eCredits

eCredits Whitepaper

VERSION 17 November 2021 v2.0

The people's currency

eCredits

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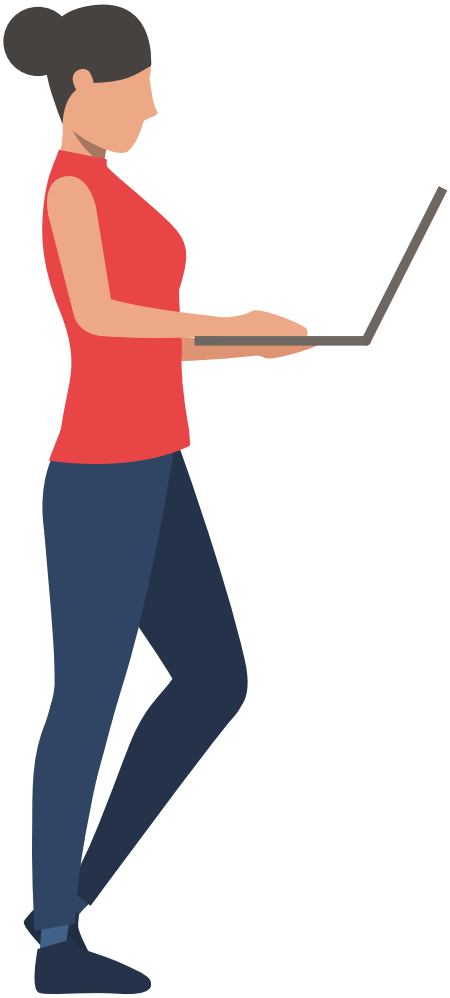

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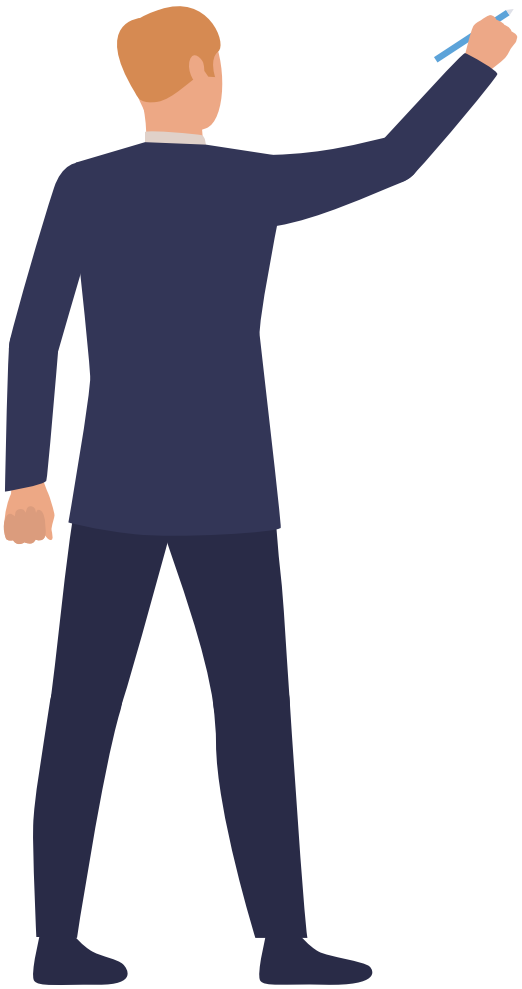


Summary

Today, monetary policies and financial markets mainly benefit large corporations and their shareholders. As a result, it is very hard for Micro-, Small- and Medium-sized Enterprises (MSMEs) to stay competitive. The goal of eCredits is to change this situation by becoming "The people's currency", bringing local businesses closer to consumers, and thereby strengthening regional economies.

It is not enough to simply run along the beaten path; pave your own way! If we keep trying to fit into these old legacy systems, nothing will change. Own what you´ve built up with your own hard work rather than letting enterprises leverage your most important asset: your customers' loyalty. It's time for a micro revolution, time for change, time to own the entire chain of value, and realize that strength lies in business relationships and interactions with customers. Run businesses on new rails, showing strength and independence, directly through a system which is made of exactly these paradigms and core values of independence, decentralization, equality and community-driven value - welcome to the blockchain.

The *eCredits Ecosystem* is open, decentralised, and based on blockchain technology. The *eCredits Blockchain* provides distinct features, such as a native cryptocurrency (eCredits, or "*ECS*" for short), which can be used by any person in the world without limitations. The *eCredits Ecosystem* includes a personal wallet ("*eWallet App*") alongside an open environment and infrastructure for merchants and consumers to perform transactions and get rewarded for their loyalty to make MSMEs more competitive again.

ECS is a free-floating, decentralised cryptocurrency without any mechanism for maintaining a stable value, and it is not backed by or linked to any legal tender, *fiat* currency, financial instrument, commodity, or other asset. As such, *ECS* are not provided with a claim in the form of a right to redeem against *fiat* currencies, financial instruments, commodities, or any other assets. The *eCredits Blockchain* using the *ECS* native cryptocurrency allows users to significantly reduce costs on transaction fees as well as administrative expenses and enables them to use sales and marketing tools to increase their business reach in order to potentially increase revenue. The *eCredits Ecosystem* is guided by a set of values deemed relevant for MSMEs, such as fairness, wealth creation, competitiveness, sustainability, egalitarianism, and continuity.

The *eCredits Ecosystem* will be supported by a community-run decentralised organisation that allows all users to participate and partake in its governance.

The *eCredits Blockchain*, *ECS* and their applications are designed to be easy and intuitive to use. Their integration into other systems, such as Point of Sales Systems and Online Shops is straightforward. The *eCredits Blockchain* and *ECS* come with a complimentary range of applications such as a digital wallet, a web portal with a dashboard, and reporting and

merchant applications, in order to provide convenient access to the feature-rich functionality of eCredits.

The eCredits Wallet mobile app, "*eWallet App*", enables simplified and unified access between all the consumer-focused use cases in one app. This digital wallet application provides users with instant, easy-to-use access to cryptocurrencies, allowing them to transfer to merchants providing goods and services in a fast and highly convenient way. The *eWallet App* is available for both *iOS* and *Android*.

The system includes an integrated rewards programme ("*eActivity*") which rewards the active use of *ECS* with dedicated tokens called "*ACT*". *ACT* can be stored in the *eWallet App*, side by side with other cryptocurrencies. These tokens are supported and powered by the same blockchain settlement and transaction infrastructure.

The *eCredits Ecosystem* also offers "dedicated privacy functions" to protect the interests of merchants by not disclosing sensitive information and making sure a store's transaction history and monthly turnover is only accessible to the owner, something which would be accessible to the public on most blockchain solutions.

eCredits offers third-party application developers and service providers the ability to build their own software and services on top of *eCredits Blockchain* (such as the *eWallet app*) and implement a revenue model that covers different user types and functionalities suitable for their use cases. Transaction fees are charged for transactions made with *ECS*. These fees are paid by the initiator of the transaction. In the event of a consumer merchant transaction, the *eWallet App* ensures that the transaction fee is calculated, as the merchant should cover those transaction costs. Furthermore, the system provides enhancements and modules on different subscription models besides the free-of-charge services. The *eCredits Blockchain* allows for the creation of a decentralised, secure, resilient, and transparent system, which is necessary to create public trust when empowering an ecosystem.

The *eCredits Blockchain* is an independent and separate blockchain protocol based on *Ethereum* technology, a well-established, secure, industry-standard technology for blockchains and *Smart Contracts*. Instead of reinventing the wheel, the *eCredits Blockchain* is designed to combine state-of-the-art technology and best practices in order to create improved services and ensure accessibility. The *eCredits Blockchain* uses the *Proof-of-Authority (PoA)* consensus mechanism, which has a number of concrete benefits. It speeds up the whole network and is thus able to process more transactions per second (TPS) compared to other decentralised methods of value transfer. Moreover, it provides relevant security and governance features and allows a lean and efficient network start, as well as lower energy consumption compared to traditional *Proof-of-Work (PoW)* blockchains.

