



P E R S O N A

White Paper

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Ioana Frincu

Dan Cearnau

Stefan Neagu

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Summary

The herein paper describes the challenges faced by different organisations in relation with their KYC processes and the solution proposed by Persona. Persona represents a blockchain-based identity management solution which allows individuals to easily update the data they share with various third-parties as well as easing the corporate clients' efforts of keeping their data up-to-date.

Persona uses the ARK blockchain technology as well as other state-of-the-art technologies in order to offer a safe and complete identity solution. This product is aligned with the GDPR¹ requirements and provides a safe mean to keep, share and process data.

¹ General Data Protection Regulation

Important notice

This document does not constitute nor implies a prospectus of any sort. No wording contained herein should be construed as a solicitation for investment and this whitepaper does not pertain in any way to an offering of securities in any jurisdiction worldwide whatsoever. This whitepaper constitutes a technical description of the functionality of the PERSONA digital identity system and the creation and issuance of PERSONA tokens.

Context

Each day, millions of individuals share personal data with various parties, starting from using cloud providers or smartphones with the localization option active and going forward to the relation each has with their respective service providers.

Each individual is the *de facto* owner of their data. Therefore, in order to have access to a service or device, they need to explicitly agree to share it. The party entrusted with this kind of data is supposed to take all the necessary actions in order to protect it. In the past year there have been numerous issues when large corporations collecting data about individuals, failed to handle them correctly. Often, this data ended up in the hands of hackers. For example, in 2017, Equifax, a large consumer credit reporting agency in the US was hacked, and over 143 million social security numbers were compromised.

In the European Union, data protection is taken very seriously and there are regulations in place that are enforcing data protection policies over personal data.. The scope of these regulations is to keep the individual in the driver's seat, to offer the means so the individuals can decide what he/she is sharing with whom and what is the reason for granting access to those private details.

Persona represents the solution for identity management, aligned with the latest data protection regulations. Its scope is to empower the individual and grant them the control over their personal data as well as the means to secure access to their private details.



The main goals of Persona are:

1. To **leverage on identity management services** for the individual based on what the blockchain technology can offer;

2. To **protect individuals personal details**. While it is obvious that individuals need to provide their details to various entities(Facebook, Google or any website they visit), they have no control over it after sharing. Persona puts individuals back in the driver seat;



3. To **empower each person** and to give them the power on what it shares and with whom when it comes about their identity and private details;

4. To **allow entrusted third parties which with private details** to enrich their services by offering trust as a service;





5. To **prevent fake news**, by providing a decentralized identity management system, Persona will provide the trust level we all need when we rely on news; based on the public Persona profile of any content creator, we can track down news to their source.

6. To **streamline onboarding process** since an individual might be already checked by some entity enrolled in the system;



Solution

Overview

Persona is designed as a decentralized application with no single point of failure, keeping all records encrypted. The individuals have the control over the granularity of the details they want to share, with whom they are sharing it and for how long. With the launch of Bitcoin in late 2009, Satoshi Nakamoto offered a glimpse of the underlying technology that powers its decentralized network, **the blockchain**.

The main strong points which the blockchain technology offers are:

1. **Replace the middleman:** There is no need anymore of a trustful side, one that can be and is trusted by both sides involved in a transaction;
2. **Decentralization:** there is no single point of failure, while attacking the network is virtually impossible;
3. **Immutability:** a record written on the blockchain is there forever, unalterable;

Persona leverages the blockchain features, allowing a company to offer KYC services to third party as well as benefiting from each other's services. The verification process has two levels: Community and Professional KYC

Persona KYC Types

The first level is represented by the **community** where the identity is checked by peers. It represents a common effort, where people are encouraged to validate each other's identity. They will have to confirm the authenticity of documents and identity of the people applying to be checked.

The people who offer verification services will be displayed on the Persona website. They will be rewarded for the verification services by receiving PRS. The threshold for verifications is illustrated below.

