAA content.

AppCoins is a trustworthy environment where top developers are open to submit their content to different app stores. They don't need to create special versions of their content to process IAP anymore. This gives developers the ability to access previously untapped geographies. AppCoins provides a standardised interface for developers to receive payments in any app store. Top developers now have a reason to trust Markyt and are willing to try out these new app stores, since app distribution is simplified and in return they can earn more profits.

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1.3.7 OEMs



Truepad
OEM

"We want to establish partnerships with large independent app stores to extend the content catalog of our app store, given that our devices don't have Google Services."

Facts

China's smartphone OEM 'Big Four' hold **22,1%** of global vendor market.

AppCoins Benefits

Truepad has easier access to app store partnerships, and a 5% share of the transactions.

Truepad is one of the largest equipment manufacturers in the world. It enjoys a strong market share in the Android tablets market and sells millions of devices from Shenzhen to the world. It also has its own Android app store that comes pre-installed, TrueApps, because that way the company can avoid using Google Services (which provides a low return for them). In theory, Truepad could get a large number of apps given its reputation as an OEM, but developers prefer to upload their content to the well-known stores. The company's main issue is attracting new and updated content to make their app store useful to their devices.

The Smartphone OEM "Big Four" in China hold 22.1% of the global vendor market share [9]. They've been left out of the app monetisation payoff, but they are one of the main drivers of the app economy growth, given that they select which app store to provide on their devices.

AppCoins allows Truepad to monetise its devices through the OEM share included in the smart contracts. It also allows the OEM to scale its content offer by partnering with app stores. The AppCoin protocol allows it to integrate with different app stores and monetise on their large user base. Truepad still keeps its own proprietary app store and catalogue while generating leads for existing app stores.

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2 Analysis of AppCoins Model and Impact

2.1. Transparency and Openness

The mobile attribution model assumes the advertiser and the publisher don't trust each other. Thus, it relies on a third-party to confirm the advertising results. AppCoins renders the third party obsolete through Proof-of-Attention, with costless built-in transparency enforced by the underlying blockchain. Costless verification is one of the main benefits of blockchain-based financial systems [10].

Additionally, AppCoins transactions rely on publicly available smart contracts. It means that all parties have the mathematical assurance that they can trust each other. Privacy is also safeguarded: cryptography ensures that we can verify transactions without accessing private data. When we have a trustworthy system that also ensures privacy we are facing a truly open economy, which eliminates transactional risks that currently exist. It also creates a safe plug-and-play environment for open innovation from firms.

Recent research suggests that open innovation fosters knowledge spill over effects between firms. This has a positive net effect on overall economic performance [11]. Existing open platforms such as Android have generated higher levels of innovation [12]. Android, in particular, has achieved market leadership very fast (86% as of 2017 [13]). AppCoins' transparency and openness should boost innovation in the app economy in a similar manner.

2.2. Closing the Loop Towards a Circular Economy

One of the central aspects of the AppCoins business model is its circular economy. Value previously drained by intermediaries now stays in the system, as a means for users to be active in the app economy. This conception aligns with circular economy principles, bringing huge financial, social and environmental benefits. The circular economy has attracted the attention of major global companies like Google, Unilever and Renault [14]. Global economies are transitioning from the linear model ("take, make, dispose" [15]) to the circular model ("closing loops" [14]). The Ellen MacArthur Foundation estimates the potential impact on the net savings of the EU to be $630 billion per year

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[16]. This led the EU to recently provide funding to support it: over €650 million under Horizon 2020 and €5.5 billion under the structural funds [17]. Despite being associated with manufacturing, these benefits are being transposed to the digital economy, as shown in Google's case study [18].

The principles of the circular economy include, among others, the need to **build resilience**, to **think in systems** and to **share value** [14]. Figure 6 shows the envisioned transition of the app economy towards a Circular App Economy using AppCoins.

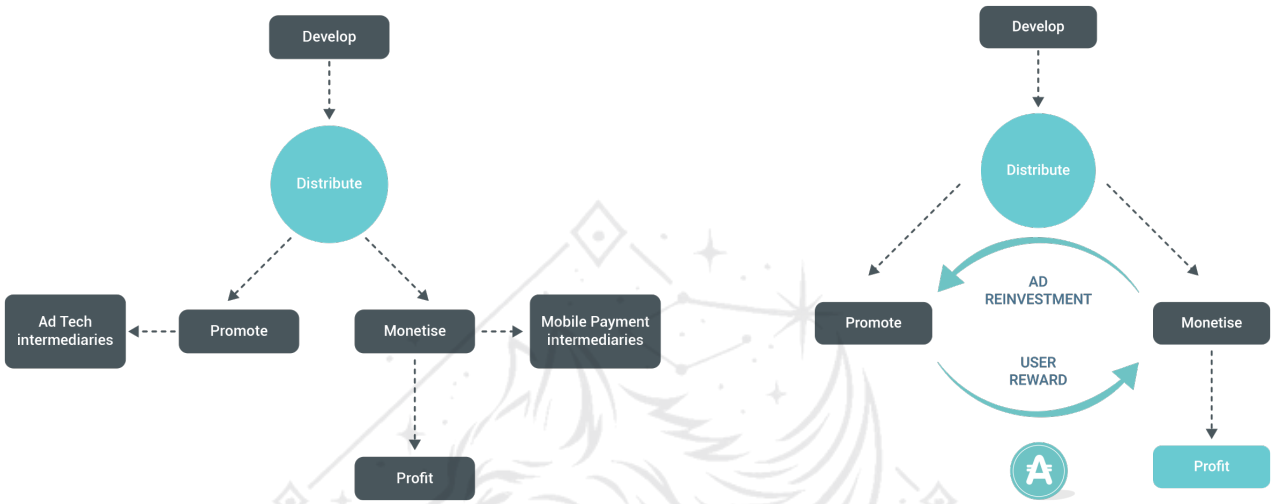


Figure 6: AppCoins closing loops towards a Circular App Economy

The current app economy has gaps. It has no way of reusing resources or building resilience into the system. There are several capital drainers, which prevent the economy from growing optimally. These capital drainers are the payment industry and adtech middle-men. They offer very low efficacy and efficiency. Currently, only 4% of app downloads are triggered by advertising, and only 5% of monthly active users make purchases in the app economy [19]. Therefore, there is no reuse of value within the system, and little value is brought to the key players of the economy: the developers and the users.

On the next section, we present a business case that provides a clear vision of the benefits of moving from the current app economy to a circular economy like the one proposed by AppCoins model.

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3 Business Case

The app economy focuses on a global high-volume market that is still growing fast. This business handled 149.3 billion app downloads in 2016, a number that is expected to more than double by 2020 [20]. In March 2017, the Google Play Store had 2.8 million apps available, Apple's App Store had 2.2 million, and the Amazon app store had 600 thousand [21], while Aptoide currently has more than 1 million. Despite being able to encompass the whole app economy, the AppCoins project will focus on the Android market first, which, by the last quarter of 2016 had a market share of 81.7% [22]. In terms of value, the apps market was, by 2016, a $88.3 billion industry, a value that is expected to more than double by 2020 [23]. However, the app economy has the several inefficiencies previously presented, namely the heavy intermediary services that add little value to the key stakeholders, and the very low percentage of users able, or willing, to pay for apps or purchase in-app items. In the following business case, we provide grounded forecasts for the launch of AppCoins in the app economy, and its impact. We focus on: a) AppCoins users' adoption; b) In-store app advertising; c) IAP; and d) The added value to the app economy from the perspective of users, developers, app stores, OEMs, and also adtech and payments industry.