The *eCredits Blockchain* is run and secured by nodes which enact the *Proof-of-Authority* mechanism and verify transactions. The backbone and decentralised infrastructures operating the *eCredits Blockchain* consist of *Validator Nodes* and *Supervalidator Nodes*.

At the time of launch of the *eCredits Ecosystem*, there are two tokens available on the *eCredits Blockchain*: The native *eCredits Cryptocurrency*, which is also used to pay *Gas*, the fees to conduct transactions, and *eActivity*, allowing for an integrated rewards programme.

The *eCredits Cryptocurrency* is supported by an open, community-driven organisation with a unique decentralised governance model (herein referred to as the "*Decentralised Governance Organisation*" or the "*DGO*") that includes various stakeholders as members. *ECS* may be listed on third-party crypto-exchange platforms to improve liquidity. One of the possible distribution methods is to make *ECS* exchangeable through such external cryptocurrency exchanges.

The maximum total supply of *ECS* is limited and set to be 63,000,000,000 units.

Governance of the *eCredits Ecosystem* is decentralised and provided through governance solutions and nodes, some of them being operated by the *Decentralised Governance Organisation (DGO)*. It is important that the governance model is community-driven and is designed to serve the success of the ecosystem itself in the long-term. In order to fulfil its purpose of supporting the *eCredits Ecosystem*, the *DGO* needs sufficient and sustainable financial resources – in other words, a valid business model to sustain itself is contained. The *DGO* generates income and remains financially independent through revenue streams based on subscriptions and the verification of transactions in the network, at the same fair level as other node operators.

The roadmap for the *eCredits Ecosystem* defines the launch of the blockchain towards a solid foundation for the roll-out of core components, enabling additional features to be implemented, supported through the *DGO* and open to all third-party application developers and service providers.

eCredits

Glossary

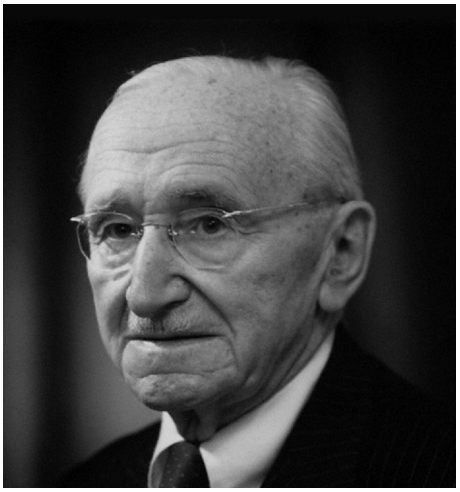
Glossary	
Term	**Term-Explanation**
ACT	Ticker for the *eActivity* token
AML	Anti-Money Laundering. AML refers to the laws, regulations and procedures intended to prevent criminals from disguising illegally obtained funds as legitimate income.
API	An API (Application Programming Interface) is a software intermediary that allows applications to communicate with each other.
ATM	Automated Teller Machine, also sometimes referred to as "cash machine".
Bitcoin	The most popular cryptocurrency and the native token of the Bitcoin blockchain.
Block explorer	A web application which allows the user to inspect blockchain data.
Consumer	A natural person who uses *ECS* to purchase goods or services from *Merchants* via the *eWallet App*.
DGO or Decentralised Governance Organisation	The *Decentralised Governance Organisation (DGO)* is an organisation supporting the *eCredits Ecosystem* and fostering the adoption of eCredits applications.
eActivity	Loyalty programme of the *eCredits Ecosystem*, rewarding active users with *eActivity* tokens.
eActivity Exchange Smart Contract	A smart contract within the *eCredits Blockchain* that converts *eActivity* to *ECS*.
eCashback	A third-party cashback system which is integrated with eCredits.
eCredits	Native cryptocurrency of the *eCredits Blockchain*.
eCredits Block-chain	*eCredits Blockchain* is a blockchain based on the *Ethereum* protocol, and compatible with the *Ethereum Virtual Machine (EVM)*. It features a native cryptocurrency (eCredits, or "*ECS*" for short), which can be used by any-body for transactions.
eCredits Ecosystem	The sum of all eCredits applications and features (such as *eWallet App*, *ECS*, *eActivity* and other) built on top of the *eCredits Blockchain*, including software, applications and services from third parties and the *DGO*.
eCredits Public API	A public application programming interface (API) that allows users of eCredits to interact with the *eCredits Ecosystem*.
ECS (eCredits Cryptocurrency)	Ticker for the *eCredits Cryptocurrency*.
Ether	The native cryptocurrency of the *Ethereum* blockchain.
Ethereum	One of the most established blockchain protocols for smart contracts.

Glossary	
Ethereum Virtual Machine (EVM)	The EVM is a Turing-complete virtual machine that enables the execution of code exactly as intended; it is the runtime environment for every Smart Contract. Every *Ethereum* node runs on the *EVM* to maintain consensus across the blockchain. The *eCredits Blockchain* is compatible with *Ethereum* and based on the *EVM*.
eWallet App	The wallet application of the *eCredits Blockchain*.
Fiat	Government-issued currencies ("Fiat Money") such as USD or EUR.
Gas	Fees for the processing of transactions within a blockchain system.
i.e.	id est (Latin), meaning "that is".
KYC	Know-Your-Customer. KYC or "Know-Your-Customer" is a set of guidelines used in financial services which stipulate that professionals must attempt to verify the identity and suitability of their customer and identify the risks involved in maintaining a business relationship with said customer.
Member	A member of the *eCredits Decentralised Governance Organisation*.
Merchant	A user that offers goods and services for *ECS* in a professional capacity, for example in retail or online shopping.
MSMEs	Micro-, Small- and Medium-sized Enterprises.
PoA	Proof-of-Authority, a blockchain consensus mechanism.
Point-of-Sale	Refers to any business location of Merchants where *ECS* are accepted as payment.
PoS	Proof-of-Stake, a blockchain consensus mechanism, whereby the consensus is established by node voting in proportion to the number of coins one holds.
PoW	Proof-of-Work, a blockchain consensus mechanism, whereby the consensus is established by node voting in proportion to the amount of hashing power one holds.
QR code	Quick Response code, a type of machine-readable matrix barcode.
Smart Contract	A 3rd party software/code which can be deployed and run on a supporting blockchain network and be triggered by transactions and/or commands to execute the code within.
Supervalidator Nodes	Highly reliable network nodes within the *eCredits Blockchain*, validating transactions and securing the network with certain voting rights.
"Third-party service" or "Third party"	Refers to applications, software or other services that are hosted, developed or operated by a third party.
Ticker	Short symbol for a token.

Glossary	
Transaction Fee	The fees to be paid for making transactions on the *eCredits Blockchain*.
UI	User Interface is the sum of graphical elements and the display of information to allow for comfortable interaction with programmes and software.
User	Anybody using the *eCredits Blockchain* or its applications.
Validator	Person or entity operating a *Validator Node*.
Validator Nodes	Network nodes within the *eCredits Blockchain*, validating transactions and securing the network.
Web Portal	Web Portal is a web-based application that provides consumers with an overview of their transactions, enabling users to maintain their memberships and giving merchants a platform through which to manage their business profile, stores, subscriptions, user management and business data. Merchants can also access additional business-related functionalities such as business reports, marketing functions, etc.

1. Introduction

„The great trouble is that money wasn't allowed to develop. [...] Money was frozen in its most primitive form. What we have had since was mostly government abuses of money. [...] That's why I am now pleading for what I have called denationalization of money."