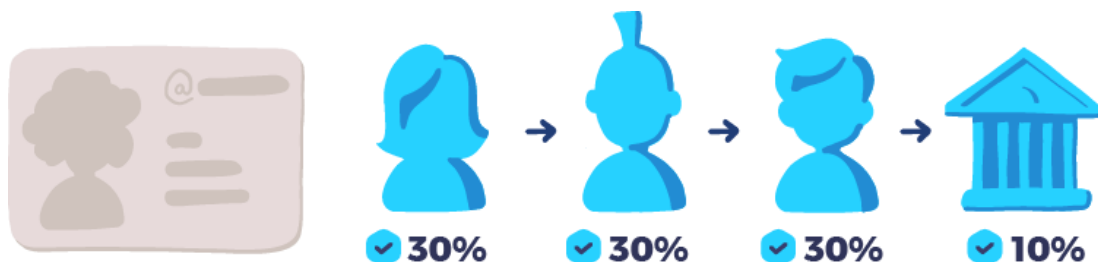


In the picture above there are the 6 levels the community verifiers can achieve and the verification percentage they can grant to an individual based on this level. Verifiers are split into multiple categories, based on the number of verifications they provide. The maximum percentage a person can get by being verified by the community is 90%. The rest of 10% can only be achieved once a private partner (an institution, utility provider or company) acknowledges the validity of the data.

Each verification brings a person at least 5% closer to a fully verified profile. In order to leverage community KYC events, we will have designated ambassadors in major cities around the world who can start building the Persona community in each location. They will be publicly listed on the Persona website and the events will be announced in the community.

Based on the activity and their Persona stake, individuals who provide verification services for others, can go up to 30%. This means that an individual can see only 3 persons who can offer 30% approval rate to reach a 90% verification level.

Fraud will be avoided through carefully-thought mechanisms. If a person manages to be verified by a number of notaries and their identity is proven to be false, they will be flagged and will lose their whole verification percentage.



The list of documents needed to provide for KYC are:

- ID or passport or a government issued document (original document)
- Copy or picture of your ID ²
- A bank statement or an invoice that proves your residence ³

The documents will be then saved on the IPFS and signed by both of parties, the checker and the check, each time the person is checked.

The **professional KYC** represents the process that an individual goes through when they engage any entity that requires an identity verification process. This entity, once enrolled in Persona blockchain will update or double verify the individual's identity and bring their verification level to 100%. If an individual goes straight to a private partner to get verified, their verification will be complete right after the partner's confirmation.

Security and Data Safeguarding

Given the fact that there are two components of the product, layered on top of each other, Persona is safe to use. When registering with a provider, the physical presence of the individual is a prerequisite in order to share their data with the company.

Persona is composed of three segments:

- The blockchain which holds the transaction data and IPFS for storage
- A web app and dashboard for the individual to use
- A mobile app which helps data management

The mobile application's security is based upon:

- PIN-based login
- Optional fingerprint scan

The Web application's security:

- 2FA Authentication

Once the user creates his identity, the data stored is secured by the cryptographic algorithms of the blockchain. There are numerous reasons why blockchain is more

² copy or picture of that document to be sent to the person that verifies you

³ need to have it with you and be able to show it to the person that verifies you

secure than a centralized application: lack of a single-point of failure, no-prone to human errors or data stealing, etc.

By saving the user data on the blockchain and not in a centralized application/server, Persona offers the first CaaS (Customer-as-a-Service) solution on the market.

By moving the ownership of the data to the customer, away from the company, corporations can secure themselves from extortions, thefts and bugs that can hurt both from an image point of view as well as being fined by authorities.

The Persona Digital Identity is stored on the blockchain itself, secured by the DPoS (Delegated-Proof-of-Stake) mechanism and cryptography. Because storing large files on the Persona blockchain is inefficient, our product uses a separate layer for storing files and pictures. The decentralized storage layer called IPFS stores all the uploaded by the users.

All documents uploaded by the users are encrypted using their private key before uploaded and distributed through the IPFS. When documents are shared between members for notarization, the file will be decrypted by the owner and shared directly with his counterpart.

Technology and Architecture

Blockchain Design

According to the UK Government, the distributed ledger technology is already having a profound impact on how private companies manage data and interact with customers and suppliers. If applied within government it could reduce costs, increase transparency, improve citizens' financial inclusion and promote innovation and economic growth.⁴

The Persona Blockchain represents a DPoS⁵ system with 51 delegates⁶ which makes use of the Ark technology (Persona is a fork of ARK, following ARK's vision of *point.click.blockchain* approach). The number of delegates has been set to 51 in order to support the estimated number of nodes and transactions for the first year.

If the number of Persona users will increase to a value greater than 1,000,000, an update proposal will be published and discussed in the community so the number of delegates can be increased. This approach is taken in order to ensure the necessary scalability for Persona.

