VARANIDA

(VAD) The Verified Ad Protocol

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Abstract

In its early days, the Internet was supposed to be a place where we could access the world's information, share our own knowledge, and be more connected.

While some companies and services have lived up to that promise and improved our daily lives, most have turned into profit-obsessed advertising machines focused only on their revenue streams to the detriment of their users. Advertising is what powers the Internet, but advertising is also what holds back the Internet's potential.

But what if Internet users, publishers, and advertisers could work together to create a better Internet, still powered by advertising, but without the need for centralized, greedy, fraudulent, and nosy companies? What if we could get more control over our own data, and get back more value from that data?

This is what Varanida is all about: Enabling a new era for the Internet, where all parties are fairly compensated for the value they bring to the whole ecosystem. We are launching Varanida in the hope that a community of like-minded users will join us in our mission to change the way the world sees advertising and consumes digital content.

Contents

1 The Advertising Industry Is Broken

As advertising has taken over the Internet, users are the ones who suffer under its increasing load, both literally and figuratively. Advertising and targeting scripts slow down pages, congest bandwidth, and collect massive amounts of user data. Increased advertising supply has decreased the revenue generated per ad, so publishers fight to stay alive by placing more and more advertising on their pages, and making that advertising more and more invasive, degrading the user experience even further. In 2017, more than $228 billion was spent on digital advertising globally, but Internet users and publishers received only a small portion of that value, while creating most of it.

1.1 Users Are Overwhelmed By Bad Ads

The world's first banner ad debuted in October of 1994, and immediately attracted the attention of Internet users. Of those who saw the ad, 44% clicked on it[1]. Fast forward to 2018, and the average clickthrough rate is now 0.05%[2]. So what happened between then and now?

Clicks and Conversions Are Decreasing

Users are overwhelmed with ads. 87% of users agree that there are more ads in general, and 91% of users agree that ads are more intrusive today compared to two to three years ago[3].

As more advertising is placed on each page, users have trained themselves to ignore advertising and focus on content. According to one study, 86% of consumers suffer from banner blindness, where they don't recall any of the ads that they've seen[4]. Another study found that only 14% of shoppers said they were aware of brands' digital ads, and only 10% said they were influenced by them[5].

It naturally follows that when ads aren't being seen, they also aren't being clicked on. While the original banner ad had a 44% click-through rate (CTR) in 1994, that rate dropped to 2% just one year later, and was down to 0.5% by 1998[6]. Now the average CTR hovers around 0.05%, which means most advertising just sits there on the page and no one interacts with it.

However, users are interested in quality advertising, as 83% of users in a recent survey agreed that not all ads are bad, but they want the ability to filter out the really obnoxious ads and gain back control over what advertising they see[7].

Privacy Concerns Are Increasing

If you've shopped for something in an online store, only to be followed around the Internet by ads for that item, you're probably aware of how your data is

being used by companies to track and target you. One study found that 79% of users feel that they're being tracked as a result of retargeted ads, so those ads don't go unnoticed[7].

This leads to users feeling like they have no control over their data, as one study found that 91% of adults agree or strongly agree that consumers have lost control of how personal information is collected and used by companies, and 86% of Internet users have taken steps online to remove or mask their digital footprints[8].

We've reached a point where companies feel that they must offer a free Internet that is subsidized by advertising, but that agreement may be falling apart. When a study asked about a site where access to the service would be free, but user activity on the site would be used by the site to deliver advertisements it hopes will be appealing to users, 51% of Americans did not find that bargain acceptable[9].

Advertising Slows Down The Internet

Unfortunately, just because users aren't seeing ads, doesn't mean they're not being affected by them. On many popular websites, the amount of data being transferred to load advertising content vastly outpaces the amount of data used to load the editorial content that users are there to see.

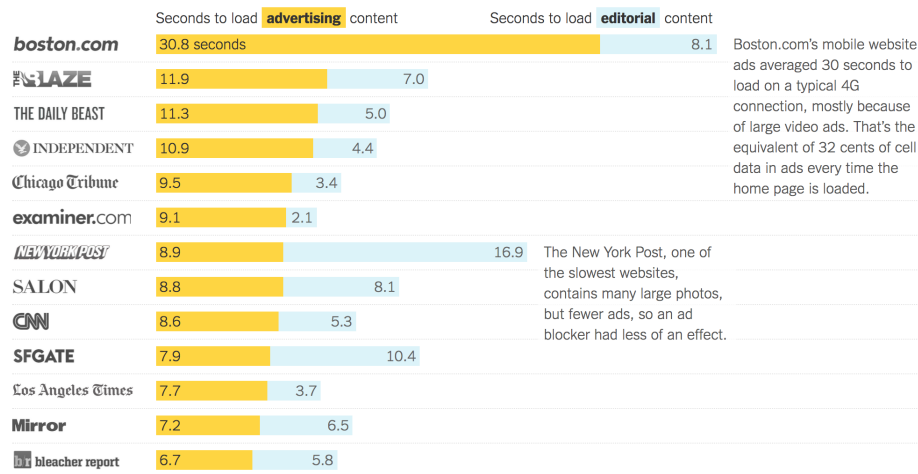|	Seconds to load **advertising** content	Seconds to load **editorial** content	
boston.com	30.8 seconds	8.1	Boston.com's mobile website ads averaged 30 seconds to load on a typical 4G connection, mostly because of large video ads. That's the equivalent of 32 cents of cell data in ads every time the home page is loaded.
THE BLAZE	11.9	7.0	
THE DAILY BEAST	11.3	5.0	
INDEPENDENT	10.9	4.4	
Chicago Tribune	9.5	3.4	
examiner.com	9.1	2.1	
NEW YORK POST	8.9	16.9	The New York Post, one of the slowest websites, contains many large photos, but fewer ads, so an ad blocker had less of an effect.
SALON	8.8	8.1	
CNN	8.6	5.3	
SFGATE	7.9	10.4	
Los Angeles Times	7.7	3.7	
Mirror	7.2	6.5	
bleacher report	6.7	5.8	

Figure 1: The Cost of Mobile Ads

According to Ad Lightning, the average page load is delayed by 4.3 seconds as a result of ad quality issues, and this ad-related page load latency causes the average ad-supported website an annual revenue loss of more than $400,000[10].

While that number is shocking, it shouldn't be surprising. Users are busy, and they have better things to do than sit around and wait for an ad-filled website to load. According to one study, for each second of page load latency there is an 11% drop in page views[11].

While the Interactive Advertising Bureau (IAB) attempted to set standards for advertisers to follow that would limit the size and invasiveness of advertising, and speed up page load times, it's been tough to enforce as advertisers seek to grab more data and put more invasive advertising in front of users. A report from Ad Lightning, which works with publishers to monitor ad speed, noted that more than 40% of online ads are larger than industry standards, which slows down websites and annoys users with crawling load times[12].

1.2 Ad Block Usage Is On The Rise

A clear example of users pushing back and trying to gain more control over their online browsing experience is the rise of ad block usage. Propelled into the mainstream by several events in 2015, including high-profile media coverage and a decision by Apple to allow ad-blocking apps in iOS 9, followed by a similar decision by Samsung on Android based smartphones in January of 2016, ad blocking shows no sign of slowing down.

According to PageFair, which studies ad blocking at the global level, 11% of the global Internet population is blocking ads on the Internet, representing 615 million devices. Ad block usage grew 30% globally in 2016, and continues to rise as more users get fed up with intrusive advertising[13].

Again, a distinction must be made between good and bad advertising, as 77% of American ad block users said they were willing to view some ad formats. Good advertising can enhance the online experience, but users want the ability to turn off intrusive, invasive, and overweight advertising that degrades their experience.

Centralized ad networks know they risk losing billions in revenue if they do not adapt to this trend. Google launched their own ad blocker in February of 2018, but they have a long way to go to catch the dominant players. It is important to note that Google's ad blocker does not block all ads, but only the ones which do not comply with the "Better Ads Standards" established by the Coalition for Better Ads, of which Google is a controlling member[14].
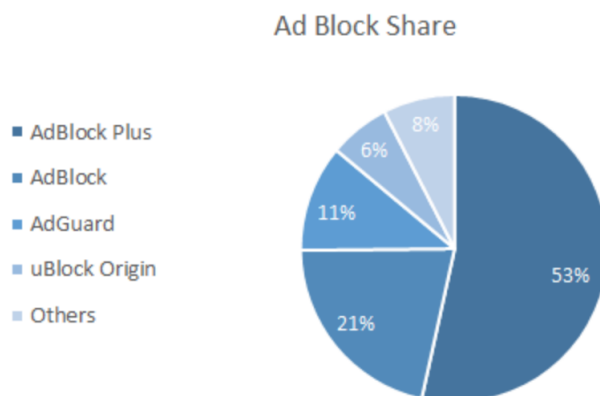
Figure 2: Based on Varanida's Estimate

1.3 Publishers Are Fighting Against Reduced Revenue

Publishers are struggling to adapt to the new media landscape, and a study by Econsultancy found that ad revenue is either stagnant or shrinking for 40% of digital publishers[15].

There are four factors that contribute to this decline in ad revenue, even as the overall amount spent on digital advertising increases:

1. Too Much Inventory: A study by ComScore found that up to 54% of ads are never seen by website visitors[16]. There are just too many ads, and not enough browsing activity to actually serve all of those ads to real people. The main reason for this over-supply is that publishers have been incentivized to create web pages that have as much advertising space as possible, rather than quality content that integrates a few engaging ads in a non-obtrusive way.

2. Increase In Programmatic Buying: While programmatic buying has allowed advertisers to increase the scale of their campaigns, publishers have seen an erosion of the value associated with being a premium placement on premium content that can demand a premium price. Publishers who rely on programmatic advertising have almost no visibility into who is visiting their site, and how much advertisers are ready to bid to target them, which leaves money on the table. They're trying to use quantity to make up for quality, but it's not working.

3. More Competitive Environment: Only a small number of publishers have the scale and technical capability required to meet the needs of large advertising clients. This leads to a concentration of attention and advertising

spend on the bigger publishers, with the small and medium-sized publishers left out of these increasing budgets.

4. Users Turn To Ad Blockers: While the number of pageviews continues to rise, the number of monetizable pageviews isn't rising as quickly, as the increased use of ad blockers means that many of the visitors to a publisher's site are not being served ads, and are thus not contributing to a publisher's revenue.

Advertising Slows Down The Internet

There are more than 1.3 billion websites in the world, and around 50 million websites are added every year[17]. While some are passion projects, it's safe to say that many of those websites are supported by advertising. With more than 4 billion Internet users browsing those websites, the amount of advertising supply in constantly rising[18].

However, the demand for that advertising doesn't rise as quickly. There are a limited number of people in the world with access to the Internet, and they have a limited amount of time that they can spend online, and they do so on a device with a limited amount of screen space.

This means that a lot of the advertising that gets loaded on the Internet is never actually seen. According to Google, 56.1% of all ad impressions are not seen by a real person[19].

While some publishers try to fit more advertising on every page to increase the number of ads that they can sell per visitor, they eventually settle into a balance between content and ads, otherwise they risk losing their audience if their users feel like they're just being served ads instead of the content they intended to see.

Programmatic Takes Over

According to one study, on average only 40% of money spent programmatically through agencies was actually spent on publisher's media[20]. A staggering 60% was spent on value-added services and middleman fees, including agency trading desks, demand-side platforms, exchanges, and agencies of record.

By the time a single programmatic ad appears on a publisher's website, it's weighed down with dozens of network requests. Half of those requests have nothing to do with delivering the actual ads, and about 20% of them are designed by 3rd parties to capture the publisher's valuable audience data. Unfortunately, many of those data recipients then use that data to undercut the publisher's rates, or cut their site completely out of the value chain[21].

- 49% of an ad's network requests are unrelated to ad delivery[20]

- 20% of programmatic ads syphon data by design[20]

To ensure optimal performance and user experience, the IAB recommends a maximum of 15 network requests per ad impression. Today, the average programmatic display ad is burdened with about 3x (43) the acceptable max[20].

The Interactive Advertising Bureau sets a limit of 300 kilobytes for a display ad, but Ad Lightning found that 41% of ads it looked at across thousands of sites were larger than that[22]. Advertisers are competing for views and clicks, and will do anything to increase engagement with their ads, including overweight animated banners, auto-play videos, and microsites crammed into a banner experience.

Two Players Dominate The Market

More money is being spent on digital advertising, which should be good news for publishers.

Unfortunately that growth isn't being evenly distributed, as a report by the Interactive Advertising Bureau and PricewaterhouseCoopers found that 103% of the industry growth in the first half of 2016 in the United States came from Google and Facebook[23]. So while the digital advertising industry as a whole was growing by 20%, the digital advertising industry outside of Google and Facebook actually shrank by 3%.