Friedrich Hayek

(1984; Interview at the University of Freiburg in Germany by James U. Blanchard III, chairman of the National Committee for Monetary Reform and a member of the Cato Institute's Board of Directors)

The *eCredits Ecosystem* is a denationalised (and decentralised) solution, enabling local value creation with a global scope. One main component of the ecosystem is a cryptocurrency that not only has value, but also carries values. These principles provide the basis on which to build and secure wealth, social cohesion and local economic circuits, sustainably and with a long-term vision. Just like how Friedrich Hayek envisioned the future of money[1], the *eCredits Ecosystem* does not rely on any central authority, private or national. That is why the *eCredits Ecosystem* is built on a decentralised technology and governed by the community, supported by a legally sound and decentralised organisation. This document provides information on all the important relevant issues to introduce readers to the *eCredits Ecosystem*. The aim is to give consumers, merchants, service providers and other interested parties a glimpse into a common future and to shed light on the potential of *eCredits*.

1.Von, Hayek Friedrich A. Denationalisation of Money: An Analysis of the Theory and Practice of Concurrent Currencies:
The Argument Refined. Institute of Economic Affairs, 1990.

1.1 Challenge

Micro-, Small- and Medium-sized Enterprises (MSMEs) only have limited access to the financial markets and its tools. However, growth in competitive markets is only possible through modern infrastructure, from cashier systems to an interested banking partner, as well as appropriate credit lines and modern marketing tools to retain customers.

Consumers are finding it increasingly difficult to achieve prosperity because money, as a tool of politics, serves many interests. Taxation and monetary policies have been coordinated so that consumers live in large numbers, although at a high level, without significant wealth, and are thus dependent on the state. Taxes, inflation, and subsidies protect this system.

The problem lies in the gap between the interests of a globalised financial economy and its industrial clientele on the one hand, and the local and regional value chains of consumers and *MSMEs* on the other. This gap hinders competition, harms the environment, and dictates prices away from demand, ultimately weakening democratic involvement.

1.2 Solution and USP

Proposed solution

In the beginning, every ecosystem is about domination of the medium of exchange. By gaining autonomy over money, an ecosystem can be created that compensates for the shortcomings of the *fiat* world. Specifically, it is about easy access to a fast and transaction-friendly means of exchange that is not subject to politics.

ECS is a cryptocurrency that exists independently of the *fiat* world. Nevertheless, the system implements a bridge into a variety of currencies with integrated third-party cryptocurrency exchange platforms. Instant trade for cryptocurrencies, such as Bitcoin and *fiat*, into EUR or USD, will be possible.

For business partners, the *eCredits Blockchain* and *ECS* enable security in business transactions, even with unknown partners, replacing trust with modal contracts on a technical basis (smart contracts[2]). Transactions are processed faster, while cumbersome bank processes are eliminated. Merchants can thus react quickly to changes in the market and remain competitive.

Moreover, in the future, the *eCredits Ecosystem*, alongside its partners will provide functions that enable different forms of participation, financing and support for merchants, consumers and other users. All these functions are integrated into a reward system that honours socially-conscious behaviour. You support who you trust.

Unique Selling Proposition (USP)

Why *eCredits Cryptocurrency (ECS)* and not one of the many other existing cryptocurrencies? *ECS* does not come from a tech lab, but from the reality of everyday people. It has emerged with the aim of solving concrete real-life problems and is inspired and guided by the true needs of MSMEs and Consumers.

2.Brownsword, Roger. Law, Technology and Society: Re-Imagining the Regulatory Environment. Routledge, Taylor & Francis Group, 2019.

The *eCredits Ecosystem* is an inclusive, open system. Through its own affiliates and partnerships, it will be able to provide access to thousands of merchants and service providers, mainly in Europe but also on all other continents. It is planned to continuously increase these numbers by engaging with further partners and collaborators. The *eCredits Blockchain* is used by partners as a vehicle for bonuses, cashback, loyalty and rewards, whether in retail, the gaming industry, eSports or digital asset exchanges. As a result, the *eCredits Ecosystem* makes all parties more competitive through the automation of complex international transactions, without the need for a clearing counterparty, and with cheaper cost structures, faster processing options and its own reward system that strengthens community growth and customer loyalty.

1.3 Vision/Mission

Vision: To become "The people's currency"

The *eCredits Ecosystem* seeks to create a platform for a movement consisting of local and regional micro-ecosystems which create, offer, and sell services and products with the help of the *eCredits Blockchain*. These services are aligned to help MSMEs and establish parity with, or even gain an edge over, larger market players such as international multis.

The use of *eCredits Cryptocurrency* generates *eActivity*, which constitutes a reward system that provides remuneration for loyal relationships. On the basis of such trusting relationships, partners will introduce a variety of additional services in areas including marketing and sales.

The goal of *eCredits Cryptocurrency* is to become a currency of values, thereby creating good neighbourly relations as well as entrepreneurial helpfulness.

Mission

The *eCredits Ecosystem* is being introduced in an initial rollout by various partners and is being docked into existing retailer structures. In this way, the *eCredits Ecosystem* offers an exclusive advantage for large collectives that can adopt *ECS* as an alternative means of payment within their systems. On the technical side, major adaptation and harmonisation projects will have to be mastered.

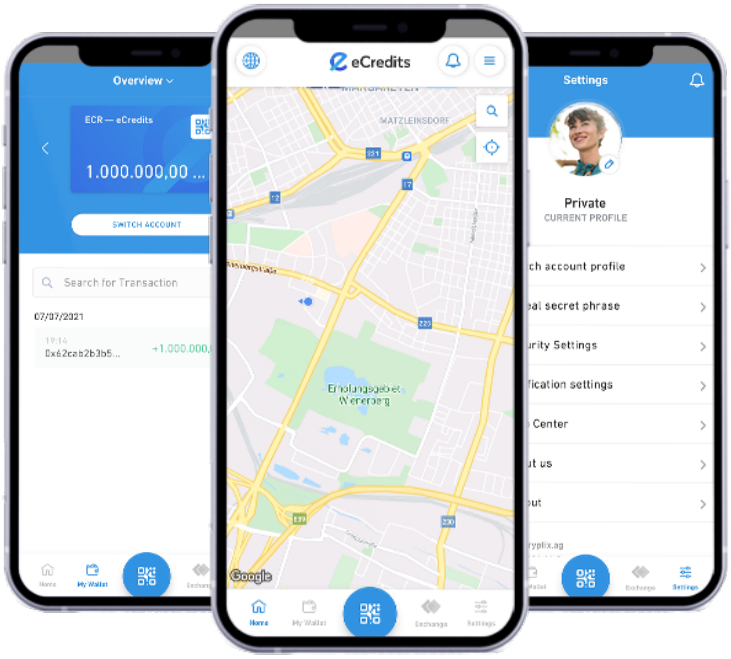
In parallel, corresponding training platforms and merchant marketing support materials are being created to enable every user to quickly and successfully get started with eCredits.

The *eCredits Ecosystem* is supported by an independent organisation that allows for the decentralisation of its decision making and governance, making the *eCredits Ecosystem* a truly community-driven ecosystem. This ensures the existence of the *eCredits Blockchain* and *ECS* beyond all developments, and establishes the inherent stability of this system.

2. Product suite and applications

The *eCredits Ecosystem* is an open, community-driven infrastructure. For the most part, anyone can view and interact with the *eCredits Blockchain* using the *eWallet App* or any other wallet that is publicly available and technically compliant. Users can even develop their own applications on top of it. In order to fulfil its promise of becoming the "people's currency", the *eCredits Blockchain* and *ECS* need to be easy and intuitive to use, and integration into other systems must be straightforward. For this reason, the *eCredits Ecosystem* already includes some basic applications built on top of the *eCredits Blockchain*. These provide easy and convenient access to the core functionalities and features of the *eCredits Blockchain*.