Based on the technical description of the ARK blockchain is as follows:

- DPoS (Delegated Proof of Stake):
 - 51 active forging Delegates;
 - Delegates selected by vote mechanism built into DPoS;
- 100 Million PRS - Seeded Genesis Block;
- Multi-signature accounts;
- The block reward and inflation graph are illustrated below

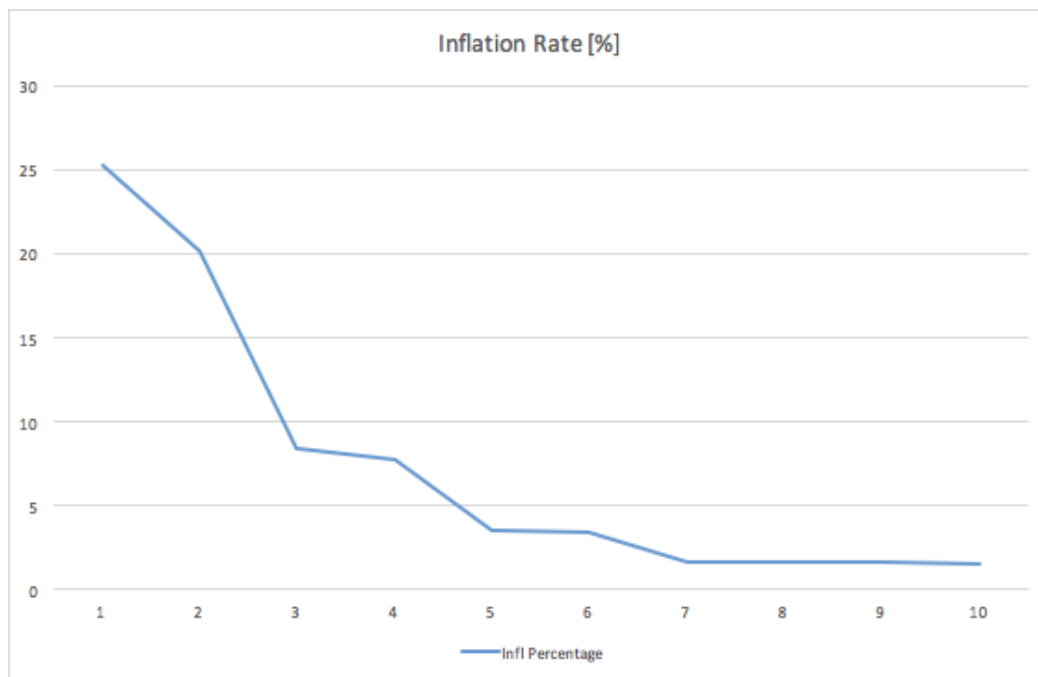
⁴

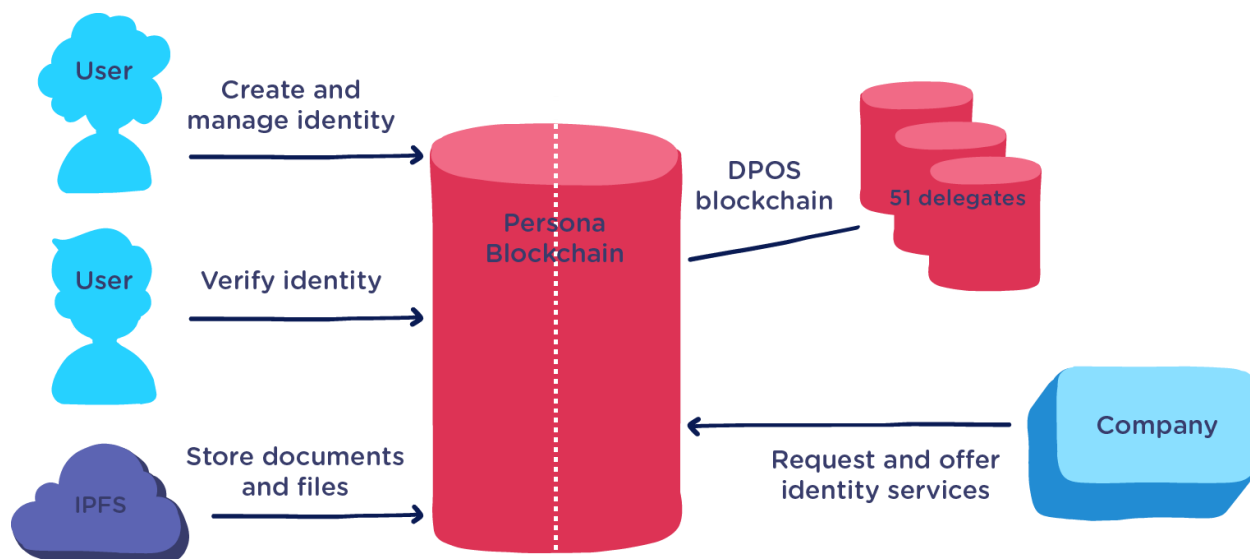
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/492972/gs-16-1-distributed-ledger-technology.pdf