Net US Mobile Ad Revenue Share, by Company, 2016-2020
% of total and billions

	2016	2017	2018	2019	2020
Google	**31.5%**	**31.1%**	**31.0%**	**30.8%**	**31.1%**
Facebook	**22.5%**	**26.2%**	**26.0%**	**25.2%**	**24.8%**
—Instagram	3.5%	5.3%	7.3%	8.6%	9.7%
Oath (Yahoo)	**2.6%**	**2.3%**	**2.0%**	**1.8%**	**1.7%**
Snapchat	**0.6%**	**0.9%**	**1.4%**	**2.0%**	**2.9%**
Amazon	**0.5%**	**0.7%**	**1.3%**	**1.9%**	**2.7%**
Twitter	**2.6%**	**1.7%**	**1.3%**	**1.2%**	**1.1%**
Pandora	**1.8%**	**1.4%**	**1.2%**	**1.0%**	**0.9%**
YP	**1.6%**	**1.2%**	**0.9%**	**0.7%**	**0.6%**
Yelp	**0.6%**	**0.5%**	**0.5%**	**0.5%**	**0.5%**
Microsoft (LinkedIn)	**0.4%**	**0.4%**	**0.4%**	**0.4%**	**0.4%**
Other	**35.3%**	**33.5%**	**34.0%**	**34.5%**	**33.5%**
Total (billions)	**$46.70**	**$60.70**	**$74.97**	**$90.34**	**$105.25**

Note: net ad revenues after companies pay traffic acquisition costs (TAC) to partner sites; includes display (banners, rich media, video and other), search and messaging-based advertising; includes ad spending on tablets; Facebook advertising revenues include Instagram advertising revenues; numbers may not add up to 100% due to rounding
Source: eMarketer, March 2018

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Figure 3: Net US Mobile Ad Revenue Share, by Company, 2016-2019

Ad Block: The Publishers' Nightmare

Publishers make money by selling advertising space on their website. They usually get paid for that advertising space based on impressions (the number of people who viewed each ad), clicks, or specific actions like completing a lead form. Publishers don't get paid when a user views content with an ad blocker because that user doesn't load the ad, so they don't count as an impression, they can't click on the ad, and they can't perform any specific actions related to the ad.

The rise of ad blockers reduces the monetizable audience that publishers can reach, and thus reduces the revenue that publishers generate from the same size audience. It is also important to note that younger users are the most coveted (and thus, valuable) audience advertisers target, and they are also the most active users of ad blockers. As the revenue generated by each piece of content decreases, content production costs continue to increase with inflation, making the publisher business model unsustainable in the long term.

Unfortunately even good publishers are getting lumped in with the bad, as users have indicated that they are willing to view some ad formats, as long as they aren't disruptive to the browsing experience. Since ad blockers don't yet give users enough control over their ad blocking experience, users simply block everything, even if they would be willing to view ads from high quality publishers.
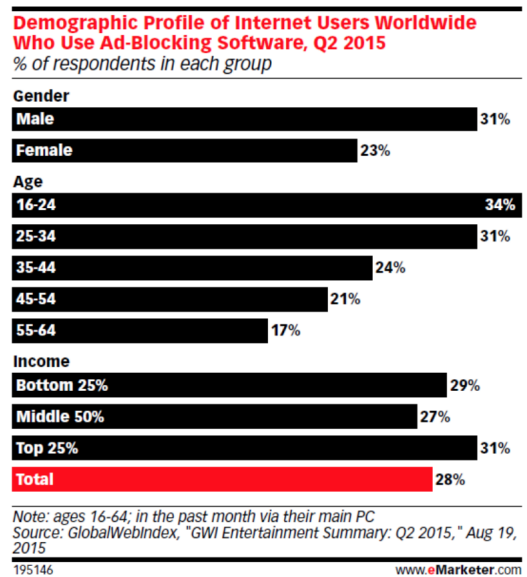

Figure 4: Demographic Profile of Internet Users Worldwide Who Use Ad-Blocking Software

1.4 Advertisers Are Left In The Dark

While users continue to fight against bad advertising, and publishers struggle to keep afloat against a sea of declining revenue, advertisers are struggling to make their dollars work towards their goals, and not just land in the pockets of sophisticated scammers and an uninterested audience.

The Advertising Technology Stack Is Too Complicated

There's an arms race going on in the digital advertising marketplace, as advertisers try to use technology to overcome the shortfalls of an oversaturated market. Long gone are the days when advertisers could work directly with publishers to place ads, and go after broad groups of people. Soon companies stepped in and offered the promise of pin-point accuracy and second-by-second bid adjustments in response to minute shifts in the marketplace.

However, all this has really done is created a crowded and oversaturated landscape where thousands of different companies[24] insert themselves between the advertiser and the publisher, adding their costs to the overall buy:
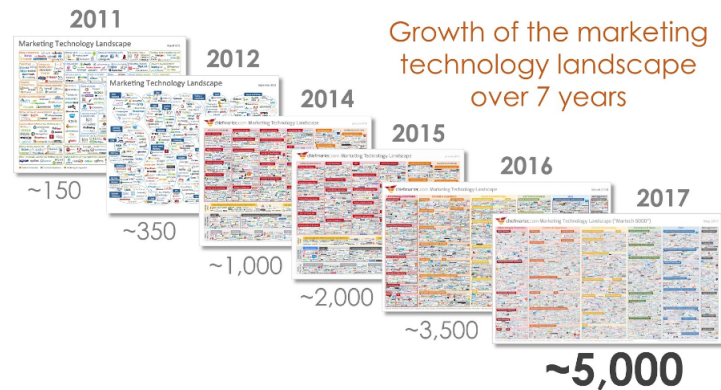

Figure 5: Growth of the marketing technology landscape over 7 years

Ad Performance Continues To Decline

Advertisers struggle with accurate measurement of their campaigns, increasing complexity in the market, tightened control over the consumer data they can collect and use, and the number of quality networks they can use outside of Google and Facebook.

Industry Issues that Are the Biggest Concerns in 2018 According to Agencies and Brands Worldwide
% of respondents

	Brands	Agencies
Viewability and accurate measurement	49%	45%
Talent and skills	44%	39%
Budgeting changes (e.g., zero-based budgeting)	34%	33%
Complexity of ad tech/marketing tech	26%	29%
Consumer data regulation (e.g., GDPR)	24%	21%
Brand safety	21%	16%
Transparency of client/agency relationships	19%	28%
Google/Facebook duopoly	19%	25%
Effect of ecommerce on retail	16%	22%
Ad fraud	13%	12%
Ad blocking	9%	13%
Other	1%	1%

Source: Warc, "Toolkit 2018," Dec 7, 2017

233942   www.**eMarketer**.com

Figure 6: Industry Issues That Are the Biggest Concerns in 2018

Surprisingly, ad blocking is not something that many advertisers are overly concerned with. That may be because the effect of ad blocking is mostly felt by publishers, since advertisers theoretically don't pay for blocked ads, since they only pay for actual impressions and delivered ads. In addition, there are many alternatives that can still reach users who employ an ad blocker, such as native advertising, influencer marketing, and branded content. In the long term however, ad blocking could be a bigger issue for advertisers as more and more people block ads, and they struggle to effectively reach their target audience.

Ad Fraud Is On The Rise

A study by ad verification company Adloox estimates advertisers could be wasting more than $16.4 billion per year to fraudulent traffic and clicks manufactured by bots[25]. As advertising budgets continue to rise, and the way that digital advertising is purchased continues to get more complicated, fraudsters are finding new ways to steal money from advertisers. Some of the common forms of ad fraud include:

- Falsified Sites: Sites and apps that pose as legitimate publishers, either by generating an illegitimate website from scratch, or by plagiarizing content from actual publishers.

- Traffic Fraud: Seeks to boost impressions, clicks, or other website activity counts to reap the gains of those ad dollars. This can be done with bots that create machine-generated impressions or actions designed to mimic actual human patterns, or through low-wage workers who interact rapidly with sites or apps to generate valueless clicks.

- Misrepresentation Fraud: When either an actual publisher or a fraudulent party posing as a legitimate publisher falsifies site or ad-specific information to trick advertisers into believing they are buying something they are not.

- Location Fraud: When a seller of ad inventory, be it the app developer or ad network or exchange, falsifies location information to drive up the cost of the advertising impression. Common to mobile inventory.

- Device ID/IP Address Fraud: When a seller of ad inventory falsifies information about the device ID or IP address in order to drive up the cost of an impression or to commit conversion or app install fraud.

- Cookie Fraud: Falsely attributing a cookie to a particular browser or individual to imply a view or action occurred when it didn't. Like device ID fraud, it can drive up the cost of the impression in the exchanges or be used to commit attribution fraud via cookie stuffing, which is when a third-party site adds its cookie to impressions seen on another website to claim credit for the views or actions.

- Attribution Fraud: When one party takes credit for specific actions it never had a hand in, but as a result will receive compensation for.

2 Advertising Network Landscape

The advertising landscape is dominated by powerful networks that create value for themselves by selling their users' data without ever compensating them for it. Although they are forced to get consent from their users, networks usually force users to agree to a long and complicated legal document prior to using their service, and most people unknowingly and unwillingly accept the terms without ever reading them. This shows how much power these centralized ad networks have amassed over the years. Now is the right time to introduce a new, decentralized ad network to ensure no one abuses their position of power. Our private data is at stake!

2.1 Off-Chain Advertising Networks

Online advertising is controlled by a small group of companies, with the IAB reporting that the 10 leading ad networks account for 75% of total revenues[26]. Even more worrisome is the fact that Google and Facebook, taken together, account for more than 60% of US digital ad revenues—and their share is growing[27]. Here is an overview of the most powerful off-chain networks right now:

- Google Ad Network

  - 241.4M US unique users (95.2% reach)[28]
  - $95.4B advertising revenue in 2017[29]
  - Leverages users' Google searches to sell targeted advertising on their own properties (82%) but also on their network's members' properties (18%)
  - Users have no idea who can access their search data, and do not get compensated when that data is shared
  - Launched their own ad blocker on February 15, 2018, but it only blocks ads in the Chrome browser, owned by Google, that do not comply with the "Better Ads Standards" established by the Coalition for Better Ads, of which Google is a controlling member

- Facebook Audience Network

  - 203.9M US monthly unique users (80.4% reach)[30]
  - $39.9B advertising revenue in 2017[31]
  - Leverages users' Facebook content to sell targeted advertising on their own properties, as well as on third party apps and websites through the Facebook Audience Network
  - Users are often unaware of who can access their profile information, and do not get compensated when that data is shared

- Users are often unaware that social data, such as the photos they share online, can be analyzed and used by third parties to target ads[4]

- Yahoo Audience Network

  - 185.6M US monthly unique users (73.2% reach)
  - $4.7B advertising revenue in 2016 (search and display)[32]
  - Leverages users' Yahoo searches to sell targeted advertising on their own properties (72%) but also on their network's members' properties (28%)[33]
  - Users have no idea who can access their search data, and do not get compensated when that data is shared
  - Now owned by Verizon, who combines Yahoo data with data gathered from the use of AOL, Verizon devices, and other properties to sell targeted advertising through Oath[34]

2.2 On-Chain Advertising Projects

We believe the advertising industry will benefit from decentralization and increased transparency. In that regard, several projects are being developed that use the blockchain to address the pain points of the industry. It's good to see a healthy group of competitors working on similar goals, as the advertising ecosystem will benefit from the collective work of these projects.

Below is a non-exhaustive list of projects that we have analysed, in no particular order, and presented without a specific opinion on them:

- Basic Attention (BAT)

  - The currency of Brave, an open source, privacy-focused browser that blocks ads and trackers
  - Contains a ledger system that anonymously tracks user attention to accurately reward publishers

- Papyrus (PPR/PRP)

  - Decentralized advertising ecosystem
  - Users control what ads they see and what data they share
  - Blocks inappropriate ads and malvertisements
  - Users are compensated for sharing data and responding to advertising

- AdEx (ADX)

  - Blockchain-based ad exchange

- Replaces the usual network of multiple exchanges, Supply Side Platforms (SSPs), and Demand Side Platforms (DSPs)
- Decentralized Apps (Dapps) will be built on top of the exchange

- Bitcomo (BM)

  - Decentralized platform for cost-per-acquisition (CPA) partner marketing
  - Anti-fraud solution leverages the transparency provided by a blockchain

- QChain (EQC/XQC)

  - Decentralized platform for branded content, influencer marketing, and sponsorship purchasing
  - Suite of applications will be built on the platform
  - Flagship application is a direct-buy marketplace that will simplify transactions between advertisers and publishers

- AdChain (ADT)

  - Open protocol that allows for building Dapps for the advertising ecosystem
  - adChain registry serves as a universally decentralized whitelist for non-fraudulent publisher domains

- MassCryp (MASS)

  - Social media, e-commerce, and video-based marketing platform

- Engagement Token (EGT)

  - Engagement tracking and rewarding protocol with a Pay Per Article (PPA) business model
  - Publishers are rewarded for generating traffic, advertisers deliver where there is traffic, and viewers can use tokens to read articles

2.3 Comparison Matrix

While each of the on-chain advertising projects have different areas of focus, we have selected some of the larger projects to compare their features to Varanida, in the interest of saving space and time.

Traditional off-chain ad networks like Google Ad Network and Facebook Audience Network make money by repackaging and selling user data to advertisers, without compensating users for that data, or for viewing ads. They also block ads that do not comply with the standards they promote.

Existing on-chain ad tech companies offer a beginning of solution by improving the Ad exchange process between the publishers and the advertisers. AdEx is committed to reducing fraud and protecting the web users' data for example. AdEx is a blockchain-based ad exchange that improves the connection between publishers and advertisers. This provides benefits like reducing fraud, protecting the user data, and consent-based sponsored messages. Basic Attention Token takes a different approach and puts users at the heart of their project by giving them the ability to contribute financially to the publishers of their choosing. In the future, users will be able to collect the tokens they generate by using the Brave browser, and therefore get compensated for the ads they allow to be shown. Varanida leverages blockchain technology to go one step further, and align the publishers, the advertisers, and the users to build a new kind of advertising technology.