2.1 eWallet App and Web Portal



The eCredits eWallet App for IOS and Android

The *eWallet App* is a mobile application that generates and securely stores private keys directly on your device, interacting with the *eCredits Blockchain* and browsing for local and online stores that accept *ECS*. Users will also be able to view and give ratings. What's more, the *eWallet App* gives users instant and easy-to-use access to the *ECS* cryptocurrency, so it can be spent on goods and services very quickly and conveniently. The *eWallet App* is available for both iOS and Android, and is issued and maintained by the independent *Decentralised Governance Organisation* (*DGO*)[3].

The core functions of the eWallet App are as follows:

> Secure, on-device local storage of the user's keys and addresses (non-custodial)

> Enables the generation of an infinite number of addresses using one seed phrase (HD wallet)

> Interaction with the *eCredits Blockchain*, allowing access to and transfer of *ECS*

> Geographical map of merchants where *ECS* is accepted

> List of online stores into which *ECS* has been integrated

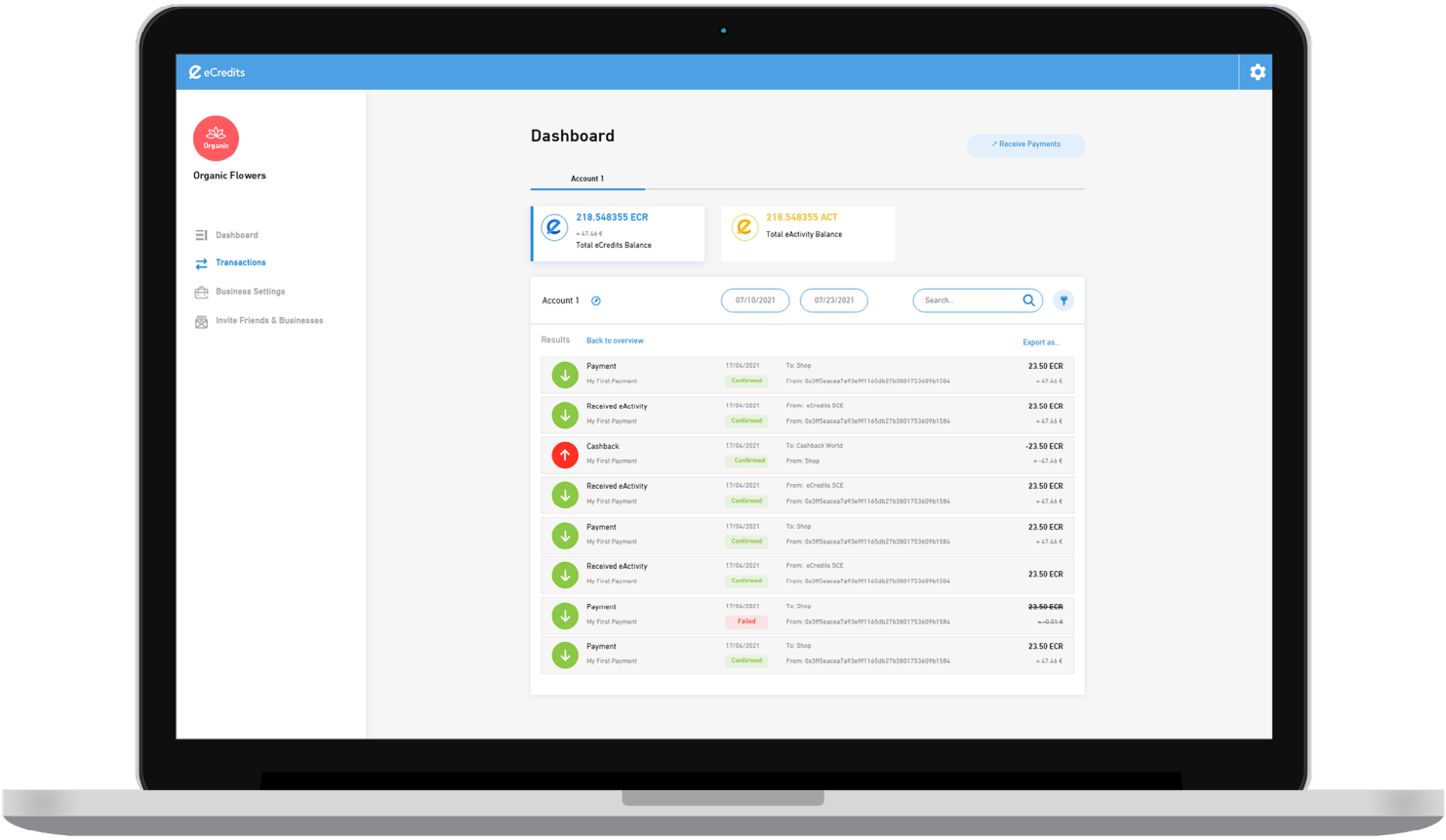
> Easy, fast, and low-cost transaction methods

> Integrated *eActivity* reward system

> Integrated third-party cashback system

> Option to buy and sell *ECS* via integrated third-party cryptocurrency exchanges

3.Mishra, S. N., and Sweta Mishra. Decentralised Governance: Macro and Micro Perspective. Shipra, 2002.



The eCredits Web Portal

Private keys, as well as associated public keys and addresses, are generated locally and stored in the *eWallet App* on the user's device. No one, not even the *DGO*, can access this secret information unless the user shares it with them. This also means that losing the information will render a user's *ECS*, *eActivity* and other assets inaccessible and therefore lost. A user should always backup their seed phrase or private keys and keep them in a secure place in case they need to restore their wallet.

The eCredits website provides users with general information such as news, eCredits usage and other information related to the *eCredits Ecosystem*, the community-driven *Decentralised Governance Organisation (DGO)*[4] and numerous different applications and services. It also contains links to the learning centre, the support portal, the *eWallet App* download page and other materials such as documentation for developers.

The Web Portal is a web application, allowing members, businesses, and consumers to access different features, as follows:

> For merchants: Dashboard, transaction overviews and reports, transaction export option, business profile updates, statistics and much more