⁵ DPoS = Delegated Proof of Stake

⁶ A delegate is not a verifier. The verifiers are community members while the delegates forge new blocks.

Year	PRS Number	PRS per block	PRS Generated Per Year	Infl %
1	100,000,000.00	8.00	25,232,000.00	25.23
2	125,232,000.00	8.00	25,232,000.00	20.15
3	150,464,000.00	4.00	12,616,000.00	8.38
4	163,080,000.00	4.00	12,616,000.00	7.74
5	175,696,000.00	2.00	6,308,000.00	3.59
6	182,004,000.00	2.00	6,308,000.00	3.47
7	188,312,000.00	1.00	3,154,000.00	1.67
8	191,466,000.00	1.00	3,154,000.00	1.65
9	194,620,000.00	1.00	3,154,000.00	1.62
10	197,774,000.00	1.00	3,154,000.00	1.59





Persona will use the Distributed Ledger Technology for managing user permissions, approval transactions and proof-of-identity. We will deploy our own blockchain, called **The Persona Blockchain** that has the following characteristics:

- DPOS blockchain with 51 delegates *forked* out of the Ark (ark.io) blockchain
- The blockchain will be public and will feature interoperability with other blockchains through Smart Bridges⁷.
- Persona will integrate natively, at a blockchain level, an IPFS-like solution for sharing documents and files between users.

As we do not expect our users to interact with the blockchain at a low-level, the company will develop and deploy centralized applications to manage the most common functionalities. The applications developed by Persona will be open-source, based on a microservices architecture.

The web components of Persona is build using the following technologies:

- NodeJS (for server-side)
- React (for front-end)

The mobile stack is based on native development for Android and iOS and is comprised of the following technologies: Android Kotlin and Swift for iOS.

⁷ Smart Bridges enable blockchains to communicate between each-other and secure information in a more distributed manner.

Token Design

The PRS token is an utility token that is used by the platform in order to issue verifications. For each verification PRS tokens are used. The tokens circulate in the environment and they will be forged through a DPoS system with 51 delegates, similar to Ark.

When verifications take place and the initiator is a private partner, they will pay PRS tokens for the verification. The verification price will differ based on the complexity of the verification.

Onboarding and Data Transfer

The user onboarding represents their first interaction with Persona. The onboarding will be done in a face to face manner, by a notary⁸.

Initially, *seed identity* is needed. The procedure will follow the ROOT CA SSL generation process. All the PERSONA team members will meet, fill their KYC form and will become fully notarized. This will allow them to notarize new people. The whole operation will be recorded and saved on IPFS for future proof. This kind of verification will create a web of identities which will be the first layer of the Persona blockchain.

A person can claim his/her own identity in the Persona blockchain by requesting a notary to check his/her details using the Persona Identity Dashboard web application or Persona Wallet.

Prior to that, the person asking for notarization has taken picture of his/her government issued documents:

1. ID/Passport or a government issued document (original document)
2. Copy or picture of the ID (uploaded on the Persona app)
3. A bank statement or an invoice that serves as proof-of-residence

These documents are going to be uploaded using the Persona Wallet into the IPFS and when the meeting between the notary and the person that wants to be

⁸ A Notary is either a community verifier or a representative of a private partner.

notarized takes place, the person to be verified grants access to their details by signing the transaction with their private key.

The notary will, then be able to check the images and the hashes of the documents and compare them with the original government issued documents.

For example, when a document between two individuals who are using Persona is issued, a notary can create a hash of the content and publish it on the Persona blockchain. The documents itself is saved on the IPFS and linked only to provide a timestamp.

Once the document is hashed and the unique identifier is created, it can be printed on the physical document in order to provide a paper trail. The same hash is signed and saved on the Persona blockchain. This mechanism can be used to check if a certain document has been tampered, by re-hashing the document and comparing the resulted signature with the signature saved on the Persona blockchain.