3.1 AppCoins adoption

The evolution of AppCoins adoption is based on several factors. The first is the **support of Aptoide**, a successful European app store with 200 million unique users doing at least one download in 2017. This app store will promote the initial adoption of the system by integrating the platform and by promoting AppCoins to its users, developers, and partners. A second factor is the creation of the **App Store Foundation**. As described in the next chapter, this foundation will have the aim of building, through open governance, a community of app stores that, by adopting AppCoins and by offering it to its user base, will significantly increase the number of users adopting the system. The other factors that will influence the adoption of AppCoins are the characteristics of the model itself. Some examples are the **users' compensation**, not found in other app stores, which has the ability of bringing new user segments to the app economy (users without money or payment methods), and the **trust** that comes from blockchain's security and transparency features. Another key characteristic of the AppCoins model is the **reduction of the intermediation** of the adtech industry. This action tends to lower the costs of app advertisement to the developers, promoting their adoption

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and of the users of their apps. We envision that these disruptive characteristics, associated with the network effects related with the market introduction of the solution, will be able to foster the **organic growth of the user base**, engaging new users and attracting users from the competition.

Table 1 - Users' Adoption of AppCoins

	Month 6	Month 12	Month 18	Month 24	Long Term (Month 60)
	Beta users	*Early Adopters: Aptoide App Store*	*Consolidated bootstrap strategy results*	*App Store Foundation: First set of app stores' community*	*40% of the whole apps industry*
Monthly Active Users (MAU) Forecast	**10 000**	**18 000 000**	**41 000 000**	**95 000 000**	**1 300 000 000**

To support the previous assumptions we have built a *Bass Diffusion Curve* (a consumer growth model [24][25]) able to forecast the progression of the users' adoption with the following parameters:

- Seed value of 10 000 MAU, which will be achieved with Aptoide's initial support.
- Word of Mouth (WoM) effect parameter below average: $q = 0.083$ (average of the market is $q = 0.380$).
- Paid advertising effect below average: $p = 0.001$ (average of the market is $p = 0.030$).
- Baseline forecast for the number of users in the app economy according to Statista [26].

The WoM parameter below average, the low paid advertising and the low number of early adopters (considering Aptoide's support), grants the forecast shown in Table 1 a conservative perspective. Table 1 may be read and explained as follows:

1. 10 000 beta users by the 6th month after the beginning of the project;
2. 18 million early AppCoins' adopters by the 12th month, leveraging on Aptoide's support;
3. 41 million users when the bootstrap strategy is consolidated (18th month), following the strategies described in section 6.2. At this moment, the App Store Foundation assumes the governance of the project;
4. 95 million MAU by the 24th month, based on Aptoide's MAU, the bootstrap strategy completion and on the efforts of the App Store Foundation for engaging 4 to 6 app stores;
5. 1.3 billion MAU in the long-term: after 5 years, we aim to have 40% of the mobile apps market adopting AppCoins, which is coherent with the Bass Diffusion Curve model previously described.

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3.2 In-store App Advertising

In apps advertising, we propose to reduce the intermediation of the adtech industry, transferring its value (its revenue share) to users, giving them the means to be more active and engaged in the apps economy. We have thus built the following assumptions:

a. **Users will do more installs triggered by ads** than they do today in order to earn AppCoins, which they can use to purchase items in apps. Currently, based on Aptoide's business intelligence data, only 4% of the apps downloaded are triggered by ads. However, studies from 2017 show that a user is 27% more likely to convert when being rewarded to watch an ad [27]. Therefore, conservatively, we forecast a gradual increase from the 4% of current CPI model, to achieve 27% of downloads triggered by AppCoins ads at the limit of our timeline (5 years).

b. Due to the reduction of intermediaries, **developers will immediately pay less** per attention (CPAt) than they pay currently per install (current default CPI model). The adtech industry share is between 40% and 70% of the value paid by developers. Moreover, currently, the average CPI on the Android market is $0.53 [28]. Conservatively, due to the disintermediation, we have assumed an average CPAt 30% below the current average CPI.

c. Due to its added value to the market (more downloads triggered by ads; more users doing IAP) we assume that from the 12th month onwards, **AppCoins' CPAt value will equal the rate of increase of conversions** (percentage of downloads triggered by ads). This is a conservative perspective, based on the higher demand of App Advertising services when these prove their benefits.

d. Currently, each user makes an average of 8.33 downloads per month (Aptoide's business intelligence source).

e. A forecast of the number of transactions and revenue without AppCoins has been achieved considering the current known facts (4% of downloads triggered by ads and $0.53 of average CPI).

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Table 2 - App Advertising Monthly Transactions and Revenue

		Today	Month 6	Month 12	Month 18	Month 24	Long Term (Month 60)
In-store Apps Ads	MAU		10 000	18 000 000	41 000 000	95 000 000	1 300 000 000
	Average CPAt (assumption b. and c.)	$0.53	$0.37	$0.40	$0.42	$0.43	$0.48
	Number of monthly app downloads (assumption d.)		83 333	150 426 767	346 715 342	790 805 442	10 895 749 417
	% of downloads triggered by AppCoins ads (assumption a.)	4%	6.3%	10.9%	15.5%	20.1%	27%
	Number of monthly ads transactions (downloads triggered by ads)		**5 250**	**16 396 518**	**53 740 878**	**158 951 894**	**2 941 852 343**
	Monthly revenue of in-store apps ads		**$1 948**	**$6 502 842**	**$22 597 577**	**$68 736 775**	**$1 403 658 680**
	Transactions without AppCoins		*3 333*	*6 017 071*	*13 868 614*	*31 632 218*	*435 829 977*
	Revenue without AppCoins		*$1 767*	*$3 189 047*	*$7 350 365*	*$16 765 075*	*$230 989 888*

Table 2 uses the previous assumptions and known data to forecast the progression of in-store app advertising transactions and revenue with AppCoins. The forecast shows that despite the reduction of the price of CPAt when compared to current CPI models (lower costs for developers), after 12 months the monthly revenue with AppCoins more than doubles the current revenue of in-store App Advertising. After 24 months, the monthly revenue with AppCoins is 4 times bigger than the revenue without AppCoins. Even if the market revenue doubles as it is forecasted [23], AppCoins will still have a revenue that is twice as large. Moreover, in the long term, the difference between the AppCoins model and current the default CPI model still sharpens.

Note: 85% of the share of the previous revenue goes to the users, who have to spend the value earned in the app economy.

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3.3 In-App Purchases

Considering app advertising as the economic flow that will have most of the related value redirected to promote users' activity in the app economy, the IAP is where this activity takes place. Figure 1 depict the flow between app advertising and IAP, in the AppCoins loop (or reuse). To support the business scenario, we have built the following assumptions. With AppCoins:

a. **On average, each user will spend more on IAP.** We assume that this will happen due to the more trustful and transparent environment, and the improved engagement (akin to gamification) of the users with the system through its compensation mechanism. Currently, the average IAP per paying user, per month, in the Android market is $6.19 [29]. Adding to this value, users will have the earned AppCoins available, equivalent to 85% of the ad conversion related revenue (starting with the CPAt $0.37 - Table 2 -, where users will receive $0.31 per ad triggered conversion). We assume that, with AppCoins, the **average IAP per paying user** will be equal to the current average IAP per paying user plus the AppCoins earned by each user per month (85% of the CPAt multiplied by the number of AppCoins' conversions per user). Given that the CPAt will increase (Table 2), the average IAP per paying user will also increase (proportionally). Table 3 shows this scenario, which conservatively leads to a moderate increase in the average IAP per paying user. This is coherent with the larger user base engaging in IAP, which is the strongest argument of the AppCoins model.
b. **The percentage of users engaging in IAP will increase**. This growth is one of the goals and strengths of AppCoins. The system is more inclusive, allowing users that do not have money or payment mechanisms to earn value to spend in the economy. Moreover, users have to spend all the AppCoins earned in the app economy. Given that studies from 2017 show that a user is 27% more likely to convert when being rewarded to watch an ad [27], we envision a growth of the percentage of MAU engaging in IAP from the current 5% [19] to 27% by the end of our forecast period (5 years). This growth is also sustained with a similar growth of the percentage of downloads triggered by ads. Given that users have to spend the earned AppCoin tokens (for anti-fraud reasons, explained in the technical specifications, users cannot exchange earned AppCoins for fiat money), we assume that there is a direct correlation between these two variables (percentage of users engaging in IAP and percentage of downloads triggered by ads, which leads to the earning of AppCoins).
c. The forecast of the IAP revenue without AppCoins has been achieved considering the current known facts (5% of MAU engaging in IAP and $6.19 as average monthly IAP per paying user).