> For members: Membership access, voting function, access to reports

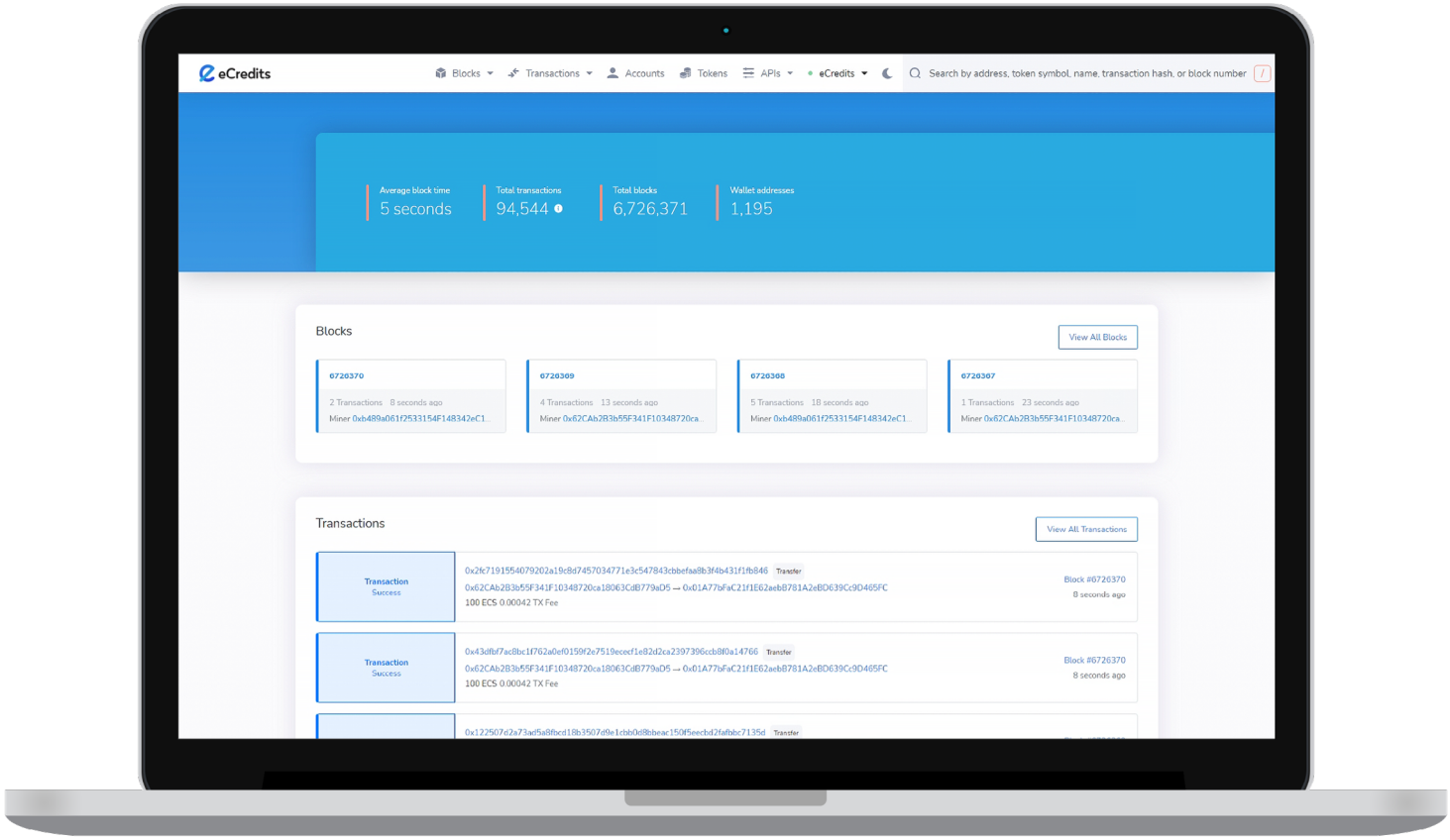
> For consumers: Dashboard, transaction overview, transaction export option and much more

4.Sims, Alexandra, Blockchain and Decentralised Autonomous Organisations (DAOs): The Evolution of Companies?, New Zealand Universities Law Review 423-458, 2019.

The *eCredits Blockchain* also includes a public *API* that allows users and developers to interact with the *eCredits Ecosystem*. With this, online stores can easily integrate eCredits and *ECS* into their system. eCredits will also offer a Web Widget so that *ECS* can be integrated seamlessly into popular e-commerce applications such as WooCommerce, Shopify and others.

The eCredits Block Explorer

The eCredits *Block Explorer* is an online browser for inspecting and analysing the *eCredits Blockchain*. It reveals the contents of blocks, transactions, transaction histories, accounts, balances and tokens. With this free public tool, users can browse the blockchain and transparently check for the status of any given previous or active transaction.



The eCredits Block Explorer

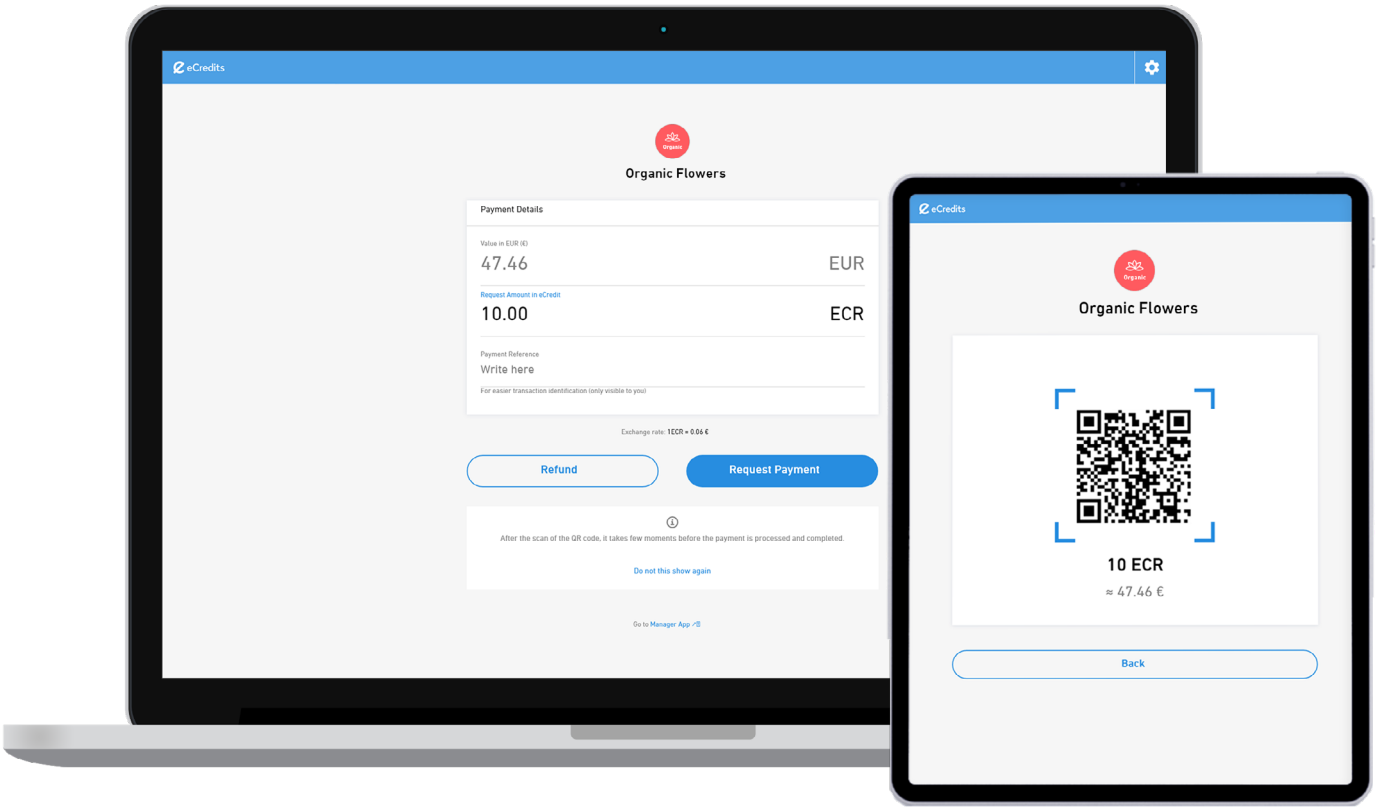
2.2 Merchant-centric solutions

As the *eCredits Blockchain* is designed to be used by merchants (among others), there are several tools available for merchants and several other features in the pipeline, including:

> **Cashier App:** A web application that allows the employees of merchants to request *ECS* from their customers at the cash desk in exchange for goods or services. This web application can also be installed on smartphones, tablets and note-books.

> **Web Portal:** The Web Portal includes functions that help to manage which users are allowed to access the data of the merchant, for example, managers, accountants or cashiers. It includes export functions, dashboards and other useful features.