Each time a *Corporate Partner* requests data about an individual, they will go through Persona to obtain it. We allow both Physical Businesses as well as Digital Businesses to request data, based on strict security policies in accordance with the governing law and our legal experts advice.

Persona Use Cases and Industries

Persona blockchain scope is to empower individuals claim and own their personal details in relation with different 3rd parties. Once an individual has claim their identity they can require community verification. The higher the percentage of verification is, the higher the trust for that person is.

The GDPR Persona use case

The GDPR⁹ represents an European Regulation (), whose intent is to strengthen, to unify and to act as an equalizer on data protection for all individuals at European level. It was voted and adopted in April 2016 with a 2-year transition period, becoming enforceable starting the 25th May 2018.

The GDPR directive protects basic identity information (such as name, address and ID numbers), web data (such as location, IP address, cookie data and RFID tags), health and genetic records, biometric data, racial or ethnic data, political opinions and sexual orientation.

The regulatory pressure enforced by the GDPR empowers the individual as well as minimises the control held by data operators when it comes to using personal data. However, if companies act upon accordingly, their relation with their customers will strengthen.

The possible consequences for non-compliance with the GDPR for a company are:

1. **Position and notoriety Risk** —The implementation of the GDPR legislation with the stipulated obligation to notify the competent authorities when a data breach occurs, will result in increased enforcement activity. The first result will be a highlight over the data protection breaches, bringing an undesired light over the companies. The first affected will be a company's market position and reputation, which will be compromised.

⁹ Regulation (EU) 2016/679 : <http://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A32016R0679>



2. **Geographic Risk** — The new regulations cover all the companies and organizations that are offering goods and/or services to EU markets or that are monitoring the behavior of EU citizens to offer goods and/or services. Here are also included all data analytics companies



3. **Sanctions** — Significant fines of up to 4% of annual global turnover or €20 Million, depending on whichever is greater will be applied to the companies that fail to comply with the new regulations of GDPR.



How Persona leverages the GDPR requirements

The individual can now take control over their data and allow only their selected services providers to access their info. The access to their data is offered at document-level. By using Persona, an individual can choose to share their social security number and address with their physician, for example, while sharing only the address and the phone number with the cable company or utilities providers.

In the current state, when a never-encountered before level of mobility has been reached, there is a normal expectation to have access to the same or equivalent services in any location. For a person relocating in another country, signing up for all utilities services can be a cumbersome process. By using their details, already registered in the country the individual is moving from and with the new residence proof, they can sign up for all their needs in a faster, accessible and more secure manner, while maintaining the same or even higher access level of details for the provider of that specific service.

The KYC Persona use case

The Know Your Customer (KYC) process represents the request of companies to verify and acknowledge one's identity when developing business relations with them.

In addition, the companies are required to verify that the person with whom they will engage is who they declare they are. They can perform this action by requiring a set

of documents, government or third party issued, such as ID, proof of residence, utility bills issued to the same address present on the ID and any document that can proof that a person is who they claim to be.

The Know Your Customer process can be very thorough when it comes, for example, to opening a bank account or can be lighter when signing for a new mobile carrier plan. Also, KYC comes with great costs. Only in 2014 the KYC/AML costs were 10 billion USD, not to mention the fines regulators world wide impose if a faulty KYC process is discovered.

As of today, the KYC represents a requirement for each entity, even if it is performed every time a person decides to acquire a specific service (usually KYC is required in transactions that imply revolving payments). This means that a person who decides to open a bank account and also to get a mobile plan with a mobile carrier, will need to provide the same set of personal details twice because their systems are not communicating each other.



The impossibility to link all accounts which require KYC in one single product represents an issue for both the businesses and as well for the individuals. Given the fact that the same document is presented in a similar manner to all businesses, it is natural to assume that updating it in a single place would allow the individual to keep their data in the latest format and send it through to as many service providers as possible from one single move.

Other Industries able to use Persona

Subscription-based services and Payment Processors

When enrolling with a subscription-based service which requires a proof-of-identity or address or when buying items online, Persona can be used by a customer in order to authenticate himself/herself and share their beforehand verified data.

Mass-Media

Persona is the tool needed to fight fake news. Social networks and content/publisher companies can use Persona to prove the source and identity of content creators.

Public Institutions

Public Institutions can use Persona to authenticate the citizens who need to engage in different processes (tax paying, buying a property, etc.)

Academia

Using Persona, any author of a Paper can quote another and information can easily be tracked from beginning to end, thus minimizing plagiarism.