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Table 3 - Monthly In-App Purchase Transactions and Revenue

		Today	Month 6	Month 12	Month 18	Month 24	Long Term (Month 60)
In-App Purchase (IAP)	MAU		10 000	18 000 000	41 000 000	95 000 000	1 300 000 000
	Average IAP per paying MAU (assumption a.)	$6.19	$6.36	$6.50	$6.65	$6.81	$7.10
	% of MAU doing IAP (assumption b.)	5%	7.2%	11.6%	16.0%	20.4%	27%
	# MAU doing IAP		720	2 093 941	6 656 935	19 358 917	353 022 281
	# of IAP Transactions		**3 066**	**5 772 778**	**13 854 745**	**32 853 221**	**478 541 314**
	IAP Revenue		**$4 576**	**$13 602 673**	**$44 279 695**	**$131 750 654**	**$2 507 347 587**
	Revenue without AppCoins (assumption c.)		*$3 095*	*$5 586 850*	*$12 877 008*	*$29 370 514*	*$404 668 133*

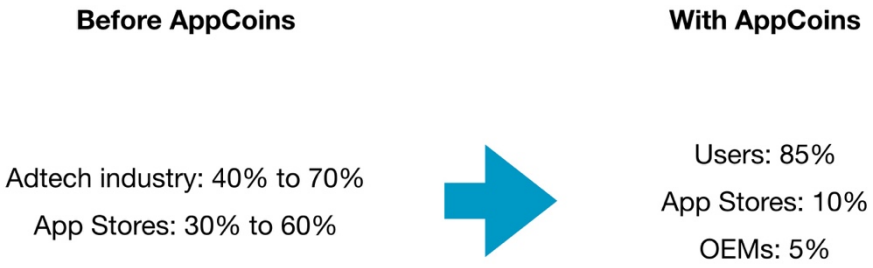
Based on the assumptions and facts shown, Table 3 presents the business case related to the IAP evolution. As can be seen, after 12 months, the IAP related revenue more than doubles and after the 24th month the IAP revenue with AppCoins is 4 times larger than the revenue without this model, which grants an unquestionable added value from AppCoins, even considering the potential growth of the IAP market as it is.

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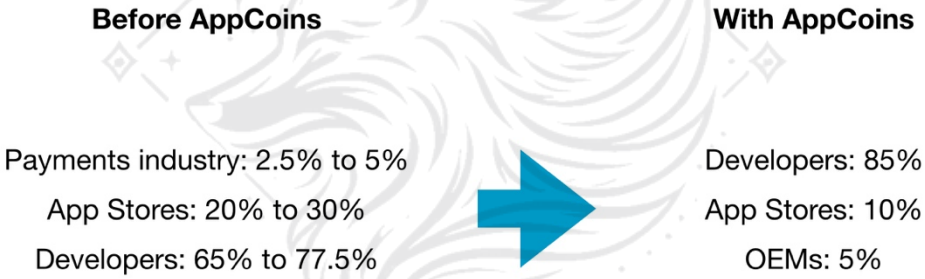
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3.4 AppCoins added value to the App Economy

To illustrate AppCoins' added value to the app economy, we need to compare the new distribution of value with the existing one. In regard to mobile app advertising, the revenue share difference is the following:



Regarding IAP, currently the value paid by the users when purchasing something in an app has the following distribution of shares:



With AppCoins, the shares are defined in public smart contracts, which brings transparency and trust to the economy. In both cases, OEMs will have a share of 5% to promote the wide market adoption of AppCoins. By providing app stores powering AppCoins by default on their devices, these entities are seen as key drivers for AppCoins' success.

With the revenue share distributions mentioned above, and the revenues of app advertising and IAP shown on previous tables, it is possible to provide the following table that consolidates the incomes of the key players in the app market.

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Table 4 – Consolidation of monthly income shares with AppCoins

		Month 6	Month 12	Month 18	Month 24	Long Term (Month 60)
	MAU	10 000	18 000 000	41 000 000	95 000 000	1 300 000 000
Users monthly earnings	Users share on ads transactions	85%				
	Compensation generated	**$1 656**	**$5 527 416**	**$19 207 940**	**$58 426 259**	**$1 193 109 878**
Compensation before AppCoins		$0	$0	$0	$0	$0
Developers monthly incomes	Developers share on IAP	85%				
	Developers IAP revenue	$3 890	$11 562 272	$37 637 741	$111 988 056	$2 131 245 449
	Average CPI savings in ads due to AppCoins	$835	$2 187 312	$5 885 088	$15 507 728	$155 523 062
	Developers revenue with AppCoins	**$4 724**	**$13 749 583**	**$43 522 829**	**$127 495 784**	**$2 286 768 511**
Compensation before AppCoins		$2 631	$4 748 823	$10 945 457	$24 964 937	$343 967 913
App stores monthly incomes	Ads transactions share	10%				
	IAP transactions share	10%				
	App stores ads revenue	$195	$650 284	$2 259 758	$6 873 678	$140 365 868
	App stores IAP revenue	$458	$1 360 267	$4 427 970	$13 175 065	$250 734 759
	App stores revenue with AppCoins	**$652**	**$2 010 552**	**$6 687 727**	**$20 048 743**	**$391 100 627**
Compensation before AppCoins		$1 591	$2 871 346	$6 618 102	$15 094 894	$207 978 065
OEMs monthly incomes	Ads transactions share	5%				
	IAP transactions share	5%				
	OEMs ads revenue	$97	$325 142	$1 129 879	$3 436 839	$70 182 934
	OEMs IAP revenue	$229	$680 134	$2 213 985	$6 587 533	$125 367 379
	OEMs revenue with AppCoins	**$326**	**$1 005 276**	**$3 343 864**	**$10 024 371**	**$195 550 313**
Compensation before AppCoins		$0	$0	$0	$0	$0

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To conclude, with AppCoins the key players in the market - the developers and the users - are the ones being best compensated. Specifically, the developers, who are the content creators in this market, are the ones with the biggest revenue share. Moreover, according to AppCoins model, the compensation generated to the users will be, by default, reused in the apps economy (in IAP).

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Table 5 - Monthly App Economy Losses and Incomes

		Month 6	Month 12	Month 18	Month 24	Long Term (Month 60)
	MAU	10 000	18 000 000	41 000 000	95 000 000	1 300 000 000
Adtech industry losses	Current Adtech share in app advertising (Min)	30%				
	Current Adtech share in app advertising (Max)	60%				
	Average Adtech losses	**$795**	**$1 435 071**	**$3 307 664**	**$7 544 284**	**$103 945 449**
Payments industry losses	Current payments processing fees share (Min)	2.5%				
	Current payments processing fees share (Min)	5%				
	Average payments processing losses	**$116**	**$209 507**	**$482 888**	**$1 101 394**	**$15 175 055**
AppCoins App Economy income	Users earnings	$1 656	$5 527 416	$19 207 940	$58 426 259	$1 193 109 878
	Developers income	$4 724	$13 749 583	$43 522 829	$127 495 784	$2 286 768 511
	App stores income	$652	$2 010 552	$6 687 727	$20 048 743	$391 100 627
	OEMs income	$326	$1 005 276	$3 343 864	$10 024 371	$195 550 313
	Total incomes with AppCoins	**$7 359**	**$22 292 827**	**$72 762 361**	**$215 995 158**	**$4 066 529 329**
	App Economy Monthly Balance (incomes - losses)	**$6 447**	**$20 648 249**	**$68 971 809**	**$207 349 480**	**$3 947 408 824**

Table 5 shows the balance between the losses that result from the disintermediation from the adtech industry and the payments industry, with the incomes/earnings generated by AppCoins for developers, users, OEMs and app stores. This balance is highly positive: more than $20.6M per month after the first year, more than $207M per month after the second year, and in 5 years, the balance will be larger than $3.9B.