	Google / Facebook	AdEx	BAT	Varanida
Rewards users for attention	No	No	*Yes*	*Yes*
Rewards users for interaction	No	No	No	*Yes*
Prevents fraud	No	*Yes*	*Yes*	*Yes*
Decentralized ad-blocking	No	No	No	*Yes*
Consensus ad validation	No	No	No	*Yes*
Support for publisher applications	No	*Yes*	No	*Yes*
Support for advertiser applications	No	*Yes*	*Yes*	*Yes*
Access content with tokens	No	*Yes*	*Yes*	*Yes*
Protocol release planned	No	No	No	*Yes*
Reputation system	No	No	No	*Yes*
Transparent bidding system	No	*Yes*	*Yes*	*Yes*
Data protection and encryption	*Yes*	*Yes*	*Yes*	*Yes*
Data privacy	No	*Yes*	*Yes*	*Yes*
Scalable	*Yes*	No	No	*Yes*
Decentralised real-time bidding	No	No	No	*Yes*

Table 1: Comparison Matrix

Varanida is not an ad network, but it is an ad technology that will give users power over the ads they see. Traditional ad blockers claim they do just that, but in practice they just hold advertisers ransom, and whitelist advertisers that are willing to pay between 10% and 30% of their advertising revenue to them (e.g., Ad Block Plus, AdBlock)[35].

AdGuard uses a different business model, and blocks all ads while charging users a fee for their software (the most popular service costs $25 +VAT per year)[27].

uBlock Origin takes a different approach and blocks all ads. They do not accept payment from publishers to whitelist their ads, or even accept donations for that matter. The problem with this approach is that all publishers (good or

bad) are punished equally[36].

There are also a number of smaller ad blockers that repackage and sell the personal data of their users to make money (e.g. Ghostery)[37].

Varanida differentiates itself from the business models explained above by letting users agree on what ads they will see. This is what we call the "consensus ad validation" feature and is made possible thanks to blockchain technology.

	AdBlock Plus	AdBlock	AdGuard	uBlock Origin	Varanida
Block banners, pop-ups, tracking and malware	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Customizable	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Supports all major browsers	Yes	Yes	Yes	Yes	Yes
Consensus Ad validation	No	No	No	No	Yes
Free	*Yes*	*Yes*	No ($25/Year)	*Yes*	*Yes*

Table 2: Ad blocker comparison matrix

3 Introducing Varanida

3.1 Varanida, The Cleaning Lizard

Varanidae are a family of lizards (including the Komodo dragon and the crocodile monitor) that are well known for cleaning mangroves and fields. Varanida's mission is to clean the Internet of intrusive and poorly designed advertising, while introducing a decentralized, transparent, and ethical ad network.
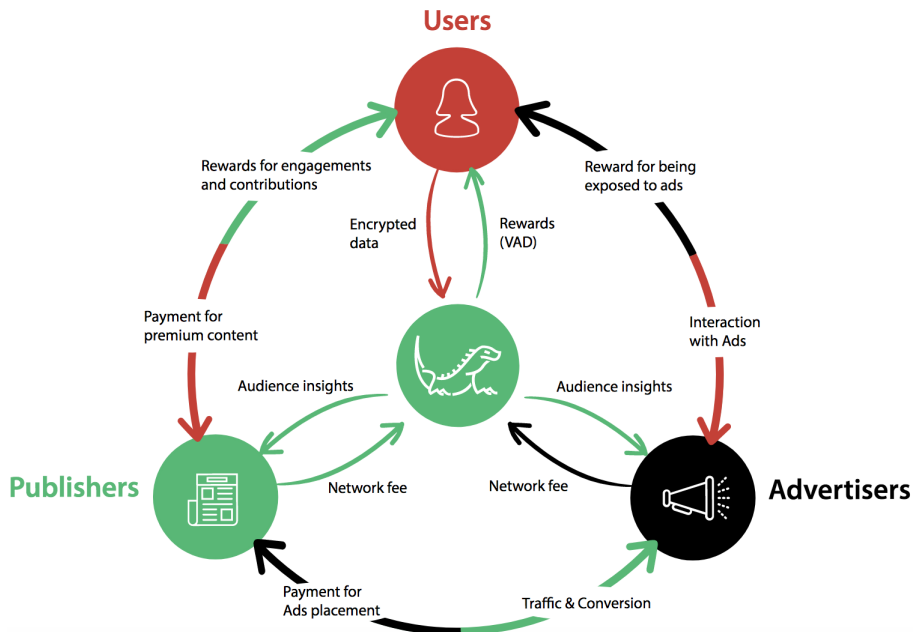
3.2 How It Works

Figure 7: Illustration of Varanida's Ecosystem

Varanida is a digital ecosystem that is being designed to benefit all three stakeholders in the advertising marketplace.

1. Advertisers: Companies who want to promote their products and services in a more engaging way, while respecting users' privacy and experience, and avoiding fraud. Also companies who want their advertising budgets to go further by removing intermediaries.

2. Publishers: Content providers and media sites of any format who want to monetise their content without hurting their audience. Also publish-

ers who want to earn more money from the ads they show by removing intermediaries.

3. Users: Anyone consuming content on the Internet, especially those looking to control what advertising they are exposed to, and how their data is used.

The Varanida Network acts as an enabler and a neutral actor in the advertising marketplace, taking close to a 0% commission (network fees will be lower than 1%) on advertising spend. We are designing Varanida to be fair, transparent, and trusted by all parties, and most importantly, we are committed to bringing real value to all three stakeholders.

Why A Blockchain?

By its design, blockchain technology provides a unique opportunity to build more transparent, secure, and fair networks. These benefits are perfect for the advertising industry, which currently relies on too many intermediaries, an unfair reward system, and centralized data ownership. Because of the challenges of the current system, the digital advertising industry is bound to be disrupted, and Varanida is committed to leading that change.

While building Varanida, we know that blockchain technologies are still early in their development cycle, and for the most part, immature. Our prototype will be released on the Ethereum Network, which we consider the most appropriate network for testing. However, we will be forking the most suitable blockchain technology in the near future, to become the basis of Varanida's own blockchain. Our main goal is for Varanida to run on the fastest and most scalable blockchain, and we are currently reviewing several solutions to achieve that goal. During the evaluation process, we will be communicating our test results as well as our final decision.

Why A Token?

In the prototype phase, we will create the VAD (Verified Ad), an ERC-20 token running on the Ethereum Blockchain. Later on, Varanida will release two crypto-assets (see Varanida Protocol section) that will carry the following benefits:

- One currency for all parties (no exchange rate, no fees)

- One currency to access all content on the Internet (and beyond)

- Users can earn tokens (no bank account or Paypal account needed)

- Tokens bring transparency to the whole ecosystem

3.3 How Users Benefit

Compensated For Cleaning The Web: The Varanida Ad Filter

During the prototype phase, Varanida users will earn VAD tokens each time they block an ad from a centralized network. This will be done through a multi-browser compatible extension that enables users to block ads running on centralized ad networks. The list of blocked ads and advertising scripts is created using a combination of public lists like Easylist, private lists, and a crowdsourced list stored on the blockchain.

Users Own Their Data

By default, Varanida's network will not store any user data. However, users can opt to share their data with advertisers if they want to be rewarded with additional VAD for seeing ads. If they choose to do so, their data will be encrypted, and will not be sold to third parties.

Users Are Compensated For Their Contribution To The Network

Later on, with the release of the Varanida Ad Network, users will be compensated every time they interact with an ad from one of Varanida's verified advertisers. Interactions are defined by actions such as liking, disliking, validating, or signaling ads. Varanida will also implement several metrics to measure the quality of user attention, such as time spent and actions taken, which can be used to adjust compensation.

Tokens Have A Real Utility

The Varanida network will develop several applications where users can spend VAD tokens, such as accessing premium content on publisher sites, unlocking discounts and promotions from advertisers, or directly buying products and services with selected partners.

Users will be able to reward content creators with VAD, who will then be less dependant on direct ad revenue which is directly correlated to audience behaviors. This decorrelation will be an incentive for publishers to create better content instead of clickbait, and focus on quality over quantity. VAD tokens will also be tradable against other cryptocurrencies, and ultimately fiat currencies, on multiple cryptocurrency exchanges that will be announced later.

3.4 How Publishers Benefit

Fair Compensation For Their Content

Varanida has designed a fair and transparent monetization model for publishers. Unlike traditional and centralized advertising networks that take up to 60% of the total budget in fees, publishers who implement Varanida's technology on their properties will be able to earn up to twice as much for the ads that they serve. The reward system for publishers will be made transparent and auditable. For each ad they display, publishers will earn VAD tokens based on the auction that takes place in Varanida's Real Time Bidding platform. Publishers can also be rewarded by users who like their content and want to 'tip' the team behind that content.

Display Better Ads (i.e. "Verified Ads")

Ads are verified by the network, and as a result, they are more likely to engage their target audience and not be seen as annoying, offensive, or intrusive. Publishers will have the guarantee that the ads they display are high quality, since the network will have verified them beforehand. Within the Varanida network, content won't be associated with poor advertising, which can impact user experience.

Reward Users For Interaction

The digital world is a huge community. We believe that everyone has their place, and can bring value in their own way. Publishers using Varanida will be able to encourage their audience to interact with their content, through different incentives such as:

- Offering VAD tokens for commenting on content

- Offering VAD tokens for sharing on social media

- Offering VAD tokens for contributing additional content

Paywalls That Don't Kill Conversion Rates

Publishers have tested many ways to get more revenue from their content. However, most of the time they are distracting from their users' experience with too many ads, or a frustrating paywall. There aren't many people that want to pull out their credit card just to buy an article for $1, or subscribe to an online magazine for $5 per month. These models do not solve the issues publishers face, and even when it doesn't make them leave, it certainly frustrates readers.

VAD tokens will be the perfect way for publishers to offer premium content to VAD token holders. Varanida will offer publishers tools and scripts that can be used to easily shape their revenue streams, with models such as:

- Monthly or Yearly Subscriptions

- Pay Per View

- Pay Per Read

- Pay Per Download

3.5   How Advertisers Benefit

Budgets Go Towards Productive Campaigns

Today, a majority of ad spend goes to the ad networks, leaving less budget to compensate publishers for supporting the actual performance of the advertising, such as views and clicks. With Varanida, companies can use 100% of their budget to run campaigns. The network does not take a commission.

Engage Their Audience With Promotions and Discounts

By leveraging the Varanida Protocol, advertisers will be able to engage with their target audience directly, offering users access to exclusive deals, promotions, discounts, or even the ability to buy products and services directly using VAD tokens.

Incentive For Early Adoption

We are designing a real ecosystem where the VAD token has a clear utility, and that utility increases as more advertisers join the system. To entice early adopters, Varanida will offer a 50% bonus to any advertiser using the platform in the first year of activity. For example, an advertiser that buys 1,000 VAD will receive a total of 1,500 VAD to use on the platform.

4   Varanida Technology

4.1   Overview Of Components

Browser Extension

The main user facing feature of the Varanida system is a browser extension. A simple version of the extension will be available during the ICO, and will be used for an original airdrop mechanism that rewards users for blocking ads. The Varanida extension will then evolve to serve multiple purposes, and will be the default wallet for the Varanida network. Obviously, the extension will never have any hidden mining daemon, and will not use the client's computing power without their agreement. The source code of the extension will be released under GPL3 license, and everybody will be able to audit the code.
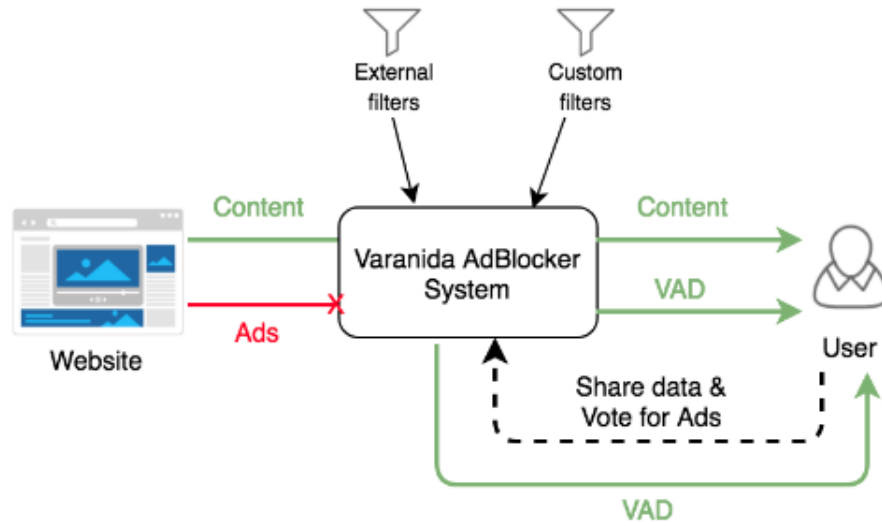
Prototype Phase

Figure 8: Presentation of Varanida's ad blocker extension

During the prototype phase, Varanida will release the first version of the extension, which will be an ad blocker, based on the open source solution uBlock. The extension will be available for Chrome and Firefox. The Varanida ad blocker provides extensive address blocking using the common ad filter syntax (https://adblockplus.org/filter-cheatsheet). It uses external filters like EasyList,

and other more specialized filters (against crypto mining scripts, for privacy, resource abuse, social media probes, etc.) These filters will be auditable and viewable by everyone, and users will be allowed to add or remove custom filters if they want. Other decentralized ad networks (such as Adex, Papyrus, Adtoken, etc.) will not be blocked to show support for ethical and more balanced ad networks. A simple Ethereum wallet (based on Metamask libraries) will be implemented as a way for users to receive rewards for blocking ads during the airdrop phase. A wallet balance in VAD will be displayed in the interface of the extension, so that the user knows how many tokens they have been rewarded.