Secure communications

Email authenticity check-up

Persona can be used to sign and later verify the identity of the email sender. By using a mail server extension or browser plug-in, users can digitally sign on the Persona blockchain an email and receivers can verify the identity and authenticity of the sender.

Persona will develop an identity manager browser plugin for the most popular browsers (Chrome, Firefox, etc). The identity manager will enable users to link their Persona identity and issue blockchain transactions directly through the browser. The users can also sign directly into the browser by using an external hardware wallet (Ledger).

When the user signs a new message, a hash is generated by the browser plug-in and inserted into the email message (MIME header).

In order to check the authenticity of the email, the receiver is required to have the browser plugin also installed. The browser checks the signature in the email message (MIME header) and compares it to the data found on the blockchain. If the identity is matched, a “*Verified*” label is attached to the sender.

Following the same logic, mail servers plugins will be developed so the authenticity can be checked and proven also on major mail server applications: Apache James or Microsoft Exchange Server and email clients like Mozilla Thunderbird, Microsoft Outlook and others.

Business Plan

TGE Timeline and Token Allocation

The Token Sale for Persona will take place following the phases illustrated below:

Private Sale	15.12.2017	30.01.2018
Public Sale I	01.02.2018	08.02.2018
Public Sale II	09.02.2018	16.02.2017
Public Sale III	17.02.2017	24.02.2018
Token Distribution	30.03.2018	

The seeded number of tokens will be 100,000,000. **The price for one PRS token during the TGE is \$0.2.** The total allocation is:

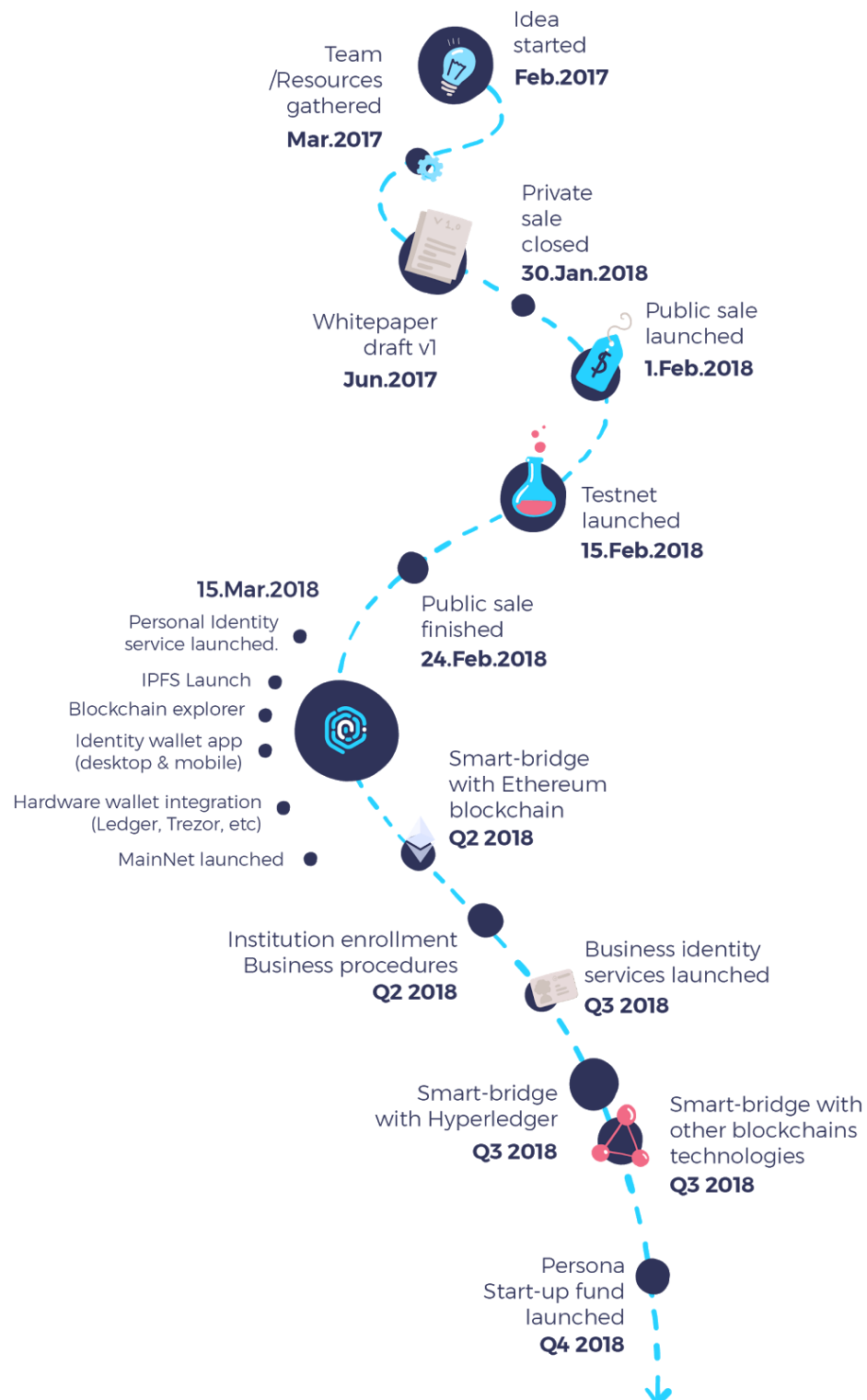
- **70,000,000 PRS** allocated for the TGE¹⁰;
- **15,000,000 PRS** allocated for the team composed of the co-founders. The tokens allocated to the team will be vested over a three-year period, split into yearly payments as following:
 - 10% at Genesis;
 - 30% after 12 months;
 - 30% after 24 months;
 - 30% after 36 months;
- **12,000,000 PRS** allocated for the Persona Startup Fund;
- **1,000,000 PRS** allocated for the advisors. The tokens allocated for the advisors will be vested over a period of 6 months;
- **1,500,000 PRS** allocated to the bounty.
- **500,000 PRS** allocated for the escrow services (performed by [Ark](#))