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4 The App Store Foundation

4.1 Overview

At its core, the AppCoins ecosystem is envisioned to be formed by a community of app stores that adopt the AppCoins cryptocurrency to provide higher financial and operational benefits to the key stakeholders of their services: the app developers and the app users. By doing so, this community of app stores will drastically improve the efficiency of the whole app economy while also mitigating current technological challenges like the lack of transparency and digital fraud in advertisement, lack of users' trust in current digital payment mechanisms and the lack of accessibility of the app users to the economy (lack of money or of payment methods).

To ensure the independence and sustainability of AppCoins, a foundation will be created as a not-for-profit organisation: **The App Store Foundation (ASF)**. The mission of the ASF is to assure the open governance of the AppCoins ecosystem, to support its development (after the initial implementation performed by Aptoide) and the continuous open innovation of the technology. Furthermore, it is also AFS's mission to promote the global AppCoins adoption and support among the direct stakeholders, app stores, users and developers, and among key strategic entities for the scaling up of the ecosystem user base, such as OEMs, governments or telco companies.

Moreover, given that the AppCoins system is built upon several other projects and technologies, we believe that it is important to give something back to the related community. The blockchain and cryptocurrencies are still in their infancy and there are still several challenges to be solved in order to fulfil the industry's potential, like latency, scalability and transaction costs. Projects and innovations will emerge to bring the benefits of the technology to the daily lives of people. As a way of recompensing the blockchain community, the ASF aims at supporting open source projects in its areas, as we believe that these contribute to creating communities able of fostering innovation. In addition, ASF will sponsor events for people to present progress regarding the work in the field, promoting the share and discussion of innovative ideas.

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4.2 Objectives

Aligned with the ASF mission, it is possible to enumerate and further specify its objectives as follows:

(1) **Governance**: Assure the independent, fair and transparent governance of the ecosystem, taking into account the opinions and needs of the majority of community members. The actions of governance encompass decisions related with participation rules, compliance guidelines, new technology / projects approval and any other decision that affects the community or the AppCoins ecosystem.

(2) **Development**: Assure and manage the funds for the development of the reference implementation of components in the AppCoins protocol, as well as for its maintenance and scalability (after 18 months, when the Foundation is created and takes control over the AppCoins protocol and ecosystem). This shall be done by promoting the creation of a community of developers working on the open AppCoins ecosystem.

(3) **Innovation**: Assure a continuous open innovation of the platform, directing and funding research and development projects approved by the community, as well as the integration of viable results on the AppCoins ecosystem. Acquiring external funding (e.g. at Research and Innovation frameworks like NSF or H2020) shall be considered for these initiatives.

(4) **Dissemination**: Assure the promotion of AppCoins globally, stimulating the adoption and support among direct stakeholders, like app stores, users and developers, and among key strategic entities for the sustainable scale-up of the ecosystem, like OEMs, governments or telco companies.

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4.3 Operational aspects for the ASF formation

To direct the inception of the ASF, these are the following guidelines and roadmap:

- The Board of the Foundation will be elected by the AppCoins owners, with voting weight proportional to the number of AppCoins they own.
- The Board Members vote for the approval of new protocol versions proposed by the community of developers.
- For supporting its mission and goals, when the ASF takes control over the protocol definition and implementation, will be allocated 15% of the AppCoin tokens (reserved at the token distribution event) minus the ones used for its inception. It will also be assigned the remaining tokens from the adoption bootstrap and the ones not used for key

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contributors. Furthermore, the foundation shall conduct the necessary actions to have independent revenues, like event organisation, membership fees or others, and for funding innovative AppCoins related projects, like the application for Research and Innovation incentives (e.g. NSF or H2020).

Table 6 - Roadmap for the inception of the Foundation

May 2018	November 2018	May 2019
Discussion of the Foundation rules and bylaws (Founders and AppCoins holders)	Foundation creation and board election by AppCoins holders	Foundation takes over the protocol definition and reference implementation

5 Roadmap

5.1 Organisational

6-11-2017 (updated information at www.appcoins.io) – Pre-sales of ICO with white listing. To ensure a good dissemination of tokens, the pre-sale will disseminate 12% of the tokens by the apps economy players with maximum caps for each person, as presented in section 6.1.

13-12-2017 (updated information at www.appcoins.io) – ICO is launched with the closing date scheduled for January 15th, 2018.

May 2018 - Public discussion of ASF rules and bylaws. The ASF has been described in the section 4 as the body that will coordinate the efforts of the protocol development. The discussion of the bylaws and internal organisation is important to guarantee a balanced governance.

November 2018 – ASF creation under the bylaws defined by the community and AppCoin tokens holders.

May 2019 – ASF takes over the Protocol definition and reference implementation.

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5.2 Technical

06-Nov-2017 – **AppCoins protocol V1** is made available.

AppCoins V1 protocol comprises:

- *Definition of the scope covering the three main flows*
- *Smart contracts algorithm definitions*
- *Blockchain data structures*
- *On-chain / off-chain scope definition*

This first version is the result of the feedback of many contributors in the community and comprise the technical definition of the three main flows: in-store advertising, in-app purchase with tokens and reputation building.

Although a protocol is a set of rules that can permanently be enhanced, is important to define some milestones and release major versions. The reason is to allow the development of a reference implementation of a specific version of the protocol, and prevent the "moving target" syndrome.

4-Dec-2017 ("Turing release") - **Proof-of-concept of In-App Purchase transaction on Ethereum test network**

A proof-of-concept will be presented integrating the Aptoide vanilla client using Ethereum ERC20 tokens to do an In-App Purchase (IAP).

The flow has the following steps:

1. User installs a game with Aptoide IAP support
2. User buys digital item inside the game
3. Aptoide IAP Android Activity is triggered by the game to process the checkout of the purchase
4. Aptoide IAP Android Activity shows the number of App Coins needed to buy the item
5. User agrees with the value
6. Aptoide vanilla client creates the ERC20 token transaction and send to the Ethereum test network
7. After the transaction is confirmed, the purchase is released and the user can see an updated balance of AppCoins in the Aptoide vanilla client

The development can be followed in GitHub: *https://github.com/Aptoide/AppCoins-ethereumj*

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21-Mar 2018 (“Neumann release”) **- Reference tools of the protocol implementation**

In this date, it will be released:

- Open source reference implementation of libraries, command line tools and SDK for AppCoins developers

To have a healthy and easy-to-use development environment it is useful to exist an open source implementation of the AppCoins protocol. These libraries will allow that a new app store or a developer can join the AppCoins protocol is a faster way, without having to develop everything from scratch. This tools and source code will be available in GitHub, as the other AppCoins’ software tools.

2-May 2018 (“Gosling release”) - **“Dev” version of the AppCoins integration in Aptoide (on-chain)**

A first implementation of the AppCoins protocol by a “client”, in this case Aptoide app store. For this MVP, an APK of Aptoide app store “Dev version” (https://aptoide-dev.en.aptoide.com) will be made available. This version of Aptoide (v9.0_dev) will support two main financial flows:

- Install advertised apps earning AppCoins ERC20 tokens
- In-app purchases with ERC tokens.