Product Phase

Once the product is released, the extension will be updated to serve new purposes within the Varanida network. The extension will have 3 main purposes:

- Authentication Mechanism: Since the Varanida protocol will reward users for the data they share and for their interaction with ads (views, clicks, votes), the extension will be used as an authentication mechanism, to reward the proper address, and to exchange personal information (vetted by the user - this is not spyware) with the ad network.

- Wallet: Just as in the prototype phase, users will be able to see their balance of VAD utility tokens, and some statistics (average reward per ads, number of ads seen, VADkarma, etc). In addition to this passive role, this updated wallet will allow the user to use their tokens to reward creators, pay for services, and view premium content.

- Voting Interface: The extension will be used to judge the compliance and efficiency of the ads seen by the user. This will allow the ad network to filter inappropriate ads, and help improve ad targeting.

Since an increasing number of users browse the Internet through their mobile device, and see ads this way, a mobile browser will also be developed. It will serve the same purposes as the desktop browser extension, and will probably be based on the Chromium mobile project.
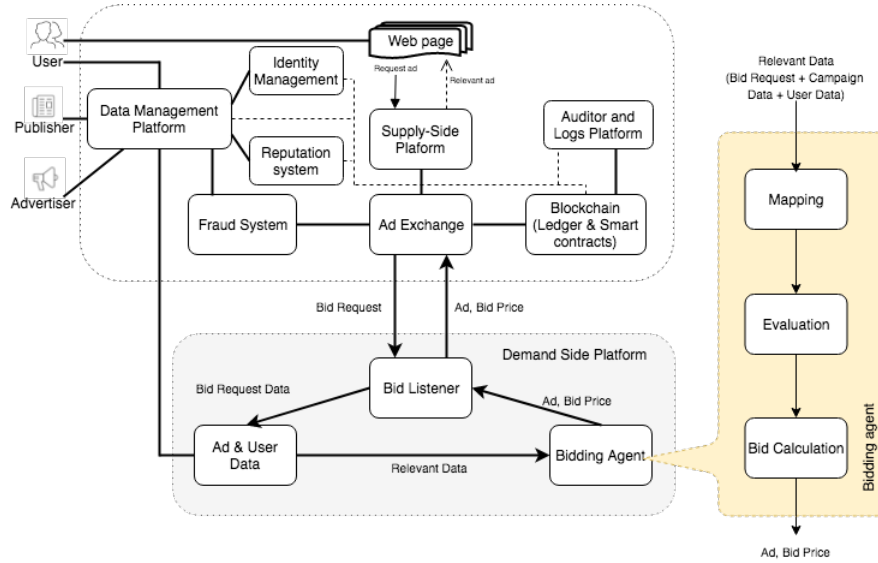
Decentralized Real-Time Bidding System

Figure 9: Presentation of Varanida's Real Time Bidding mechanism

Real-Time Bidding (RTB) applications require very high scale; they also need to apply matching to decisions within a rigorous Service Level Agreement (SLA). This requires sending requests to a database holding millions of data records at a rate of millions of transactions per second. This kind of system requires extremely high uptime and low latency. To make a decision in less than 100ms, this application will have to increase its data usage over time and increase the quality of its decisions. The more data that can be accessed in a fixed amount of time, the more pertinent the decision. While we are true believers in decentralization, the reality is that some processes can't be (at least not today) decentralized. For Varanida's RTB system, we are considering a hybrid approach with a centralized computing system, and decentralized ordered hash storage. We think that taking the best of both worlds will help make our system transparent, fair, and trusted by all parties.

The Varanida team is creating a semi-decentralized RTB system that can handle real-time workloads and provide a high level of fault tolerance. In this system, Varanida users maintain control over their own private keys. User data is encrypted and stored on our centralized servers, however the user metadata and transactions are encrypted, timestamped, and stored on the blockchain, while bidding is made off-chain. The decentralization of user metadata and transactions allows transparency, auditability, and neutrality. Centralization of bidding and matching leads to high-speed, low-latency, and scalability, bypassing the current limits of the blockchain. Transactions are viewable only to the

users, publishers, or advertisers linked with this specific transaction. For instance, a transaction that records the result of a click event will be recorded in the blockchain, but will only be viewable by the owner of the site hosting the banner, the user who clicked it, and the advertiser. However, external auditors can still see anonymized results on the blockchain to check if there was any fraud or manipulation.
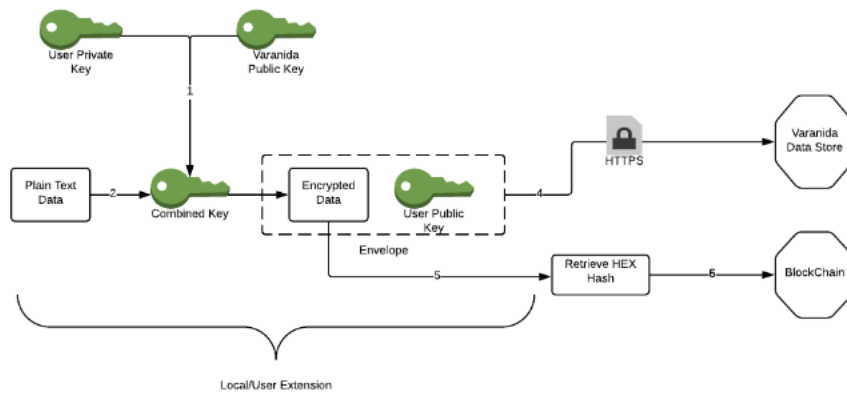
Data Management

Figure 10: Varanida's encryption process

- Encryption Process

  1. User has their own keypair. We use their private key and the Varanida public key to generate an intermediate key (see Diffie Hellman Key Exchange)

  2. We encrypt user data using the combined key created during Step 1

  3. We create an envelope which contains the encrypted data and the user's public key

  4. We send this envelope to the Varanida backend using HTTPS. Varanida's Data Store leverages server-side encryption using AES256

  5. We retrieve the hash of the encrypted data

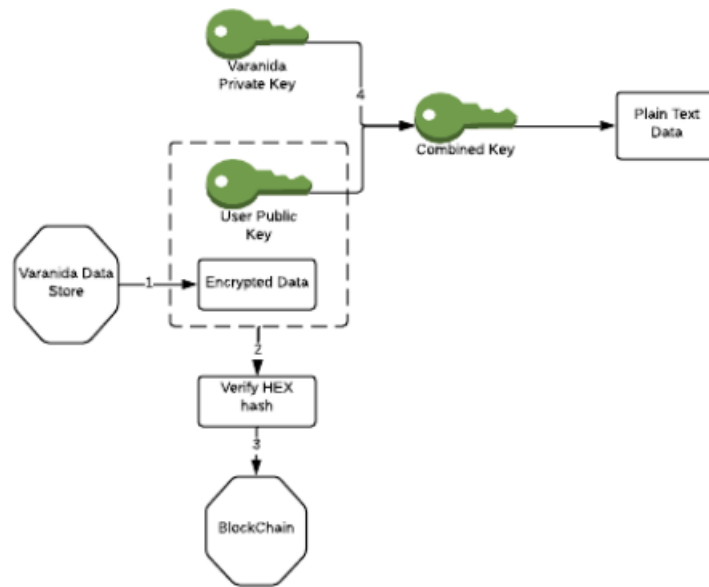 6. We store the hash on the blockchain (with batch processing if needed)

Figure 11: Varanida's decryption process

- Decryption Process

  1. Retrieve the envelope from the Varanida Data Store
  2. Retrieve the list of hashes from the envelope
  3. Verify if the hash is valid, based on information received from the Data Store and the list of hashes stored on the blockchain
  4. Re-generate the combined key using Varanida Private Key and User Public Key
  5. Use the combined key to decrypt the encrypted data

- Some important points to keep in mind:

  - The user's secret key NEVER leaves the extension
  - If an attacker gains access to the envelope, they won't be able to decrypt the content as they won't be able to reproduce the combined key
  - We save one layer of encryption over the previous solution, since we don't have to encrypt the envelope
  - For the decryption process, we start with the data store first, retrieve the newest envelope, compare the hash with the value on the blockchain, and decrypt if the hash is valid
  - User Secret Key / User Public Key: A pair of 2048 bit RSA keys

- Varanida Secret Key / Varanida Public Key: A pair of 2048 bit RSA keys
- Combined Key: An intermediate key created by (1) User Secret Key + Varanida Public Key or (2) User Public Key + Varanida Secret Key
- Envelope: tgz of User Public Key + Encrypted Data

By using such a mechanism, users can authorize Varanida to store specific information about them and associate it with their profile. They can then prove their identity to any other entity in the system, including new advertisers, and authorize them to access specific parts of their stored information.

This system allow users to control their own data, and monetize it by sharing their interests and other pertinent ad targeting data with advertisers.

Users can provide and confirm their information, including gender, age, hobbies, education, experience, geo-location, device types, and more. The user will be allowed to link external user accounts (Facebook, Google, LinkedIn, etc.) Varanida will use information from those accounts, such as preferred pages, likes, or Tweets, to improve the user's profile. Later on, an API will be released to help developers building connections to the Varanida system that will allow Varanida users to retrieve their data from other platforms.

Users are allowed to share their data by advertiser category, and can also blacklist some specific advertisers. User's interactions with ads (votes on the relevance or irrelevance of the ads) will be linked to this blacklist, and will improve the user's own preferences.

We believe users will voluntarily share their data for the following reasons:

- Varanida will reward users for sharing their data (User data is encrypted, and only the owner of that data, and authorized parties can access it)

- Users will receive more relevant ads

- Users will earn more compensation from advertisers as a result of better ad targeting

The Varanida Platform will enrich the user profile with the history of their interaction with ads.

4.2 Identity Management System

We are expecting a lot of data to go through the Varanida Network, so it's important to build a scalable and secure identity management system. We have identified several solutions, but at the moment our first choice is Civic, a blockchain-based platform for managing online identity. We are still exploring

other providers, and will work with the most secure and scalable one that can meet our own guidelines, as well as the guidelines provided by our auditors.
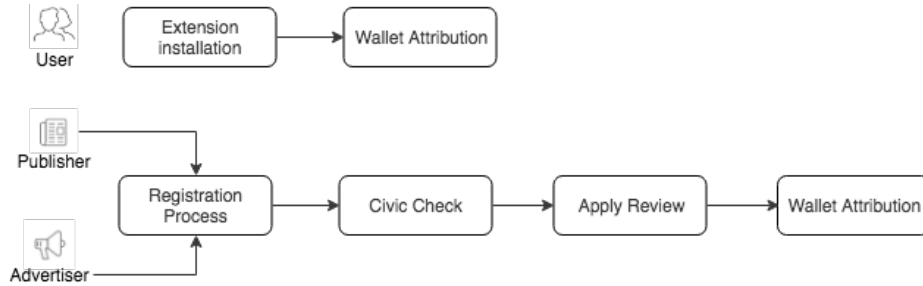

Figure 12: Varanida's identity management process

- User

  1. Installs the extension
  2. Gets a wallet account and private key

- Publisher/Advertiser*:

  1. Registers using full name, phone number, and email address
  2. Passes the review verification process
  3. Gets a wallet account and private key

*We will also provide agencies and Supply-Side Platforms (SSP) with a solution to register their customers and partners directly on Varanida.

4.3 Reputation System

Reputation management is an important component in the Varanida system. All registered members (advertisers, publishers, and users) will have a reputation score associated with their identity.

Reputation Score

To track and represent the reputation of advertisers, publishers, and users on the Varanida Platform, we will introduce a specific score presented in the form of VADkarma. This score cannot be purchased or transferred between users. VADkarma can only be created through executing a specific smart contract.

In the Varanida system, members can accumulate VADkarma in differents ways:

- Users: By voting on ads and rating the quality of publisher websites

- Advertisers: By proposing high quality ads compatible with Varanida's policies and values

- Publishers: By displaying ads on websites that follow Varanida's quality guidelines

To prevent spamming, publishers and advertisers will also be penalized when they display or create ads of low quality, through the reduction of their VAD-karma. Thus, a publisher will need a strictly positive score to start displaying ads.

Reputation Formula

Ad Reputation is done through a crowdsourcing task with boolean choices, to help establish one's reputation. It breaks down in two phases: The Validation Phase and the Consensus Phase.

Validation Phase:

In the validation phase, the ad is approved by automatic algorithms that validate basic network requirements. After ads satisfy the minimum number of requirements, as defined by the system, the consensus phase starts.

Consensus Phase:

In the consensus phase, the ad receives the votes that users have submitted via the Varanida extension within a certain period of time. After a specified time, ads without votes are automatically rejected.