There are **70,000,000 PRS** allocated to the TGE, split into one Private Sale and a three-phase Public Sale, as explained below:

Stage	Tokens	Bonus	Total Tokens
Private Sale	15,300,000	0.5	22,950,000
Public Sale I	12,008,460	0.3	15,610,998
Public Sale II	13,070,000	0.2	15,684,000
Public Sale III	13,700,002	0.15	15,755,002

¹⁰ The unsold tokens will not be generated at Genesis.

Persona Timeline and Milestones



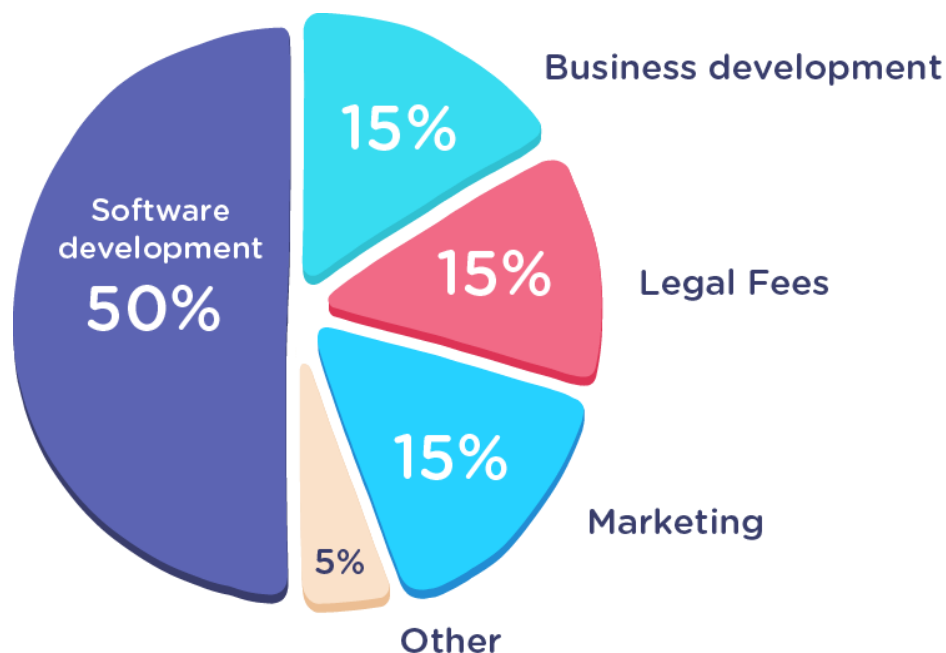
Please note that this White Paper is subject to change.