This version of Aptoide will not integrate the reputation system as the development require that transactions exist to build the reputation, which only happens after the first deployments. The aforementioned version will not include side-chain integration with a state channel / payments channel. We consider that potential integration, so soon in the development roadmap, would force to make wrong decisions, result of the used technology (Raiden, OmiseGo) not be yet ready according to those projects’ technical roadmaps. The transactions in this Aptoide version will be directly in the blockchain, which is reasonable in terms of transaction fees and scalability since the user base will be restricted to testers of the developers’ version.

15-Jun 2018 (“Knuth release”) - **“Dev” version of Aptoide with side-chain / payments channels**

This version will complement the May release with side-chain / state channels, allowing scalability. At the same time, it will include the first support to apps vetting using AppCoins reputation system.

2-Sep-2018 (“Ritchie release”) – Production roll-out to all Aptoide clients (and other participant app stores).

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In 10 months' time, and as a result of the feedback of the "dev" version and further developments done by the team, a "stable" version will be released. This version will implement version "1.1" (or later) of the protocol. This version will include a side-chain platform to perform the core transactions as state channels / payment channels. Depending on the number of developers that already had integrated AppCoins, the token use can be one option (together with other payment systems) or could be the only option. This version will benefit of the large Aptoide user base (200 million unique users), providing a diverse sample of the available versions of Android versions and Android devices.

2018/2019 – AppCoins Protocol Vx.

The protocol is a "live" document that under the ASF foundation will receive contributions from the community, app stores and the research projects developed.

5.3 Business

May 2018 - 500 key developers' engagement to integrate AppCoins SDK in their apps & games. The first effort will be to bring developers on-board. Using the 12.000 top developers Aptoide network will leverage this effort.

November 2018 – Tier 1 OEMs (Oppo, Vivo, ...) engaged and pre-loading. Aptoide Shenzhen (South of China) office will be responsible for the kick off of this task. Opened in September 2015, this office has 3 people full-time and have a strong network in the Shenzhen ecosystem.

May 2019 – AppCoins Protocol Viral actions with users – peer-to-peer actions. As explained on the section 6.2 this will replicate some of the already tested digital marketing viral initiatives. Coming after the engaging of Developers and OEMs, at this phase the users will find a thriving app store ecosystem.

6 Token Allocation, Crowdsale and Bootstrap

6.1 Token Allocation

In order to fund and boost the AppCoins roadmap, an Initial Coin Offering (ICO) will be conducted. The details for the ICO are presented in Table 7, and it will follow the roadmap presented in the previous section.

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Table 7 - ICO Details

Total number of tokens	450 million
Tokens available	180 million (40%)
Nominal price	1 APPC = 0.0003339 ETH [1]
Emission rate	No further tokens will be created
Token pre-sales	20% of all tokens Uncapped, fixed price First come, first served Discount: 30% Only for ecosystem players
Token sales	20% of all tokens Uncapped, fixed price Open to the public
Soft Cap	US$2.5M
Hard Cap	60,120 ETH [1] / US$15.3M
Token format	ERC-20 Standard
Currency accepted	ETH

The pre-sale and public sale will distribute 40% of the total number of AppCoin tokens. The remaining tokens will be distributed as follows:

- **App Store Foundation - 15%** - to support the foundation inception, vision and goals;
- **Bootstrap initiatives (Developers, OEMs, users) - 20%** - to support and speed up the adoption of AppCoins;
- **Key Contributors - 10%** - for the influential blockchain key elements and contributors to the ICO idea development;
- **Aptoide - 15%** - for the initial support and contribution to the community.

Figure 7 depicts the AppCoins' tokens allocation as previously described.

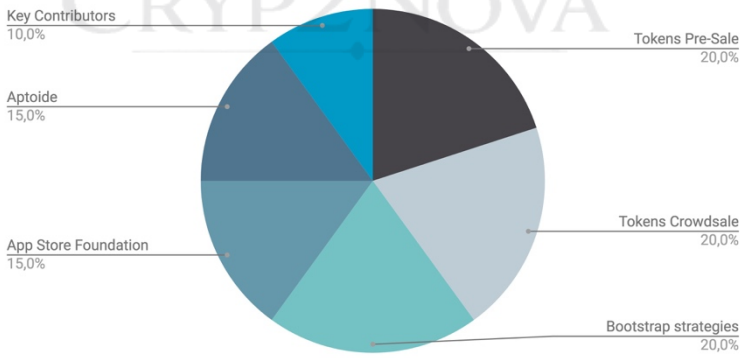


Figure 7 - Token Allocation (%)

[1] This calculation was done on November 3rd, 2017 at 11:00am UTC having a price of ETH at $299 USD.

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All the AppCoin tokens, except those used to speed up the adoption and the ones reserved for the ASF, will be attributed when the crowdsale process ends, on a token distribution event (more details at www.appcoins.io). The tokens reserved for the ASF, 15% of the total amount, will be used for its inception and the remaining ones attributed when the ASF takes control over the protocol and reference implementation. The tokens that will be used to speed up the adoption of AppCoins, 20% of the total amount, will be distributed to developers, OEMs and users as shown in Figure 8.

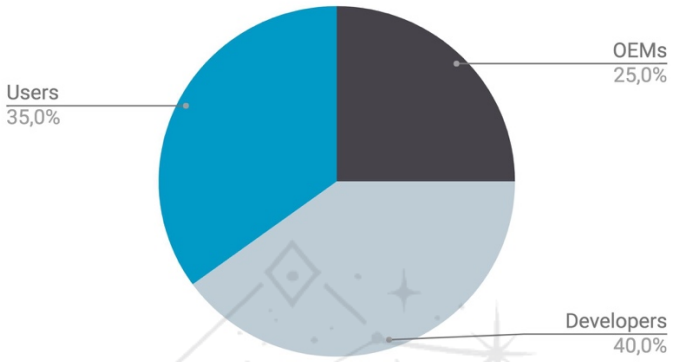


Figure 8 - Bootstrap Token Distribution

This particular distribution of the tokens is due to the fact that developers, users, and OEMs are key players in the app economy and their engagement is a key factor for the success of AppCoins. Specifically:

- **Developers:** Have to adopt AppCoins as (1) the model of app advertising and (2) as the method of payment for IAP. Therefore, developers are critical players for the adoption of AppCoins. AppCoin tokens will be distributed to key developers (who have apps with a large user base) in order to foster their swift understanding of the benefits that the system brings to them and to speed up their adoption. These players will be incentivised from the beginning of the project given that they have to provide means for the users to be able to use AppCoins in their apps.
- **OEMs**: The device manufacturers have the power to considerably influence the app economy, given that they select which app stores to include by default on the mobile devices. Therefore, a share of AppCoin tokens will be delivered to these players to incentivise them to integrate app stores that adopt the AppCoins model. The rollout with OEMs is scheduled for the 6th month onwards, when an MVP is available and a critical mass of developers is onboard.
- **Users**: Along with developers, users are the key target audience of AppCoins, for whom the envisioned ecosystem brings improved trust and accessibility to the app economy (the availability of AppCoins to spend in the economy adds the value and the payment method). The allocation of tokens to users will be used to speed up their adoption.

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The strategies of bootstrapping for each of these players are presented in 6.2. The bootstrap tokens not used when the ASF takes control over the protocol and reference implementation will be assigned to it in order to assure the continuity and stability of the strategies to foster AppCoins adoption.

6.1.1 ICO funds distribution

The funds received from the AppCoins crowdsale will be applied in: (a) development of the solution; (b) marketing towards its dissemination and adoption; (c) strategy and operation; and (d) legal costs. Figure 9 depicts the funds distribution.