Users can rate ads as "Relevant" and "Irrelevant" within the reputation statement in the ad. When a user selects "Relevant" for an ad, it means that the user is considering this ad to be relevant for other users too. On the other hand, when a user marks an ad as "Irrelevant" it indicates that the ad is of bad quality, or not suitable to be displayed. If the number of votes reaches a pre-defined minimum number, the consensus stage can be finalized in advance. After the voting process, the smart contract is immediately executed to aggregate all votes and deliver the final decision: "Approved" or "Rejected". After the reputation process is finished, the advertiser's VADkarma is updated. If the result of the reputation process is "Approved", the advertiser will be given VADkarma, otherwise the advertiser's VADkarma will be reduced.

For users, if the final decision is consistent with their vote, they will receive a reward of VAD tokens, and will also be given VADkarma in proportion to their weight. Otherwise, they will be penalized through a reduction of their VADkarma.

Ad Vote Function: Users participating in the vote, and advertisers creating ads, are rewarded or penalized by a certain amount of VADkarma.

The rewarding or punishing operation is determined by the final decision, which is determined as follows:

$$Final\ Decision = \begin{cases} Approved\ \sum_{Vi=Relevant} K_i & \geq \sum_{Vi=Irrelevant} K_i \\ Rejected\ \sum_{Vi=Relevant} K_i & < \sum_{Vi=Irrelevant} K_i \end{cases}$$

Where Ki is the reputation score for user i.

For the ad voting process, the system rewards users with VADkarma if the final decision is "Approved", or deducts VADkarma if the final decision is "Rejected". During the voting process, the voting users are required to choose between "Relevant" and "Irrelevant", but they also have the option to provide a credit rating (Cr) using a rating system of 1 to 5 stars. For "Relevant" votes, the VADkarma reward is calculated as follows:

$$VADkarma_{reward} = \frac{\sum_{V_i\ is\ consistent\ with\ Final\ Decision}\ Cr_i}{\sum_{V_i\ is\ consistent\ with\ Final\ Decision}\ 1}$$

For "Irrelevant" votes, the VADkarm a penalization is calculated as follows:

$$VARkarma_{penalize} = \gamma$$

Where γ is a constant and $\gamma = 3$.

If the user's vote is consistent with the Final Decision, then the user is rewarded with a certain amount of VADkarma. Otherwise the user is penalized: VADkarma is deducted from their account. We set the total number of VADkarma for a vote equal to the number of users participating in the vote. For users whose votes are consistent with the Final Decision: The total number of VADkarma rewarded is equal to X. For users whose votes are inconsistent with the Final Decision: Total number of VADkarma deducted is equal to $\frac{1}{2}X$. So for each user i, if their vote is consistent with the Final Decision, the user will be rewarded, otherwise the user i will be penalized.

$$VADkarma^i_{reward} = \frac{K_i}{\sum_{V_j=V_i} K_j} \times X$$

$$VADkarma^i_{penalize} = \frac{K_i}{\sum_{V_j=V_i} K_j} \times \frac{1}{2}X$$

From these two equations, the VADkarma reward obtained by the user is in proportion to the user's reputation Ki. (The more reputation the user has, the more they will be rewarded or penalized.)

The same formula will be used to vote for the quality of a publisher's website.

Benefits of Reputation System

There are many cases where this reputation system will offer great benefits to advertisers, publishers, and users:

- Trust unknown advertisers and publishers based on their reputation score
- Protecting users from scammers and bad advertisements
- Improving the quality of publishers' websites
- Transparency provides universal visibility over the reputation system
- Decentralizing the quality decision by crowdsourcing it with the community

4.4   Anti-Fraud System

Varanida strives to mitigate the following threats to the online advertising system:

- Ad-Blocking Fraud
- Impression Fraud
- Conversion Fraud
- Click Hijacking
- Sybil Attack[38]

Using a mix of machine-learning algorithms and in-house development, our goal is to offer a network where data integrity is ensured for both publishers and advertisers.

All clicks and impressions are analyzed by the Varanida Network in real-time. Verification goes through a series of batch requests, occurring multiple times per day, every day. Invalid requests or invalid traffic are filtered out, but still visible to all parties for transparency purposes.

Each advertiser, publisher, and user is given their own reputation rank. It may increase or decrease depending on the quality of their interaction with the Varanida Network. This reputation rank will be public, and stored on the blockchain. Here is an non-exhaustive list of elements that can affect the overall reputation rank:

- Fraudulent traffic, as indicated by the publisher reporting more traffic than their page ranking would suggest[39]

- Any unusual click/impression pattern (i.e: bot traffic, fake clicks, etc.)

- Proxy bruteforce, or use of any automated system to impersonate or trick HTTP referers

- Invalid payload sent to the Varanida backend

External Audit and Peer Review

The Varanida Platform is designed to be completely auditable by advertisers and publishers. Varinada uses multiple systems of both proactive and reactive reviews. The platform also offers the possibility for any user of the network to become a peer reviewer and protect advertisers or publisher from fraud.

- Proactive: Low-quality and suspicious publishers are not accepted. Black-listed publishers are not allowed to re-submit applications. Fraudulent contact information is detected and removed.

- Reactive: Constantly updated and automated algorithms can filter out invalid clicks and views as they occur. All clicks and views on Varanida ads are analyzed.

One of the major issues for advertisers is the lack of trust they have in current ad networks. Recent events have shown that centralized platforms have too much control, creating limitations as a result of their lack of transparency[40].

Varanida is building a fraud-proof platform that will make reporting and performance monitoring not only transparent, but also trustworthy. The blockchain will record when value is sent or received, and will also offer any member of the system the ability to become an auditor. Access to information will be available in real-time to improve fraud detection and anomalies, and Varanida will provide decentralized and comprehensive tools to facilitate audit tasks. Auditors can review RTB bid and transaction streams to operate as trusted third-party arbiters by voting to adjust transactions between advertisers, publishers, and users. As part of the process of analysis, the auditor's missions will be to:

- Detect bots and spammers (non-human traffic/clicks/impressions/ad-blocks/etc.)

- Detect if publishers respect the advertiser's policy

- Detect if advertisers respect the publisher's policy

- Detect if advertisers and publishers respect Varanida's policy

- Ensure users and publishers receive the correct payment from advertisers

- Compare the budget spent by advertisers to the performance of publishers

- Check for ads that are not displayed due to errors or latency in the Varanida platform

- Verify the fees allocated to the Varanida platform

4.5 Scalability

To ensure the best performance and reliability, Varanida leverages cutting-edge technology that is designed to handle several million concurrent requests. The back-end is designed to support massive workloads at a minimal latency (under 100ms). To ensure transparency and data integrity, Varanida is designed to store only relevant information into the blockchain. All other data will be stored into our secure backend data store and periodically audited.

4.6 User Interface

Our goal is to make the platform simple and easy to understand for users, so they can take advantage of the benefits of Varanida without having to understand complex concepts like user keys and smart contracts. The front-end interface will be fast and responsive, using the latest Javascript technologies like Angular, a popular framework that has already developed a large support community. While the user interface will be responsive from the beginning to support all mobile devices, we also plan to develop mobile apps that will leverage the capabilities of programs running natively on phone and tablet devices.

4.7 REST API

The Varanida platform will provide methods for accessing every feature in our product, including end-user accounts, ad transactions, real-time bidding, payment processing, data logging, analytics, and fraud prevention. Using our REST API, partners and other ad networks can integrate and develop applications on top of the Varanida Platform. Third-parties can also use the API to integrate Varanida into their existing products, expanding the value of their products while at the same time growing the Varanida ecosystem. Because of the massive amount of valuable data that the platform will make available, external companies will be able to view the advertising market in a way that was not previously possible.

4.8 The Varanida Protocol

Varanida Blockchain

We plan to release Varanida's blockchain as a means for different parties to build advertising applications that can better engage audiences around the Internet. These apps will be promoted, but will respect a strictly decentralised approach.

In the long run, traditional ad formats could be replaced by "Varanida Dapps", allowing:

- Advertisers to use VAD to promote their Dapps built in the Varanida protocol

- Users can use VAD inside these Dapps (membership, discounts, etc.)

- Publishers can support and feed the Dapps with their promoted content

To achieve enough penetration, Varanida's blockchain technology will require application layers that are user-friendly, and allow participants to find interesting business economics that will help grow the platform.

Consensus For Verified Ads

To let users control the different ads in the Varanida system, publishers will need to create a proposal for their campaigns. Users will then be able to vote on these proposals, and by doing so, earn VAD tokens as a reward. A proposal will last 2 hours, and every VAD token holder will be able to vote for or against each proposal. A non-holder won't be able to vote in order to limit multi-account votes. Then, we calculate the votes and distribute rewards (from the publisher) amongst the users which have voted like the final result. (i.e. If a final vote is 'OK', every user that voted 'OK' will be rewarded, and users that voted 'Not OK' will not earn a reward.)

Varanida Masternodes

To build a more decentralized system as the mechanism of our Real-Time Bidding process, we will implement a system with service nodes or "masternodes" to handle the bidding in quasi real-time. These nodes will get rewarded for their work.

To avoid the need for everyone to run every calculation, and to ensure trust, we have an open-source algorithm which will be run off-chain, with the results written on-chain to allow users to audit the data. Therefore, to make sure someone is doing that verification, there will be another layer of nodes (staking nodes) which will verify the service node results. They are rewarded with more

tokens when errors are found (and masternodes are penalized). However, they still earn tokens when they are just staking, as this is the best case scenario, since everyone gains tokens when the network is running well.

To add a layer of security, and avoid sybil attacks, we let users create service nodes by locking a fixed amount of tokens. The stacking nodes don't need to be sybil proof, and they can stake as much as they want, but the more they have, the more they will get.

The distribution between service nodes and staking nodes will be adjusted regularly to keep a good balance between the needs of both systems.

Dual Tokenomics

A common flaw in token-based systems is having the token serve as a store of value and as a medium of exchange at the same time. The issue with this system is that the properties needed for those two purposes are different and mostly contradictory.

A "store of value" token is bought by investors, hoping that it will increase in value over time, along with the increase in transactions executed with it. For that purpose, it needs to have a limited supply, as well as use cases that incentivize users to hold the token instead of exchanging it directly for goods or services. If a token has an ever increasing supply, inflation will lead to users selling or spending it after a short amount of time. If a token's underlying protocol doesn't include incentives to hold it, like staking mechanisms or collateralization, it will fall victim to the velocity problem, where users will buy it only to spend it right away, and its value will not grow linearly with the transaction volume.

On the other hand, a "medium of exchange" token is supposed to be used to buy goods and services, have a high velocity, and relative stability of value in the short term to avoid price risk. This purpose requires a different protocol design than the one summarized for a store of value token. A medium of exchange token's protocol should have supply management and incentive mechanisms that lead to a slight price inflation, in order to prevent hoarding and long-term holding, and to encourage spending. A token whose value increases over time leads to delayed spending behavior (why use it today when it might be worth more tomorrow?) and a slow-down of the economic system based on it (deflationary spiral).

Figure 13: Varanida dual tokenomics mechanism proposition

Having a single token to fulfill those two goals is unrealistic, so we decided that having two tokens is the best solution, as some other blockchain-based projects have done already. When switching to Varanida's own blockchain, two new digital assets will be created:

- *VADm:* A master token with fixed supply that will serve as the store of value, appreciating as the network's usage increases.

- *VADu:* A utility token that will serve as the medium of exchange for all transactions on the Varanida Network, and whose value will be stabilized and slightly inflationary.

VADm Master Token: This token will be the reward for ICO participants, at a 1-to-1 ratio with the ICO token. Its supply will be fixed, and it will have several usages that will require immobilization and lead to holding behavior, which will in turn reduce its velocity.

First, the Varanida protocol will use master nodes to run the real time bidding and verification nodes. They will both require staking VADm tokens, as an incentive for good behavior.

Another way to profit from the network usage without having to run a node will be to collateralize those master tokens to create the utility token. As described below, this second token will be managed as a "stable coin", necessitating users to immobilize VADm as collateral for VADu issuance. This will ensure that VADu tokens are redeemable for their face value and support price stability, while increasing the master token's value.

In both cases, the token immobilization will be rewarded by fees (in VADu), either for the use of the advertisement services (service fees through the service nodes), or for the use of VADu (transaction fees for collateral).

VADu Stable Utility Token: This token will be stabilized with respect to an external asset through a mechanism that is similar to the one implemented in the Havven protocol[41].

Like Nomins in Havven, creating VADu will necessitate the over-collateralization of VADm, which will be locked, and this collateralization will be rewarded by transaction fees paid by VADu users. The redeemability of a VADu for the VADm against which it was issued strongly supports a stable price.

This system brings confidence in the value of VADu in the same way that metal backed currencies used to do, with the additional flexibility of blockchain based protocols. For example, a gold-standard paper currency had to keep a fixed redeemability ratio to its underlying asset (gold) throughout the years, whereas a blockchain protocol could allow for a slight, predictable inflation relative to the underlying asset over time.

Since most of the protocol will be close to the one described by the Havven team, we will not copy the details of the incentive mechanisms here that are accessible in their whitepaper, and will instead provide a broad overview.

The Varanida stabilization mechanism will incentivize those who immobilize VADm to fulfill two functions:

- To provide the system with collateral
- To participate in the stabilization of the VADu price

Collateralization: Confidence in the stability of the VADu token begins with over-collateralization, so that the value of escrowed VADm is greater than the value of VADu in circulation.