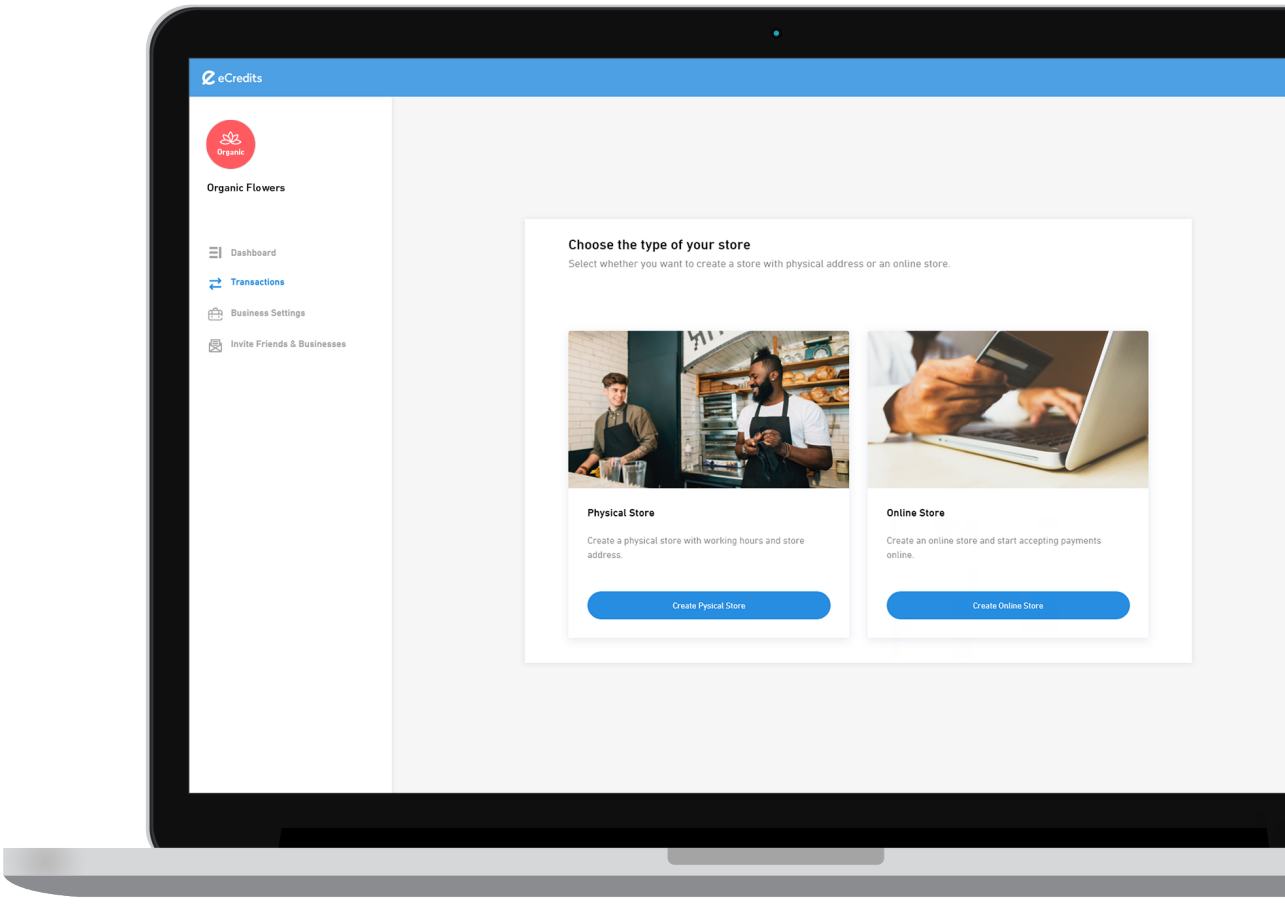
> **Instant Trade:** There are plans to offer an instant trade feature which will allow merchants to trade *ECS* for specific currencies available within the integrated third-party cryptocurrency exchange. *ECS* will be available for instant trade against the Euro or other currencies (accessible on third-party cryptocurrency exchanges), while the value of *ECS* remains free-floating, determined solely by



The eCredits Cashier App

demand and supply and without any value stabilisation mechanisms, so that the merchant has the option to choose between various currencies whilst continuing to comply with different regulations.

- **Store Management:** Merchants can manage different branches of the business which will then be visible on the map or in the list of online stores.
- **Privacy Feature:** Despite the benefits that the transparency of blockchain technology can bring, it can be an issue for merchants if all their sales are publicly accessible. Therefore, the *eCredits Ecosystem* contains a privacy feature with different settings to choose from.
- **eCashback integration:** The *eCredits Ecosystem* integrates a cashback system, an additional loyalty programme that helps merchants to attract more customers.
- **Transaction costs:** Compared to big payment systems, the transaction costs for merchants are lower, ultimately increasing the merchant's income.



The eCredits Merchant App

- **Refund costs:** The refund costs for merchants are much lower compared to those of other systems.

- **Fast settlement:** As the transaction is done via the blockchain, the merchant will receive the amount within seconds rather than waiting days, weeks or even months.

2.3 Transaction Use Cases

Usability and convenience lie at the core of the *eCreditsEcosystem* and its native applications, as they drive integration, and as each day passes it is becoming "The people's currency". This integration means it is very simple to make a transaction. The following example will outline a typical transaction between a merchant and a customer. In this case, the merchant is a local, physical business, e.g. a grocery store.

- The merchant's cashier scans the items the customer wishes to purchase at the Point-of-Sale.

- The invoice is generated

- On their cashier system, e.g. a smartphone or a tablet acting as a terminal, the merchant's cashier enters the amount owed and creates the request by clicking one button.

- In the next step, the cashier's app displays a QR code which the customer can scan with their smartphone.

- By scanning the QR code, the destination address and amount are automatically entered and indicated in the customer's app on the smartphone. Additionally, as it is a merchant transaction, the customer's app will show the logo and name of the merchant.

- The customer can then confirm the transaction, whereby it will be automatically signed, and the respective amount will be sent to the merchant's address.

- Finally, after the transaction is processed on the blockchain, the merchant gets a confirmation of the transaction and can immediately access the transferred funds.

As part of this process, the fee for the transaction will be added to the requested amount and will be automatically distributed between the *validators* of the network and the publisher of the *eWallet App*. Additionally, loyalty rewards (i.e. *eActivity* and/or *eCashback*) are automatically allocated to the customer and the merchant if they are registered for such a programme.