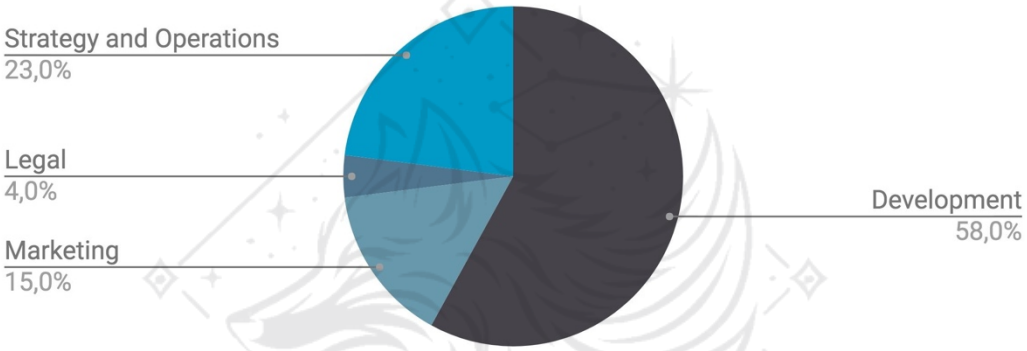


Figure 9 - ICO funds distribution

Development (58%)

The technical development is paramount for AppCoins' success, which is why the majority of the fund allocation will go into this effort. Aptoide's engineering team, with its wide experience in architecture and development of app stores' solutions (including payments and advertising), will form the basis for this team, which will be enriched with the hiring of blockchain specialists.

Marketing (15%)

The marketing costs include those for the initial promotion of AppCoins to developers, users, OEMs and app stores. These include a marketing team that will drive a worldwide dissemination effort, namely of the multilingual website, community building, social network presence and relation efforts.

Strategy and Operations (23%)

This includes costs for different teams, namely business development, administration and finance, strategy, and the whole cost for the operation of the project (participation in events, travel

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and equipment). The business development team will be responsible for approaching and maintaining contact with the target audiences of AppCoins. The administrative and finance teams will be responsible for controlling and dispensing the funds accordingly to the project needs and to provide regular reports to the management / strategy team. The strategy team will be formed of key contributors to the AppCoins idea and technological and business managers, which will orchestrate the project teams towards AppCoins vision and goals until the transfer of the governance to the AFS is completed.

Legal (4%)

The legal team will provide advice in the aspects related to the technical regulations, IPR, foundation creation and policies specific to each local market.

The resources released by the ICO will be applied by Aptoide in the development, marketing, strategy and operations, and legal efforts, to bootstrap the AppCoins platform. Further description of Aptoide can be found in section 8.

6.2 Bootstrap strategy

The AppCoins bootstrap strategy consists of engaging with the ecosystem players to speed up their adoption. Following are presented examples of actions that comprise this strategy.

6.2.1 Developers

AppCoin tokens will be attributed to developers in the bootstrap phase to encourage them to add their apps to app stores powering AppCoins. To promote the developers' fast and wide adoption, AppCoin tokens will be attributed as follows:

- For the **first upload of each app** to an app store powering AppCoins, the first 50 conversions will not be charged and the AppCoins related to the CPAt will enter the economy as if the developer paid for the service.

6.2.2 OEMs

During the bootstrap phase, to get OEMs on-board and have them including app stores powering AppCoins, there will be a bonus attribution of tokens as follows:

- **5 AppCoins per device** with an app store powering AppCoins.

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- **For each 500 devices deployed** with an AppCoins app store by default, **a bonus of 500 AppCoins is attributed**.

6.2.3 Users

Users earn AppCoins from ad triggered installs and from spending 2 minutes of their attention (watching for 2 minutes) to the installed apps. During the bootstrap phase, to speed up the adoption of the system, tokens will also be distributed to the users as follows:

- Users receive **3 AppCoins on the first install of an app store** that powers AppCoins.
- With **each purchase** of AppCoin tokens, **users receive twice as much as the purchased AppCoins**.
- Users receive **3 AppCoins after each referral to friends** to install an app store powering AppCoins. The tokens are delivered after the registration of the user invited who also receives 3 AppCoins).

7 AppCoins team

The AppCoins team comprises 18 professionals experienced in the areas of Engineering, Management, Operations and Marketing that, together, encompass all the needs for delivering the AppCoins project successfully. Follows the presentation of some elements of the team. Check the AppCoins website for the rest of the talent responsible for the AppCoins Protocol.



Paulo Trezentos
CEO / Founder

Paulo took his MsC in Factorisation of Numbers using NFS and Elliptic Curves and a PhD in solving dependencies in software components installation.
A member of the open source community for a long time. He was founder and maintainer of LinuxCM, a Linux distribution with more than 700,000 users between 2007 and 2011.

Álvaro Pinto
COO / Founder



Álvaro is a serial entrepreneur who loves technology, innovative ideas and projects. As a former ESOP President, the Portuguese Association of Open Source Software Companies, he has been advocating, for more than 15 years, the adoption of open technologies and open standards in private companies and in the public sector. Álvaro has a degree in law.

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Tiago C. Alves

VP Asia Pacific

Tiago has over 12 years experience in technology related roles. He is a Software Engineering graduate from the University of Macao, with a Master Degree in Mandarin and an MBA in Tech Management from the University of San Francisco.

Ren Tang 唐人

VP Product



Before joining Aptoide to build the new internet of apps, Ren spent over 8 years in the US and in Germany incubating mobile games and apps at top tech companies such as Goodgames, EA, and Disney.



Carolina Marçalo

Head of Partnerships

Luso-American with more than 10 years experience in business corporate strategy, leading Partnerships at Aptoide for the last 4 years. VP of OLD Association and member of SOCIUS Research center. Carolina holds a MA Degree in International Economics, and a BA in Economics from UMass Dartmouth.

João Casal

Head of R&D



João has 12+ years of experience in IT, being the last 5 in Research and applied R&D Management in multinational contexts. Participated and led several R&D projects in mobile computing areas, including mobile payments and mobile advertising. Holds an MSc in Systems Engineering and a professional certification in Scrum.



Luís Pinto

Marketing Technologist

Luís is a Marketing Technologist, working on projects at the intersection of Marketing, Technology and Analytics. He has experience in social network analysis, deep learning and natural language processing technology to solve marketing problems.

Diogo Pires

Backend Developer



Diogo has a background in Robotics and experience deploying scalable solutions in large-scale backend systems with new technologies.



Martin Užák

Backend Developer

Martin led most of his career as a software developer in Vienna, Austria. He has been developing in Python since 2002.