Only a 1:1 level of collateralization is theoretically needed to ensure confidence in the redeemability of VADu. Nevertheless, VADm's price fluctuation and VADu's variable demand require a safety margin to avoid having an under-collateralized system for some time, which could lead to a loss of confidence spiral.

A fractional reserve system could also be theoretically possible by making the assumption that all VADu will not be exchanged for VADm at the same time, but history shows that this kind of system is vulnerable to "black swan" and "bank run" events, and couldn't be sustained in a transparent economy based on the blockchain.

Over-collateralization ensures that as long as the ratio of total VADu value to total VADm value remains favourable, there is sufficient backing in the underlying collateral pool to ensure that VADu can be redeemed for their face value. The redeemability of VADu for the VADm against which it was issued strongly supports a stable price.

Stabilization Incentives: The Varanida stabilization protocol rewards those that have issued VADu. These rewards are derived from transaction fees, and are distributed in proportion with how well each issuer maintains the correct VADu supply. The system monitors the VADu price through oracles, and responds by adjusting its targeted global supply, which individual issuers are incentivized to move towards.

Where volatility persists, stronger stabilization mechanisms may be applied, such as automated collateral recovery.

The Varanida Stabilization Protocol: Being on our own blockchain means a few elements will be different from Havven:

Market Implementation: To be as reactive as possible to price fluctuations, it's important that any created VADu is sold rapidly to the open market. To automate this process, we might implement a decentralized exchange on-chain, where VADu would be exchanged for VADm and automatically limit-sold at creation.

This point is still under discussion, since it has advantages and drawbacks; On one hand it allows faster price stabilization, and even though VADu will be available on the secondary market, the fact that it has to be bought with VADm first will further increase the value of the VADm master token. On the other hand it reduces access to the primary market by forcing VADu creators to sell on a unique marketplace, and makes the Varanida protocol more complex by implementing a decentralized market for only one asset.

Price Oracles: The price oracle system will probably be implemented directly in the nodes, instead of using a regularly updated on-chain contract. This implementation makes more sense because the very protocol will be dependant on it, and will be cheaper and more robust. Price sources will be left at the discretion of node maintainers to avoid the risk of manipulation, but some will probably be selected by default to ensure a certain level of price uniformity and representativeness (to avoid having Korean nodes "oraclize" at the Korean price, and so on, which would make optimal collateralization heavily dependent on the validating nodes).

Endogenous Price Determination: In some stable coin whitepapers, we have seen systems that plan to move from an oracle based on $USD to some other mechanism of price deduction, to be self-sufficient on information. Those approaches are interesting and correspond to the idea of abandoning fiat currencies, but are often reliant on endogenous indicators like fees or volume of transactions, which are not always reliable to establish a price index.

The advantage we have with Varanida is that we will maintain an internal market for attention and information. This will give us an endogenous price feed which will allow stabilization without the need of an oracle based on fiat currencies.

To be realistic, we acknowledge that VADu could start by being pegged to $USD or a basket of fiat currencies, then transition to an endogenous price determination mechanism once the advertising business reaches a certain size and stability. Then, when our attention and information market reaches a certain volume, organized by decentralized nodes, inflation adjustment based on information price (CPM and other advertisement prices) is possible. Once a certain volume and stability on the advertising network is achieved, the price of attention (CPM) should be relatively stable and predictable, especially when taking into account any seasonal demand.

Also, since Varanida is an information marketplace, what's important is to have price stability relative to the product that is being bought and sold (ad space). Even if CPM varies slightly, VADu/USD will follow and stay relatively stable, and the advertisers will not have to assume additional risk.

Most stable coins are pegged to the dollar at a constant 1/1 ratio, which makes them good for hedging (better than $USD for taxes). But in our case, fees for collateralization are drawn from transactions, which might be reduced by excessive holding. To avoid liquidity issues, Havven envisions the idea of a fee on holding, but that seems like too direct of a way to achieve that goal. An alternative way to improve liquidity and avoid excessive holding is to have slow inflation.

Based on CPM and other information price indexes, slow inflation would mean having VADu priced at 1 VADu = 1,000 impressions at first for example, then increasing to 1.1 after X months, and so on. A slow increase would not be

a problem for clients, because they wouldn't be holding VADu for long, and there would still be stability in the short and medium term. This inflation would be hardcoded in the collateralization protocol, which would make it more predictable than fiat inflation which depends on various factors that are unpredictable and opaque (central bank interest rates, credit creation for certain asset classes, etc.)

5   Growth Strategy

Considering the industry Varanida will participate in, an ambitious growth strategy is required. Thus, all of the proceeds from the ICO will be used toward building great technology, as well as growing our user base.

5.1   User Acquisition

Prototype Phase

During our prototype phase, users will be able to get free tokens through an airdrop to their wallet. Users who install the plugin during this prototype phase will receive 50 VAD. If they install it through a referral, they get an additional 20 VAD, and the referrer gets an additional 20 VAD per user they refer.

In order to show users how much their attention is worth, we have decided to distribute a number of tokens per blocked ad that approximately corresponds to the current CPM (cost per thousand impressions; impression = one time your ad is shown).

To avoid abuse, we will limit each user to 1500 ads rewarded per hour, which corresponds to 3.75 VAD. This corresponds to rewarding a maximum of 25,500 ads per day if the user spends 17h a day surfing the web . There aren't many reliable statistics for how many ads are seen per day by a typical Internet user, but we estimate that a moderate to heavy user sees around 1000 - 3000 ads daily, accounting for banner ads, video pre-roll ads, and native ads. This was what we observed during our testing phase for our team members, some heavy web users peaking at 6000 ads/day. Accordingly, the 1500 ads/h limit shouldn't be detrimental to an honest user's reward.

We can extrapolate the number of users that can be served during the airdrop phase from the following calculations, using an approximation for the adoption rate and for the number of ads seen per user, per day.

I = 10   Starting point of the user base (10 users at the beginning)

R = 50+20   Amount of tokens given as a reward for installing the plugin (install + referral)

T = 60   Airdrop duration (in days)

Z = 20M   Amount of tokens reserved for the airdrop

P = 6,000   Maximum number of ads rewarded per day

V = 0.0025   Reward for each ad blocked by the plugin

Adoption of Varanida will be approximated by an exponential function:

$$adoption(t) = I.e^{\frac{1}{T} \times \ln(\frac{F}{I})t}$$

With the user adoption, we can define token distribution as a function of time:

$$distrib(t) = P.V.adoption(t)$$

Total amount of tokens distributed at the end of the airdrop phase:

$$\int_0^T P.V.adoption(t).dt + R.F = \int_0^T P.V.I.e^{\frac{1}{T} \times \ln(\frac{F}{I})t}dt + R.F = Z$$

Which gives a formal expression of the number of tokens distributed per ad seen:

$$V = \frac{\ln(\frac{F}{I}) \times (Z - R.F)}{(\frac{F}{I} - 1) \times (P.I.T)}$$

By fixing the reward per ad seen at $V = 0.0025VAD$, we can determine an approximate number of users that can receive tokens during the airdrop phase:

$$F \approx 120,000 users$$

This is a highly approximated calculation (especially with user adoption approximated by a pure exponential equation), and the airdrop reserve might be consumed faster or slower than predicted.

Referral System

The Varanida Network and its ad filtering extension is a community-based project where users play a very important role. As with every network, the more Varanida is used, the stronger it will be, and the more influence Varanida will have on the industry. That's why Varanida will have a referral system that rewards users for inviting their friends and contacts to use the extension. During the prototype phase, this reward will be 20 VAD for every successful install referred, and during the product phase, this reward will be 5 VAD per successful install. Also, the user who installs Varanida through a referral code will be rewarded an additional 20 VAD.

To prevent any fraud, an install will be considered successful after a normal usage period of 1 week.

Product Phase

When releasing Varanida's Network, we will implement several mechanisms to onboard millions of users.

Deciding what data users want to share:

Varanida will have several levels for data privacy for users, giving them a choice about how they want, if at all, to see ads from Varanida's Network. An early definition (subject to change) of these levels is as follows:

- Level 0: Block all ads and do not share any data

- Level 1: Display all Varanida ads, but do not share any data

- Level 2: Display only selected Varanida ads, based on declared data such as age, interests, location, preferred brands, etc.

- Level 3: Display targeted Varanida ads, based on shared behavioral and personal data, such as browsing history, click history, conversion history, etc.

Varanida will design rewards for each of these levels, allowing users to be fairly compensated for sharing their data and being exposed to ads. For example, a reward system could be structured as follows:

- Level 0: No VAD Reward

- Level 1: X VAD

- Level 2: 2X VAD

- Level 3: 3X VAD

With X being the reward for exposure to an ad, which will be indexed against Varanida's RTB system.

5.2 Publisher Acquisition

Most publishers are facing a major issue that is threatening their existence: They don't have a sustainable business model if the revenue generated from ads continues to decline, which means they are willing to try new solutions. Some are trying to combat this trend by including more and more advertisements in their site design in order to boost revenue, but these strategies have a negative impact on the user experience. Varanida is offering a new way for publishers to increase their revenue, while shaping their business model in a way that will improve the overall user experience.

We will also work closely with the 5,000+ publishers who are registered with our partner platform DOZ.com. The synergies between these platforms should create a strong and engaged community of early adopters.

In addition, Varanida's founding team and advisors are all very well connected to different publisher networks and SSPs, allowing us to move quickly to a mass adoption of Varanida's publisher solutions. An important part of our strategy is to work with publishers who have existing solutions and values which are close to ours. Varanida will later communicate a framework in which new partners can enroll if they meet a set of requirements (i.e. transparency, fraud-free networks, fair commissions, etc.)

Publisher Platform

A dedicated interface will allow publishers to monitor their earnings, and buy VAD tokens if they would like to promote their content on the VAD network. This platform will allow them to view their quality score, as well as their engagement rate. Varanida will use this platform to release different tools and advertising formats that publishers can use to optimize their site.

5.3   Advertiser Acquisition

Advertisers have shown more and more appetite for transparency, and a desire for better control of their ad budget. Varanida will be designing an easy-to-use, self-service platform, so advertisers can create campaigns and monitor their performance in real time. Participating in a fair, transparent, and better performing network is a key argument to convince more advertisers to join Varanida's platform.

Advertiser Platform

Advertisers will be able to buy VAD tokens directly in the Varanida Platform with a wide range of supported currencies. The platform will also allow advertisers to submit their advertising materials to the network for vote, view their scores, and evaluate the performance metrics of their campaigns.

5.4   Business Model

The Varanida Network will not take any commission* from advertising campaigns, enabling the value of this budget to go directly to the publishers building the content, and the users consuming it. (* Does not include network fees, but they will be close to 0.1%) Instead of advertising commissions, Varanida will be developing different initiatives to grow and support the company:

Promoted Applications

With the Varanida Protocol, advertisers will be able to build applications in place of traditional ads format. Varanida will open a consulting and development division to help brands who want to engage with their audience through these new means of communication. Varanida's services will be billed directly to advertisers. Promoted applications can cover a wide range of features and functions, but we imagine tools like in-browser buy buttons, or promoted content applications. The most creative and engaging applications will be highlighted and promoted.

Campaign Management Fees

Most advertisers today are outsourcing the design, launch, and management of advertising campaigns. Varanida will offer these services to its clients for a fee representing 10% of the total budget spent on the Varanida Network.

Sales Strategy

Varanida's founders and advisors have a strong network of Fortune's 500 companies. These individuals and companies are the ones pushing for better advertising solutions, not only to optimize their performance, but also to provide better transparency for their customers[42]. We'll be focused on building a top sales team to distribute Varanida's solutions to advertisers and brands.

Partnerships

Varanida will work with DOZ.com, which has over 2,500 businesses registered on its platform, to become an additional solution for increasing reach through its transparent and ethical model.

Our advisors have experience working for and with the most important advertising networks, including Google, Yahoo!, and more. We are confident in our ability to get partnerships established with both publisher and advertising networks.

We have also started ongoing communication with major advertising agencies that stand as "budget owner" today. It is important for Varanida to create a real, honest, and direct relationship with major players in the industry.