2.4 Instant trade

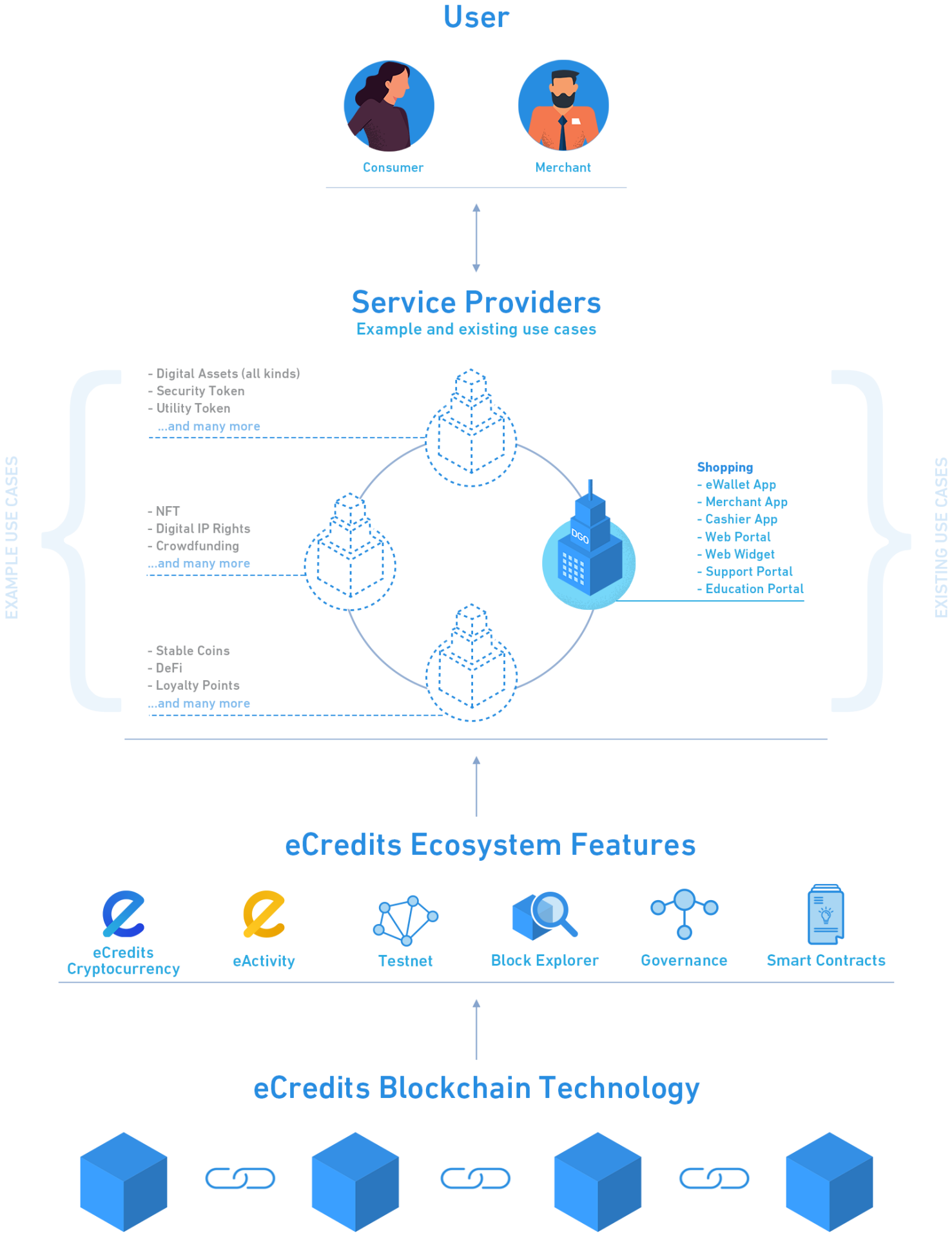
For merchants, the low volatility of the prices for the currency they get their receivables in may be of particular interest. If a merchant receives the equivalent of EUR 800 in eCredits in the morning for a TV that they sold, then it should still be worth EUR 800 in the evening so that the merchant can pay its supply chain. After due consideration, the *eWallet App* implements an instant trade option with an integrated third-party cryptocurrency exchange platform, thereby enabling users to conveniently trade *ECS* for

various crypto-assets such as Bitcoin, USDC, or EUR. Among other things, this helps to speed up the go-to-market, reduces time constraints and mitigates the dependency on changing or yet-to-be-released regulatory frameworks.

In conclusion, the price of *ECS* is free-floating and determined solely by demand and supply, without any value stabilisation mechanisms. While this does not fully mitigate volatility, thus bearing the risk of value loss, it also allows for value increase, which is undeniably attractive in the current cryptocurrency markets. It also ensures complete independence from any centralised entity, making the *eCredits Ecosystem* able to exist without drawbacks or disadvantages, even if the ecosystem develops further and the *DGO* – for whatever reason – ceases to exist or is dissolved. Due to the instant trade mechanism, it can still be ensured that merchants always get the amount charged to the customer in their reference *fiat* currency.

3. Empowering an ecosystem

The aim of the *eCredits Ecosystem* is to enable global adoption of blockchain technology[5], where the *eCredits Cryptocurrency (ECS)* is an integral part of the *eCredits Blockchain*. *ECS* supports the growth of multiple applications, such as the *eWallet App* or the Web Portal, produced and supported by its users through a *Decentralised Governance Organisation (DGO)*.


User
Consumer
Merchant
Service Providers
Example and existing use cases
EXAMPLE USE CASES
- Digital Assets (all kinds)
- Security Token
- Utility Token
...and many more
- NFT
- Digital IP Rights
- Crowdfunding
...and many more
- Stable Coins
- DeFi
- Loyalty Points
...and many more
DGO
Shopping
- eWallet App
- Merchant App
- Cashier App
- Web Portal
- Web Widget
- Support Portal
- Education Portal
EXISTING USE CASES
eCredits Ecosystem Features
eCredits Cryptocurrency
eActivity
Testnet
Block Explorer
Governance
Smart Contracts
eCredits Blockchain Technology

3.1 The inclusion paradigm

ECS is a cryptocurrency[6] built on top of the *eCredits Blockchain* that is intended for use by users worldwide. The *eCredits Ecosystem* comprises many different components and participants globally, all working together and contributing to the success of the ecosystem and its members. The key elements of the ecosystem can be summarised in the following paragraph, and some of them are described in more detail further down in this document.

3.2 Functional elements

- The *eCredits Blockchain*, a decentralised blockchain with smart contract support.
- The *eCredits Cryptocurrency*, otherwise known as *ECS*, the native token of the *eCredits Blockchain*.
- *eActivity*, a programme which rewards active usage with a separate token called *ACT.*
- The *eWallet App*, a mobile application enabling the secure storage of private keys on the user's device and allowing for seamless access to the *eCredits Blockchain*, designed to connect merchants and consumers worldwide.
- Other applications built by third parties on top of the *eCredits Blockchain*, for example *eCashback*. Users can opt-in to *eCashback*, a third-party application built on top of the *eCredits Blockchain*, which provides a cashback service. The cashback system can be used with *ECS* seamlessly, allowing *eCashback* users to receive cashback by initiating *ECS* transactions with merchants once they have registered on the *eWallet App*.

3.3 Ecosystem participants

- Validators, operating nodes that confirm transactions and secure the *eCredits Blockchain*.
- Consumers, who use *ECS* to purchase goods or services.
- Merchants, who sell their goods or services in exchange for *ECS*.
- Ambassadors, who spread the word and support the adoption of *eCredits*.
- The community-driven *Decentralised Governance Organisation (DGO)*, acting as an independent governing entity for the products based on the *eCredits Blockchain*, and supporting the development and adoption of the *eCredits Ecosystem* and *ECS*. Every user can become a member of the *DGO*, subject to the terms and conditions provided in the relevant constituent acts.
- The *eCredits Ecosystem* is embedded in a comprehensive network of business partners. With such international partnerships, *eCredits* can reach out to millions of customers and thousands of acceptance points, thus supporting and accelerating global adoption. It is therefore expected that *eCredits* will quickly reach a substantial number of members, merchants

5.Wright, Aaron and De Filippi, Primavera, Decentralized Blockchain Technology and the Rise of Lex Cryptographia. 2015.
6.Lee, David. Handbook of Digital Currency: Bitcoin, Innovation, Financial Instruments, and Big Data. Elsevier/AP, 2015.

and customers within the ecosystem. Certain business partners also provide easy exchange, cashback and other functions which have been integrated directly into the *eWallet App*.

> Cryptocurrency exchanges allow their users to buy and sell *ECS*, among other cryptocurrencies, against *fiat* currencies like EUR or USD. Users must register separately with such platforms, and are subject to all required *Anti-Money Laundering (AML)* and *Know-Your-Customer (KYC)* checks. It will also be possible to integrate partnering cryptocurrency exchanges directly into the *eWallet App* application, allowing users to easily convert *ECS*. In this context, cryptocurrency exchanges provide the gateway through which to convert *ECS* to or from *fiat* and other cryptocurrencies.

3.4 Privacy

Privacy is becoming more and more important, especially when it comes to the everyday use of online services[7]. The *eCredits Ecosystem* commits to the privacy of its users.