João Castro

Head of System Administration

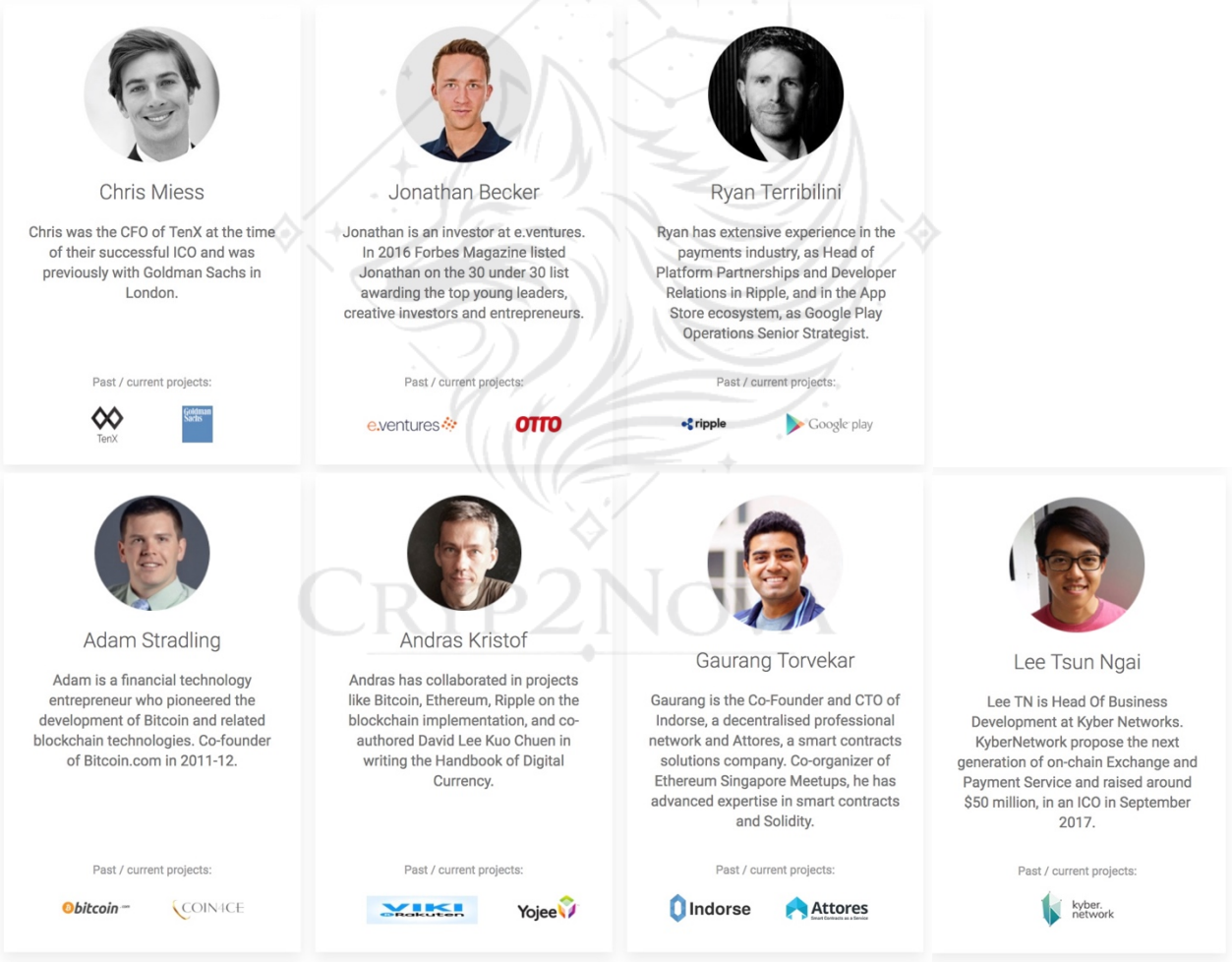


João is a former IBMer who built his career as an IT Consultant in the Czech Republic before moving to Lisbon. He takes particular interest in site reliability engineering and everything blockchain.

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These professionals belong to the Aptoide company, which, due to their knowledge of each other, assures coherent and articulate processes. The team is highly experienced in the business and technological areas where the AppCoins protocol will be used.

Besides this team, AppCoins is also supported by 7 advisors who have a broad and very relevant experience in blockchain, cryptocurrencies, financial investment, app store's processes, and also in successful recent ICO's. Among these renown advisors can be found experience in projects like Bitcoin, Ethereum, Ripple, TenX, e.ventures, Google Play and Kyber Network. AppCoins advisors are:



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8 About Aptoide



Founded in 2011, Aptoide is the first decentralised and social Android App Store. With nearly 200 million users, 4 billion downloads and 1 million apps, Aptoide is a community-based platform that reinvents the app discovery experience through a social environment, tailored recommendations and the opportunity for users and partners to create and share their own personalised App Stores. Aptoide also provides white-label App Store solutions for developers, OEMs, Telcos and Integrators, through which they can upload and distribute their Android apps. Different versions of Aptoide are available for mobile, TV and VR devices and is accessible in over 40 languages. Aptoide is the 692nd most visited Website worldwide, according to Similarweb. Amongst its main partners are OEM's like Oppo and Vivo, and app publishers such as ZeptoLab and Goodgame Studios. It currently has more than 85 employees from 15 different nationalities, has its HQ in Lisbon and local offices in Shenzhen (China) and Singapore.

Over the years the project has had funding from several sources: in 2013 it received seed funding from Portugal Ventures (750 000 euros) and, in 2015, has secured a Series A financing round of 3.7 million euros lead by e.ventures with co-investment from Gobi Partners (China) and Golden Gate Ventures (Singapore).

Aptoide has the perfect conditions for leading the development and dissemination of AppCoins in the first 18 months:

- **Open source culture**: Aptoide code is open source (GPL V2), the technology stack of its infrastructure is 99% open source and it is a spin-off of a research center/company that developed a Linux Distribution with more than 700.000 users (Linux Caixa Mágica);
- **Significant user base:** 200 million people used Aptoide App Store to install at least one App in 2017;
- **Industry network and reach:** with direct relationship with more than 12.000 developers, and 60 OEMs and Telecom's, Aptoide will use this network to disseminate AppCoins awareness and engagement;
- **Resources:** the current team of more than 85 people is spread among 3 offices (Lisbon, Singapore and Shenzhen) will be reinforced with specific resources to implement the protocol and libraries.

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Important notices

The AppCoins are not securities or units in a collective investment scheme or business trust, each as defined under Singapore's Securities and Futures Act (Cap. 289) ("**SFA**"). Accordingly, the SFA does not apply to the offer and sale of the AppCoins. For the avoidance of doubt, this initial offering of AppCoins need not be accompanied by any prospectus or profile statement and no prospectus or profile statement needs to be lodged with the Monetary Authority of Singapore ("**MAS**").
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AppCoins are intended for use within applications available on the Aptoide App Store for purposes including purchasing in-application items and serving as a medium of in-application advertising revenue, and Aptoide warrants that the AppCoins are fit for these purposes. However, Aptoide is not responsible for compelling any person to accept AppCoins and disclaims, to the fullest extent permitted by law, all liability for any adverse consequences arising out of or in relation to such rejections of AppCoins.

Upon purchasing any AppCoins, you will be deemed to have reviewed this Crowdsale Document (and any information requested and obtained from Aptoide) in full and to have agreed to the terms of this offering of AppCoins, including to the fact that this offering does not fall within the scope of any securities laws in Singapore and is not regulated by the MAS. You further acknowledge and agree that the AppCoins are not securities and are not meant to generate any form of investment return.
The AppCoins and related services provided by Aptoide (if any) are provided on an "as is" and "as available" basis. Aptoide does not grant any warranties or make any representation, express or implied or otherwise, as to the accessibility, quality, suitability, accuracy, adequacy, or completeness of the AppCoins or any related services provided by Aptoide, and expressly disclaims any liability for errors, delays, or omissions in, or for any action taken in reliance on, the AppCoins and related services provided by Aptoide. No warranty, including the warranties of non-infringement of third party rights, title, merchantability, satisfactory quality, or fitness for a particular purpose, is given in conjunction with the AppCoins and any related services provided by Aptoide.

Risk factors

Regulatory risks
The regulation of tokens such as the AppCoins is still in a very nascent stage of development in Singapore. A high degree of uncertainty as to how tokens and token-related activities are to be treated exists. The applicable legal and regulatory framework may change subsequent to the date of issuance of this Crowdsale Document. Such change may be very rapid and it is not possible to anticipate with any degree of certainty the nature of such regulatory evolution. Aptoide does not in any way represent that the regulatory status of the AppCoins will remain unaffected by any regulatory changes that arise at any point in time before, during, and after this offering.