Use Of Proceedings

The estimated income based on the Token Generation Event is between **\$9.3M** and **\$14M** (cryptocurrency equivalent). The raised funds will be used for a period of at least three years, spread into the following categories:

- Software development (Blockchain Development - IPFS Implementation, SmartBridge Development, Mobile and Web development and Maintenance)
- Legal fees (GDPR compliance analysis, Company Certificates, legal support, etc)
- Business development (take part in top blockchain and fintech events around the world, establish business relations with companies that are interested in implementing Persona).
- Audit of the procedures and setting-up a legalized notary system.

The split of the income for the first three years is planned as following:



Escrow

Persona will accept three tokens: Bitcoin, Ethereum and ARK. The tokens received during the TGE will be distributed to their escrowed respective wallets (BTC to a BTC wallet, ETH to an ETH wallet, ARK to an ARK wallet).

To keep the tokens safe during the contribution phase and till Persona team will deliver the mainnet, we have in place an escrow framework. Our agreement with the Ark team is for Ark to manage the funds release based on agreed timelines and deadlines.

Persona Startup Fund

In order to speed-up the adoption of the Persona blockchain, 12% of the PRS tokens issued in the genesis block are stored for the funding of startups. The fund consists of **12,000,000 PRS**, that will help a minimum 10 startups to create their product using the Persona Identity Blockchain.

The funding of these start-ups is managed directly by the token holders. The community will be informed of initiatives needing funding and the members will be asked to have their say in the choice of startups. We encourage startups to develop products which make use of the Persona technology and bring innovation into various fields connected to identity use and management.

A set of guidelines will be published, offering information to startups seeking funding and setting the voting criteria for the funding.

Founders

Ioana Frincu



Ioana has found the perfect balance in life by combining her vocation of creating comprehensive software with her avocation of addressing the world's humanitarian needs. She loves taking up challenges while developing and growing innovative projects into real-life products.

Currently, Ioana serves as COO of KrowdMentor, a strategic investment and advisory firm empowering blockchain investors, funds, startups and entrepreneurs to reach their goals. She is also the COO of Under Development Office, a company with 7-year experience in creating software products (mobile, web and blockchain).

Previously, she was a consultant at IBM within the Business Analytics and Optimization division and an Analytics and Machine Learning Engineer within the Parametric Technology Corporation (PTC).

Ioana has dual degrees in Computer Science and Information Engineering and in Secondary Education Teaching from the Polytechnic University of Bucharest.

Dan Cearnau



Dan is an experienced tech entrepreneur, cryptocurrency enthusiast and a blockchain developer implementing smart-contracts applications on Ethereum for numerous ventures raising capital through Initial Coin Offerings (ICOs).

Currently, Dan serves as the CTO of KrowdMentor, a strategic investment and advisory firm empowering blockchain investors, funds, startups and entrepreneurs to reach their goals.

Since 2011, Dan is the founding CEO of Under Development Office, a boutique mobile and blockchain development company. Starting from defining the concept and functionalities, writing the white paper and/or business plan, defining the full IT architecture and working towards a Minimum Viable Product (MVP), Dan and his team have the capabilities to be a trusted partner while bridging the gap between a great idea and real-life applications.

Dan earned his undergraduate and master's degree in IT Management from the Romanian-American University.

Stefan Neagu



Stefan has extensive experience in the financial sector. He has been working for ABN Amro and the Royal Bank of Scotland, where he was part of major projects such as migrating to a new core banking system and implementation of the internet banking application.

Starting with 2016, he focused on blockchain technologies, starting with Lisk and going forward with launching the ARK blockchain platform in September 2016 together with 26 other team mates.

He was, until recently, part of Innovation team of *Societe Generale European Business Services* shared service center and starting with October 2017 decided to focus more on developing the ARK blockchain platform, which now takes most of his time, together with Persona. In his free time, he learns about dinosaurs from his 4.5 year old son.

He is member of Access Romania , a blockchain and fintech association, which sole scope is to bring together blockchain startups, financial institutions (banks, insurance companies and alike) and blockchain enthusiasts.

Also, he is member of ICO Advisory Group, a local initiative of people with expertise in blockchain to nurture and help blockchain startups.

Terms

GDPR - General Data Protection Regulation

IPFS - Inter-Planetary File System

KYC - Know Your Customer

Bibliography and references

[ARK Ecosystem](#)

[KYC Regulations and Costs](#)

[Spiralling Costs of KYC](#)

[KYC Escalating Costs and Complexity](#)

[How to protect yourself after Equifax hack](#)

[Equifax data breach](#)