6 Roadmap

6.1 Technical Roadmap

Ethereum

Browser plugin users

get tokens when
they block/signal/vote
ads

TGE tokens (ERC20)

extension airdrop

Participants

get tokens for ETH/BTC/...

clients & partners
contributions

TGE crowdsale

Team tokens

Pre - TGE

Users contributions

VADm Tokens (fixed supply)

Participants tokens

Team tokens

Genesis block

Product

VADu tokens
creation
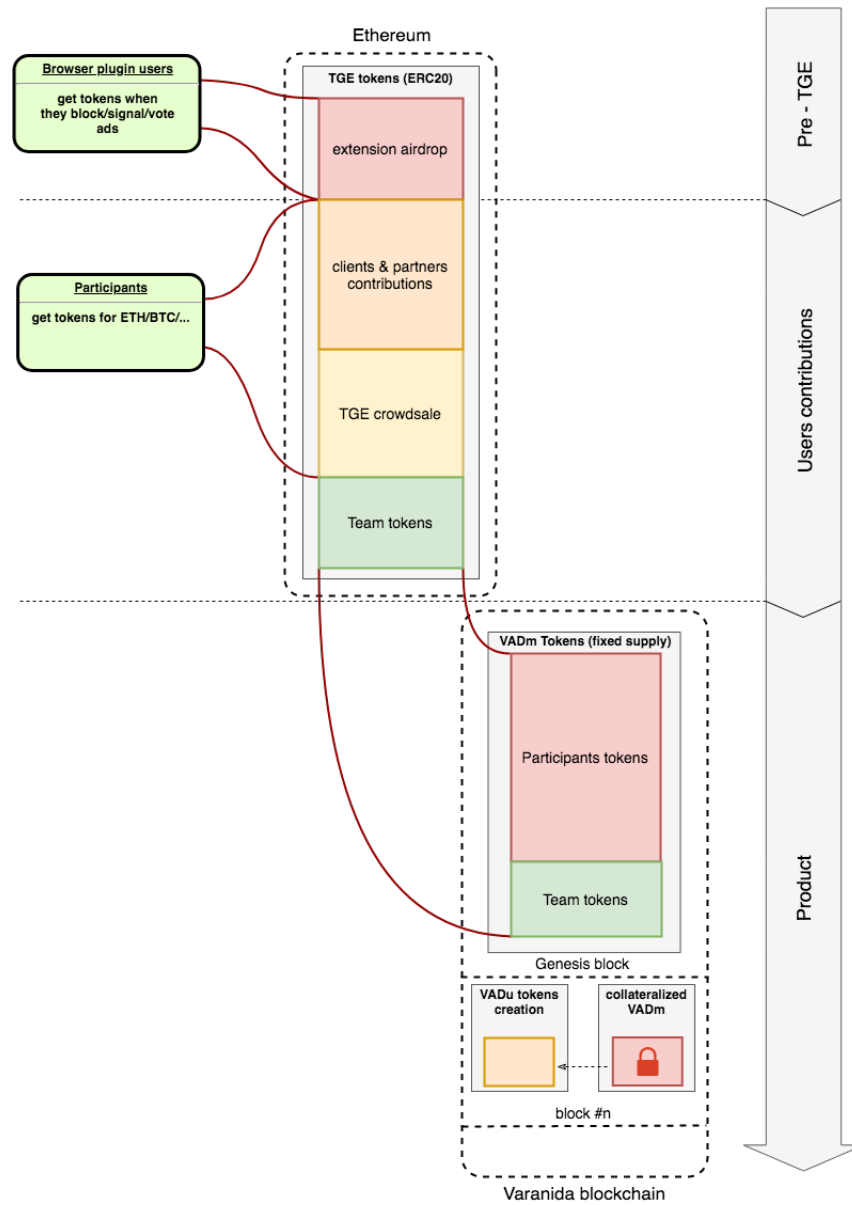
collateralized
VADm

block #n

Varanida blockchain

Figure 14: Technical Roadmap assumptions

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6.2   Business Roadmap

Business Model & Assumptions

Varanida is designed to be a commission-free network. However, to evolve in this very competitive and investment-intensive industry, the company will need sufficient funding and cash-flow to run its activity. To run the company, we have three revenue streams:

Token Reserve Varanida will launch its Token Generation Event (See Section 8) and the company plans to keep 11% of the total supply of tokens to pay its costs and fund its development (See Financial Forecast).

Campaigns Management Fees As explained in Part 4, Section 3, we will assist advertisers with their participation on the Varanida Network. The fee for this service will average 10% of their total spend. We are assuming that in the first years of business, 60% of the budget spent on the Varanida Network will be done through this model.

Design and Development of Applications The Varanida Protocol will help advertisers and publishers build applications that will replace traditional ad formats in the long run. Varanida will set up clear guidelines and best-practices so that these apps are also validated through the Verified Ads Network. Varanida will charge customers for the design and development of these applications on their behalf.

Varanida's Cost Structure

Network Costs In our first iteration, we plan to use the public Ethereum Blockchain. However, considering the increasing costs and uncertain scalability of the Ethereum Blockchain, Varanida will later move to its own blockchain, allowing applications to run on the Varanida Protocol directly. Varanida will have a network fee structure similar to Ethereum.

Varanida Development Costs Varanida will have significant investments required during its product development and network launch phases. In addition, the competition from off-chain actors will require Varanida to have a strong and aggressive marketing strategy to acquire new users. This is why Varanida will open its Token Generation Event to a crowdsale.

Financial Forecasts We have detailed our financial forecasts, taking into account several assumptions outlined below. Our total financing needs totals roughly $55M over the next 5 years, to reach 0.1% of global market shares (i.e ~$300M in VAD Tokens and Coins sold in 2022, compared to the total advertising market of ~$300B). We have set the hard cap at $60M.

We believe we can achieve a less ambitious version of our roadmap, but still be a viable product with a total of $10M, thus we have set our soft cap at this level.

in $M	2018	2019	2020	2021	2022
Sale of VAD Token (from ICO)	7.9	13.2	13.2	13.2	5.3
Sale of VAD Token (from Reserves)	-	-	-	-	-
Sale of VAD Coin	-	2.4	12.0	60.1	300.6
Promoted Applications	-	0.1	0.4	0.6	1.1
Campaigns Management Fees	-	0.2	0.8	3.8	18.8
Revenue	**$7.9**	**$15.8**	**$26.3**	**$77.7**	**$325.8**
VAD Coin spend	-	(2.4)	(12.0)	(60.1)	(300.6)
Direct Costs	**-**	**($2.4)**	**($12.0)**	**($60.1)**	**($300.6)**
Staff Costs (e.g., Compensation, Benefits, T&E)	(1.1)	(3.1)	(4.6)	(6.8)	(6.8)
Marketing and Communication	(1.3)	(3.0)	(4.5)	(4.5)	(4.5)
IT & Offices (e.g., Software, Hostings, Furniture, Equipment)	(0.3)	(0.5)	(0.6)	(0.7)	(0.9)
Professional Services (e.g., Accountant, Legal)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Operting Expenses	**($2.7)**	**($6.7)**	**($9.8)**	**($12.1)**	**($12.3)**
Operating income	**$5.2**	**$6.7**	**$4.5**	**$5.4**	**$12.9**
Income taxes	(1.6)	(2.0)	(1.3)	(1.5)	(3.6)
Net profit	**$3.6**	**$4.7**	**$3.2**	**$3.9**	**$9.3**

Figure 15: Projections shown in the table above are based on our current best estimates, but they are subject to change.

Notes

- *Sale of VAD Token (From ICO)* deducted 20% VAT on European sales as per European laws

- *Sale of VAD Token (From Reserves)* Took a cautious approach and did not include the sale of our reserve tokens (~$7M)

- *Corporate Tax Rate* Assumed 30% in 2018, dropping to 28% from 2020 onwards, as per the latest tax policies in France where Varanida SAS is based

- *Network Fees* Did not include network fees (<1% of advertising spend) which will be charged back to advertisers with a very small mark-up (TBD)

7 Varanida History & Future

Varanida was conceived by the founders of DOZ.com, Faouzi El Yagoubi and Anji Ismail. They have been working together for the past 10 years to improve the marketing industry, which is why they built DOZ back in 2009.

7.1 DOZ Background

DOZ was the first marketplace for hiring marketing freelancers and launching organic marketing campaigns. DOZ has grown to a network of 8,000+ marketing freelancers in over 40 countries, and more than 5,000 publisher websites. Over 1,000 campaigns have been successfully launched on behalf of nearly 250 different companies. With DOZ, we built a complete campaign management tool that enabled any marketing team to get strategy, content, and publishing done from start to finish.

Despite several experiments, we decided to stay away from the advertising world. One of our experiments was a native advertising plugin that delivered a better ad experience to readers, while also respecting the existing publisher's revenue flow. Another experiment integrated with a well-known retargeting company, but the results were consistently disappointing, so we continued to focus on organic marketing.

We are disappointed by traditional digital ads because they do not bring any additional value to readers or publishers. This is partially because ad networks are taking such high commissions. On top of that, the experience of viewing advertising is not pleasant, and even most targeted ads are irrelevant. As with many users, we often see a retargeting ad for weeks after visiting a website, despite having purchased that item already.

This is why we are building Varanida: To transform not only the digital advertising industry, but more importantly, the way users are consuming the Internet.

We believe that we have the right team to accomplish this vision, and Varanida SAS will start hiring for several more strategic positions as soon as the soft cap of our ICO is reached. For now, we have assembled a complementary and very qualified team, and we are joined by exceptional advisors for different strategic and operational efforts.

7.2 The Company Varanida SAS

The company behind the Varanida project is "Varanida SAS" (Societé par Actions Simplifiée) a private company based in France. Varanida SAS is headquartered in Lyon, 55 rue de la Villette, 69003.

The 3 officers are the 3 founders:

- Anji Ismail - President

- Faouzi El Yagoubi - General Manager

- Thomas Schmider - General Manager

The company is registered at the Chamber of Commerce of Lyon under the number: 838 335 198.

7.3   Founding Team

- *Anji Ismaïl, CEO & Co-Founder* has co-founded DOZ.com, a marketplace for marketing campaigns. In addition to being a seasoned marketer and entrepreneur, he is a blockchain enthusiast who bought his first Bitcoin in 2012. Anji serves as an advisor to many blockchain projects, and has also set up his own cryptocurrency mining operation.

- *Faouzi El Yagoubi, CTO & Co-Founder* has co-founded DOZ.com, a marketplace for marketing campaigns. He has over 15 years of Internet and IT experience, building several projects in addition to running Doz with Anji. Faouzi also worked at Michelin for 4 years where he was Project Manager and Technical Lead for internal and strategic projects.

- *Thomas Schmider, COO & Co-Founder* was Co-Founder, CFO, and later CEO of Infogrames & Atari, managing a company of 3,000+ people and $1B+ in revenue. Thomas also founded Prozone, which launched SUP, a leading software for sports team analytics that was sold in 2014. Thomas has invested in over 20 promising startups. He was also President of the soccer club 'AS Saint Etienne' in 2004.

- *Mickael Crozes, Back End Engineer* has over 6 years of experience in managing complex technical infrastructures at Amazon.com. He has been involved in blockchain and crypto-assets since 2012.

- *Pierre-Antoine Meley, Full-stack Engineer* is an Engineer with an electronics, IT, and signal processing background. He has worked on various Internet projects and browser extensions. With a strong interest in cryptography, financial engineering, and monetary theory, he has closely followed the development of blockchain technology since its inception.

- *Marc Vincenti, Blockchain Developer* is an Engineer with an artificial intelligence background. He is now focusing on blockchain problematics such as elliptic curve cryptography applications and game theory. Marc has signed his first transactions on the Bitcoin Mainnet back in 2012.

- *Steve Amani, Media Expert* is a successful Senior Manager at Comcast NBCUniversal. He has over 10 years experience in finance and strategy, reviewing long term trends in the media industry. Steve is also an accredited investor and has supported multiple blockchain projects.

- *Carine Esteves, Operations Manager* is an avid Marketer, specialising in marketplaces. In her career she has worked for international companies and startups, and has experience managing various types of customers, including agencies and ad groups.

- *Cory O'Brien, Content Manager* is a Full Stack Marketer with 10+ years of experience in the marketing and advertising industry. He worked for leading San Francisco agencies, creating digital marketing strategies for companies of all shapes and sizes to help them tell their story in a better way.

- *Thibault Lemaitre, Social Media Manager* is a Digital Marketer who specializes in helping companies grow in an organic, ethical way, through community and customer care. He has worked with startups, agencies, and brands all around the world, and bought his first Bitcoin in 2013.

- *Lina Albin-Azar, Community Manager* is a Social Media and Content Marketing Specialist. She has been involved in DOZ community management for more than two years. Lina speaks four languages fluently.

- *Mathieu Sibille, SVP Business Development* An accomplished executive with more than 20 years of extensive management experience in strategic planning, business revitalization & turnaround and successful business growth in APAC, EMEA and Eastern Europe.

- *Jon Lord,* Senior Ad Tech Consultant, Jon spent the last 12 years in Ad-tech service businesses, and most recently at the global performance marketing leader Criteo. Prior to this, Jon spent eight years managing international sales and account teams at TradeDoubler.

7.4 Early Investors & Strategic Advisors

At Varanida, we have mobilized our network and reached out to the most skilled and capable people from our targeted industries. The individuals presented below have all achieved incredible professional careers, and will help Varanida succeed in various ways, including closing sales, partnerships, exposure, and scaling the product.

- *Joel Comm* is New York Times bestselling author, blockchain enthusiast, professional keynote speaker, social media marketing strategist, live video expert, technologist, brand influencer, futurist and eternal 12-year old. With over two decades of experience harnessing the power of the web, publishing, social media and mobile applications to expand reach and engage in active relationship marketing, Joel is a sought-after public speaker who leaves his audiences inspired, entertained, and armed with strategic tools to create highly effective new media campaigns. His latest project is as co-host of The Bad Crypto Podcast, a top cryptocurrency show making the future of digital payments easy to understand.

- *Frédéric Montagnon* was the Co-Founder of Overblog and Nomao, before leading business development efforts at Teads. Frédéric also launched Secret Media, an ad-blocker monetization company. Recently Frédéric started Legolas Exchange, a decentralised crypto-exchange, which raised over \$35M through an ICO in January 2018. Frédéric is a very active angel investor in various technology sectors.

- *Travis Wright* In addition to being the Bad Crypto Podcast co-host, he is a successful author, consultant, keynote speaker, tech journalist, and growth hacker. He is the former Global Digital and Social Strategist at Symantec for the Norton brand, he was a Russian linguist in the US Army, and is the Co-Founder and Chief Marketing Technology Officer at CCP.Digital, a Kansas City and San Francisco based digital ad & content agency.