No regulatory supervision
None of Aptoide or its affiliates is currently regulated or subject to the supervision of any regulatory body in Singapore. In particular, Aptoide and its affiliates are not registered with MAS in Singapore as any type of

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regulated financial institution or financial advisor and are not subject to the standards imposed upon such persons under the Securities and Futures Act, Financial Advisors Act, and other related regulatory instruments. Such persons are required to comply with a variety of requirements and standards concerning disclosures, reporting, compliance, and conduct of their operations for purposes or maximising investor protections. Since Aptoide is not subject to such requirements or standards, it will make decisions on those issues at its own discretion. While Aptoide will have regard to best practices on these issues, holders of AppCoins may not necessarily enjoy the same extent and degree of investor protections as would be the case should they invest with regulated entities instead.

No fiduciary duties owed
As Aptoide is not a regulated financial institution, it does not owe investors in AppCoins any fiduciary duties. This means that Aptoide has no legal obligation to always act in good faith in the best interests of holders of AppCoins. While Aptoide will have regard to the interests of holders of AppCoins, it is also permitted to consider the interests of other key stakeholders and to prefer these interests over the interests of AppCoins holders. This may mean that Aptoide is permitted to make decisions that conflict with the interests of AppCoins holders. Not owing any fiduciary duties to holders of AppCoins also means that holders of AppCoins may have limited rights of recourse against Aptoide and its affiliates in the event of disputes.

Tax risks
The tax characterisation of AppCoins is unclear. Accordingly, the tax treatment to which they will be subject is uncertain. All persons who wish to purchase AppCoins should seek independent tax advice prior to deciding whether to purchase any AppCoins. Aptoide does not make any representation as to whether any tax consequences may arise from purchasing or holding AppCoins.

Risks from third parties
The tokenised nature of AppCoins means that they are a blockchain-based asset. The security, transferability, storage, and accessibility of blockchain assets depends on factors outside of Aptoide's control, such as the security, stability, and suitability of the underlying blockchain (in this case, the Ethereum blockchain), mining attacks, and who has access to the private key of a wallet where AppCoins are stored. Aptoide is unable to assure that it can prevent such external factors from having any direct or indirect adverse impact on any of the AppCoins. Persons intending to purchase AppCoins should note that adverse events caused by such external factors may results in the loss of some or all AppCoins purchased. Such loss may be irreversible. Aptoide is not responsible for taking steps to retrieve AppCoins lost in this manner.

Risks in purchasing AppCoins
Aptoide cannot and does not guarantee or otherwise assure that there are no risks in relation to your purchase of AppCoins. The purchase of AppCoins may, depending on the manner in which the relevant purchase is effected, involve third parties or external platforms (e.g., wallets). The involvement of such parties or platforms may introduce risks that would not otherwise be present, such as misconduct or fraud by the third party, or your failure to receive AppCoins upon duly making payment because of a third-party wallet's incompatibility with AppCoins. Aptoide is not responsible for any risks arising due to the involvement of third parties, including the risk of not receiving (or subsequently losing) any or all AppCoins you attempt to (or successfully) purchase.

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9 References

[1] Press Trust of India, “3% mobile app users in India spend money on in-app purchases,” *India Today*, Jul-2016.
[2] A. Austin, “Mobile App Developers are Suffering,” 2015. .
[3] K. Gallagher, “Ad fraud estimates doubled,” *Business Insider*, Mar-2017.
[4] App Annie, “App Annie Market Forecast (2016-2021),” 2017.
[5] B. Camarda, “China clamps down on app stores in bid to curb malware,” *Naked Security by Sophos*, 2017. .
[6] Y. Wang, Y. Y. Ng, H. Zhou, Y. Dong, and Z. Ji, “The improvement of the trustworthiness of android app stores in China,” *Proc. - Asia-Pacific Softw. Eng. Conf. APSEC*, pp. 357–360, 2017.
[7] Tapcore, “Alternative app stores: make money but watch your back for app piracy,” *Tapcore Blog*, 2017. .
[8] A. Jahanshir, E. Karimialavijeh, H. Sheikh, M. Vahedi, and M. Momeni, “Smartphones and Medical Applications in the Emergency Department Daily Practice.,” *Emerg. (Tehran, Iran)*, vol. 5, no. 1, p. e14, 2017.
[9] S. Cendrowski, “How China’s Smartphone ‘Big Four’ Are Fighting for Global Customers,” *Fortune*, Jan-2017.
[10] C. Catalini and J. Gans, “Some Simple Economics of the Blockchain Some Simple Economics of the Blockchain,” *MIT Sloan Res. Pap.*, vol. No. 5191-1, pp. 1–31, 2016.
[11] S. Roper, P. Vahter, and J. H. Love, “Externalities of openness in innovation,” *Res. Policy*, vol. 42, no. 9, pp. 1544–1554, 2013.
[12] M. Wilson, “The Real Difference Between Google And Apple,” *Co.Design*, 2017. .
[13] Statista, “Global mobile OS market share in sales to end users from 1st quarter 2009 to 1st quarter 2017,” 2017.
[14] M. Lewandowski, “Designing the Business Models for Circular Economy—Towards the Conceptual Framework,” *Sustainability*, vol. 8, no. 1, p. 43, Jan. 2016.
[15] Ellen Macarthur Foundation, “What is a circular economy,” 2016. [Online]. Available: https://www.ellenmacarthurfoundation.org/circular-economy. [Accessed: 12-Sep-2017].
[16] Ellen Macarthur Foundation, “Towards a Circular Economy: Business Rationale for an Accelerated Transition,” 2015.
[17] Executive Agency fos SMEs (EASME), “R2Pi – supporting the transition to a circular economy,” 18-May-2017.
[18] Ellen Macarthur Foundation, “Google case study demonstrates circular economy approach at scale,” 14-Sep-2016.
[19] MarketingLand, “In-app purchases dwarf ad revenues, as iOS App Store exceeds $71 billion,” 2016. [Online]. Available: https://marketingland.com/app-purchases-dominate-ads-app-store-lifetime-revenue-hits-71-billion-183953. [Accessed: 13-Sep-2017].
[20] Statista, “Mobile app usage - Statistics & Facts,” 2017.
[21] Statista, “Number of apps available in leading app stores as of March 2017,” 2017.
[22] J. Vincent, “99.6 percent of new smartphones run Android or iOS,” *The Verge*, 2017. [Online]. Available: https://www.theverge.com/2017/2/16/14634656/android-ios-market-share-blackberry-2016. [Accessed: 02-Jun-2017].
[23] Statista, “Worldwide mobile app revenues in 2015, 2016 and 2020,” 2017.
[24] F. M. Bass, “A New Product Growth for Model Consumer Durables,” *Manage. Sci.*, vol. 15, no. 5, pp. 215–227, Jan. 1969.
[25] F. Sultan, J. U. Farley, and D. R. Lehmann, “A Meta-Analysis of Applications of Diffusion Models,” *J. Mark. Res.*, vol. 27, no. 1, p. 70, Feb. 1990.
[26] Statista, “Number of smartphone users worldwide from 2014 to 2020 (in billions),” 2017. [Online]. Available: https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/. [Accessed: 12-Sep-2017].
[27] K. Chiong, R. Chen, and S. Yang, “Incentivized Advertising: Treatment Effect and Adverse Selection,” Sep. 2017.
[28] mobyaffiliates, “What is the average cost per install for different types of apps?,” 2016. [Online]. Available: http://www.mobyaffiliates.com/blog/average-cost-per-install-apps/. [Accessed: 12-Sep-2017].
[29] Statista, “Average size of in-app purchases per user per app worldwide as of May 2016, by OS,” 2016. [Online]. Available: https://www.statista.com/statistics/576538/average-size-of-in-app-purchases-per-user-per-app-worldwide-by-os/. [Accessed: 13-Sep-2017].

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