- *Thomas Hessler* is the Co-Founder and former CEO of Zanox, which he grew to a global market leader for performance-based online marketing with 400 employees and \$300M USD turnover. In 2007, the company was acquired by the German newspaper publisher Axel Springer and Swiss PubliGroupe. Thomas is also an investor in many startups, and an early blockchain enthusiast.

- *Ben Arnon* is an advisor and investor in various blockchain startups. Prior to that, he was Head of Industry at Google, which he joined after leading global brand partnerships at Wildfire, a marketing software company that was acquired by Google in 2012. Ben is a veteran in the media space, and has held various positions at Universal Pictures, Universal Music Group, and Yahoo!

- *Jean Christophe Conti* was recently VP of Sales for the Publishers Business Unit EMEA at AppNexus. Before that, Jean Christophe was Vice President and Head of Partnerships Group at Yahoo since 2009, and was in charge of all partnerships, both desktop and mobile, in EMEA for the Yahoo Display Ad Network, Yahoo Search Affiliate Network, and Right Media Platform & Exchange.

- *Jonathan Levine* is the CTO of Intermedia, which he joined in 2015, bringing with him 25+ years of experience in information technology. Prior to this, Jonathan was Vice CTO of Rakuten, and also served as Board Director, Chief Operating Officer, Co-President, and CTO of Rakuten's online advertising subsidiary LinkShare. During his tenure, Rakuten expanded from fewer than 50 employees to more than 10,000. Jonathan has also held management positions at PointCast, IBM, and Lotus Development. Ouziel Slama Ouziel is the CTO and Co-Founder of Legolas Exchange, and is an outstanding blockchain engineer. Prior to Legolas, Ouziel lead development teams at Symbiot.io and Counterparty.

- *Florian Jourda* is currently Product Development Lead at Bayes Impact, an application that helps unemployed people during their job search. Prior

to this role, Florian was the first Engineer and Principal Architect at Box, where he lead critical technical projects while the company grew from 7 to 1,200+ employees. Florian is also a mentor and investor to various startups.

- *Julien Romanetto* is a successful technology entrepreneur who co-founded Overblog and Nomao, which later merged into a group called Ebuzzing. He participated in the growth of Teads, which has now became the first video advertising platform in the world. Julien is also very knowledgeable about the blockchain, and is an advisor to several projects such as the Gimli Project and Legolas Exchange.

- *Sylvain Morel* was the Founder of Adthink Media, a leading digital advertising platform which went public in 2007. Recently Sylvain launched Rebrain, an AI powered investment management company. Sylvain is also an active investor in startups and blockchain projects.

- *Hen Tekle* is a blockchain angel investor, token sale advisor, and crypto-assets fund manager. Hen is a regular speaker, and can be seen at various conferences around the globe, discussing the future of blockchains and cryptocurrencies.

- *Eli Galam* is Chief Investment Officer at Eastmore Group, a New York based alternative investment firm. He holds a Master's in Applied Mathematics from Harvard University and an Engineering Degree from Centrale Paris. Elie is advisor to successful blockchain projects such as Bancor and Fusion.

- *Natalia Martinez-Winter* has over 15 years product, marketing and partnerships experience in telecom and internet. In her most recent role, Natalia was in charge of strategy and product marketing at Mozilla.

7.5 Varanida, for The Future of Advertising and Digital Content

By introducing Varanida, we want to improve not only digital advertising, but the Internet itself. We strongly believe that the current "state-of-the-art" when it comes to advertising is not what it should be. Obviously we know that we cannot make these changes alone, which is why Varanida is a truly community-based project, where some of the code will be open source, where all stakeholders will be compensated fairly, and where the strategy of the company will be as transparent as possible. Our broad vision for Varanida is to give users control, both over their own data, and over the types of ads that they see.

Users Control Their Data

The General Data Protection Regulation, or GDPR, is a new European Union regulation designed to control the way companies can collect, store, and use customer data, and give more power back to the user. This new norm will completely change the advertising industry moving forward, as many actors will have to reinvent their business model, and others will likely go under. As a project that was founded with GDPR in mind, we are not concerned by this regulation, as we have designed Varanida to be fully GDPR compliant.

By default, Varanida will not store users' data. However, users will be able to knowingly share their data in exchange for a VAD token reward. Users who decide to participate will have their data encrypted and stored in a highly-secured infrastructure, and will maintain control over their data using a private key.

In this way, Varanida will be significantly different from traditional advertising networks, which build most of their value by collecting and selling user data, and do so through questionable means like hidden and overreaching cookies installed on a user's browser.

Varanida is also committed to never selling users' data to third parties.

Varanida For A Better Internet

The team Varanida is commited to improve the experience for all Internet stakeholders and to build a transparent and fair ecosystem. To achieve this mission, we need your support, joins us and help Varanida to make Internet better.

8 Appendix

8.1 Financial Forecasts (Soft Cap)

We have prepared a business plan for the unlikely event where we are only able to raise our soft cap of $10M. The plan is less ambitious, but still allows us to deliver a viable product. We will make some cuts to our staff costs and marketing budget, which will inevitably impact our sales. We will offset some of the impact by selling our reserve to stay profitable over the next 5 years. Please see the revised financial forecast below:

in $M	2018	2019	2020	2021	2022
Sale of VAD Token (from ICO)	1.9	3.2	3.2	3.2	1.3
Sale of VAD Token (from Reserves)	0.3	0.5	0.5	0.5	0.2
Sale of VAD Coin	-	0.6	2.9	14.7	73.3
Promoted Applications	-	0.0	0.1	0.2	0.3
Campaigns Management Fees	-	0.0	0.2	0.9	4.6
Revenue	**$2.2**	**$4.4**	**$6.9**	**$19.5**	**$79.7**
VAD Coin spend	-	(0.6)	(2.9)	(14.7)	(73.3)
Direct Costs	**-**	**($0.6)**	**($2.9)**	**($14.7)**	**($73.3)**
Staff Costs (e.g., Compensation, Benefits, T&E)	(0.4)	(1.0)	(1.5)	(2.3)	(2.3)
Marketing and Communication	(0.3)	(0.7)	(1.1)	(1.1)	(1.1)
IT & Offices (e.g., Software, Hostings, Furniture, Equipment)	(0.1)	(0.3)	(0.3)	(0.4)	(0.4)
Professional Services (e.g., Accountant, Legal)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Operting Expenses	**($0.9)**	**($2.1)**	**($3.0)**	**($3.8)**	**($3.9)**
Operating income	**$1.4**	**$1.7**	**$1.0**	**$1.0**	**$2.5**
Income taxes	(0.4)	(0.5)	(0.3)	(0.3)	(0.7)
Net profit	**$0.9**	**$1.2**	**$0.7**	**$0.7**	**$1.8**

Figure 16: Financial Forecasts (Soft Cap)

9 General Disclamer

The White Paper shall be read together with the Terms & Conditions ("T&C") and does not constitute an offer or an invitation to sell shares, securities or rights belonging to Varanida.

Varanida is not deemed providing any information which can be considered as a basis for an investment decision.

Varanida is not providing any investment recommendation nor investment advice.

The White Paper including the T&C does not constitute or form part of, and should not be construed as, an offer for a sale or subscription, or an invitation to buy or subscribe securities or financial instruments. It does not constitute the basis for, or should not be used as a basis for, or in connection with, a contract for the sale of securities or financial instruments or a commitment to sell securities or financial instruments of any kind.

Varanida expressly disclaims any liability for any direct or indirect loss or damage of any kind arising directly or indirectly from:

- (i) any reliance on the information contained in this document,

- (ii) any error, omission or inaccuracy in said information, or

- (iii) any resulting action that may be brought.

Regulatory uncertainties of tokens

The regulatory status of tokens and distributed ledger technology is unclear. It is difficult to predict how or whether regulatory authorities may apply existing regulation with respect to such technology. It is difficult to predict how or whether the regulator may implement changes to the law and regulation affecting distributed ledger technology and its applications, including the VAD Tokens and the Varanida Protocol. Regulatory actions could negatively impact the functionalities of the VAD Tokens and Varanida Protocol in various ways, including, for purposes of illustration only, though a determination that the purchases, sale and delivery of the VAD Tokens constitutes unlawful activity or that the VAD Token is a regulated instrument that requires registration, or the licensing of some or all of the parties involved in the purchase, sale and delivery thereof. The Varanida Protocol will not be used and may cease operations in a jurisdiction in the event where that regulatory actions, or changes to low or regulation, make it illegal to operate in such jurisdiction, or commercially undesirable to obtain the necessary regulatory approval(s) to operate in such jurisdiction.

A VAD Token is not a financial instrument

A VAD Token does not represent an investment in a security or a financial instrument within the meaning of EU Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 relating to markets in financial instruments: the VAD Token confers no direct or indirect right to Varanida's capital or income, nor does it confer any governance right within Varanida.

A VAD Token is not proof of ownership or a right of control

It does not confer any right on any asset or share in Varanida. A VAD Token does not grant any right to participate in control over Varanida's management or decision-making set-up.

A VAD Token is not an electronic currency within the meaning of EU Directive 2009/110/EC of the European Parliament and of the Council of 16 September 2009 relating to access to and pursuit of the business of electronic currency institutions: VAD Token does not have a fixed exchange value equal to the amount delivered at the time of its issue.

A VAD Token does not qualify as a payment service within the meaning of EU Directive (2007/64/EC) of 13 November 2007 relating to payment services in the internal market, nor within the meaning of the (EU) Directive relating to payment services 2 (DSP 2) N° 2015/2366 of the European Parliament and of the Council of 25 November 2015: the Crowdsale does not involve the purchase/sale of VAD Tokens and the Varanida's business does not consist in receiving currencies against the delivery of VAD Token; as such, a VAD Token is not a means of payment either.

A VAD Token is a cryptographic token used through the Varanida protocol.

A VAD Token is a crypto-currency, i.e. an unregulated, digital asset, issued and controlled by its developers, and used and accepted only by the members of a given community.

Intellectual property belonging to Varanida

The Purchaser acknowledges that Varanida retains sole and exclusive ownership of all intellectual, industrial and expertise rights relating to the VAD Tokens, documents, data, etc. The technical and technological resources and expertise used to design both the VAD Tokens, and documents of any nature, shall remain the exclusive property of Varanida regardless of whether they are protected under an intellectual property clause. Therefore, any document, listing, database, etc., in its entirety, is given to the Purchaser in return for payment or free of

charge solely as a loan for use that exclusively enables them to use the Varanida Platform, under or not a separate availability and/or non-disclosure agreement that forms an integral part of these T&C, and may not be used by the Purchaser for any other purpose without incurring their liability.

Protection of Personal Data

The processing of personal data performed under the Crowdsale will be provided in France to the National Commission for Data Protection and Liberties upon request. In accordance with Article 32 of French law N° 78-17 of 6 January 1978 relating to Information Technology, Files and Civil Liberties, Varanida, which is responsible for processing the said data, will inform the Purchaser that it is processing their personal data. The details entered by the Purchaser on the forms available on the website are intended for authorized Varanida employees for administrative and business management purposes. These data are processed to allow Purchasers to access the Crowdsale.

- The Purchaser is entitled to access, question, modify, rectify and delete their own personal data,

- The Purchaser is also entitled to object to the processing of their personal data for legitimate reasons, as well as to object to the use of such data for the purposes of prospecting activities.

To exercise their rights, the Purchaser shall notify their request to Varanida, attaching a copy of their signed ID document.

The Purchaser shall comply with the provisions of French law N° 78-17 of 6 January 1978 relating to Information Technology, Files and Civil Liberties, amended, any breach of which is deemed a criminal offence. In particular, they shall not collect or misuse data and, in general, perform any act likely to infringe the privacy or reputation of individuals.

Regulatory uncertainties

The Purchaser acknowledges and accepts that the Crowdsale launched by Varanida is taking place within a French legal environment that is still under development. New laws or rules may subsequently frame, modify or clarify the practice of such Crowdsale. Where necessary, should legislative changes conflict with all or part of these terms and conditions, Varanida reserves the right to amend the terms of the Crowdsale as appropriate, retroactively if necessary, in order to ensure that the Crowdsale remains legal and compliant with the various French regulatory bodies.

Varanida will respond to any request issued via regular legal process aimed at obtaining specific information about the Purchasers, particularly in terms of the fight against money laundering.

Purchasers of VAD Tokens must seek appropriate financial, tax and other legal and regulatory advice from independent financial advisors with appropriate qualifications to determine whether the purchase of the VAD Tokens is adapted to their own situation and authorised for subscription under their own legal and regulatory rules. Any decision to purchase the VAD Tokens should be based on the information contained in the White Paper and the Terms & Conditions which includes, inter alia, information on certain risks associated with the purchase of the VAD Tokens *(Investors shall paid attention to the Section "Risk" of the T&C to assess the risk linked to the purchasing of the VAD Tokens).*

Applicable law and jurisdiction

These T&C and any contract relationship relating to the Protocol set-up by Varanida are governed exclusively by French law, the Varanida's commitment being subject to this clause. Varanida and the Purchasers agree to seek an amicable settlement prior to bringing any legal action. Failing this, any dispute, of any nature whatsoever, will be brought expressly before the court with jurisdiction over the Varanida's registered headquarters, as no document can affect a novation or waiver of this jurisdiction clause.

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