Understandably, merchants in particular have great demands in regard to their privacy, as they do not want others, especially competitors or clients, to see their cash flows or balances. To address this, the *eCredits Ecosystem* offers four different options via which merchants can receive *ECS*:

> Directly to their account (semi pseudonymity),

> To one of many addresses in their account (pseudonymity),

> To one of many addresses in a third-party cryptocurrency exchange (pseudonymity),

> Or via third-party cryptocurrency exchange. This is a case of public privacy, whereby the sales information of the merchant is kept private from the public, but the integrated third-party cryptocurrency exchange has the information. *eCredits* uses this mechanism as a privacy-enhancing method. This means that received *ECS* end up directly with the integrated third-party cryptocurrency exchange if this option is enabled.

> directly with the integrated third-party cryptocurrency exchange if this option is enabled.

7.Antonopoulos, Andreas. Rules Enforced by Cryptography. RIAT "Future Cryptoeconomics #1", 2018.

Option 1

Semi pseudonymity: Merchant receives payment to one address

Option 2

Pseudonymity: Merchant receives payment to one of many addresses

Option 3

Pseudonymity: Merchant receives payment to one of his multiple third-party crypto-exchanges

Option 4

Full privacy: All merchant receive payment to same third-party crypto-exchange

4. eCredits Blockchain

eCredits Blockchain is the underlying technology behind the *eCredits Ecosystem*. The following sections describe the reasons for and advantages of this technology, and provide further technical details about the *eCredits Blockchain*.

4.1 Decentralised assets

The *eCredits Ecosystem*, with its vision of enabling *ECS* to become the "people's currency", aims to be a system controlled and governed by its users, and not by a central entity. The blockchain, the technology on which cryptocurrencies such as *Bitcoin* or *Ether* are based, provides the perfect conditions for such an undertaking. The blockchain creates decentralised, secure and transparent conditions, perfectly suitable to generate the public trust required for the *eCredits Ecosystem* to succeed.

The *eCredits Ecosystem* uses its own blockchain which is based on a proven set of technologies, the *Ethereum* protocol, one of the most established open-source blockchain protocols. This technology has been adopted and extended for this project and provides the perfect foundation on which to build a rapidly growing ecosystem. It can even be optimised further to accommodate the requirements put in place for *ECS* to become a cryptocurrency designed for everyday use.

One of the key features of blockchain is decentralisation, but this technology also has other benefits:

- **Security:** It is much harder to hack a decentralised system, as there is no single point of failure.

- **Resilience:** A decentralised system can exist without requiring a central entity to run or administer it, making it resilient and autonomous.

- **Zero-Trust[8]:** Users do not have to trust a central entity or organisation; they only need to trust in the technology, which is open, transparent and auditable.

- **Transparency:** Each transaction on the blockchain is verifiable and immutable, increasing trust in the system.

For the *eCredits Blockchain* to be sufficiently decentralised, a lot of different independent participants must run so-called "Nodes" - computers that verify and synchronise the blockchain. In reality, it is difficult to define what actual and sufficient decentralisation means, and how many nodes are required to achieve this. Besides that, the power of each organisation or individual participating in the blockchain must be taken into account, as there needs to be a system-wide consensus between the participants in order to change integral parts of the infrastructure or the protocol itself. Should anyone be able to change the system, it would lose the main attributes of resilience. Therefore, the *eCredits Ecosystem* provides novel and solid approaches, on both a technological and organisational level, in order to provide decentral governance for a truly decentralised system.

In the initial phase, the *Decentralised Governance Organisation* will run most of the blockchain nodes and will encourage others to join.

Early adopters of the *eCredits Ecosystem*, including a range of initial node operators, will provide a sufficient degree of decentralisation right from the start. Other node operators will follow as adoption gains

8.Tarasiewicz, Matthias. Faceless Praxis in the Age of Zero Trust. Faceless: Re-inventing Privacy Through Subversive Media Strategies. De Gruyter, 2018.

traction. The goal is to quickly reach more than one hundred nodes of independent node operators.
The *eCredits Ecosystem* is built in such a way that it allows its members to vote on important decisions through a first-of-its-kind *Decentralised Governance Organisation*.

4.2 Technological foundation

The *eCredits Blockchain* was launched as a new network and is based upon the industry-standard *Ethereum*. *eCredits Blockchain* starts with a *Proof-of-Authority* consensus mechanism, with a block time of 5 seconds. eCredits is fully compatible in terms of interoperability with *Ethereum* and the *Ethereum Virtual Machine (EVM)* and therefore, other solutions, tokens and *Smart Contracts*, which were once designed for *Ethereum* and the *EVM*, will also be able to run on the *eCredits Blockchain*.

Launched in 2015, *Ethereum* is the most established and stable blockchain technology in the world. It was the first generic *Smart Contract* platform to be created, and in many ways, it is still a point of reference when it comes to smart contracts.

Ethereum has by far the largest community of all smart contract platforms, with many projects built on top of it. It offers multiple stable coins (both centralised and decentralised) and a wide ecosystem of projects which interact with each other.

Their large community, alongside many companies and organisations, is continuing to build tools on and for *Ethereum*. There are many wallets, *block explorers*, faucets, pre-built smart contracts, and other tools available. Furthemore, the developer tooling of *Ethereum* is outstanding – there are many software libraries for different languages (JavaScript, C#, Python etc.) which interact with *Ethereum* nodes. It supports two primary smart contract languages (Solidity and Vyper) and has tools for smart contract development and testing, including security checks, among other things.

Existing solutions that are compatible with *ECS* include card-wallets, software-based and hardware-based wallets, multi-signature contracts, decentralised autonomous organisations (DAOs), distributed apps and developer tools such as *Truffle*.

4.3 Consensus

What is a consensus algorithm[9]? "A consensus algorithm is a mechanism in computer science used to establish agreement on a single data value across distributed processes or systems. A consensus algorithm is a protocol through which all the parties of the blockchain network come to a common agreement (consensus) on the present data state of the ledger and be able to trust unknown peers in a distributed computing environment. For blockchain networks, the consensus algorithms are an essential element because they maintain the integrity and security of these distributed computing systems."
(https://analyticsindiamag.com/blockchain-consensus-algorithms/)

Launching a new blockchain can be difficult from a security perspective as there is an increased risk of an attack on blockchain networks which lack sufficient decentralisation – the "51% attack", as it is

9.Gervais, Arthur, et al. "On the security and performance of proof of work blockchains." Proceedings of the 2016 ACM SIGSAC conference on computer and communications security. 2016.

known. Such an attack has already happened on certain blockchain protocols, e.g. *Bitcoin Cash*, which at the time of attack had already been up and running for a number of years.

If a new blockchain launches using a *Proof-of-Work (PoW)* consensus mechanism (i.e. the consensus is driven by solving mathematical problems through computational power), it is crucial that no potential malicious attackers are able to control more than 50% of the hash power of the whole network. Even from the launch of the blockchain, there must be enough node operators to ensure sufficient hash power in order to avoid the risk of other node operators with more powerful hardware taking over the majority of the network and potentially manipulating the blockchain.

One way to prevent such an attack is by launching the network with a large pool of node operators. However, this can be very costly and may result in ecologically questionable energy consumption, basically wasting precious resources. Another way is by using a completely different consensus mechanism.

One such alternative consensus mechanism is the *"Proof-of-Stake" (PoS)* algorithm[10]. For *Ethereum*, however, *PoS* is currently still under development and is being tested. It is expected that it will take some time before *Ethereum* 2.0 is fully operational and ready to be deployed.

For the eCredits system as a blockchain network, the security of the network and its stability is highly important, so using experimental technology is not a viable option.

Another alternative is the *"Proof-of-Authority" (PoA)* consensus mechanism, which has been tested and used for some time now. This method comes with some general benefits; it helps to speed up the whole network and thus allows for more transactions per second than *PoW*, for example. Additionally, 51% attacks can be prevented more easily as existing *Validator Nodes* must allow new nodes to join the network by voting for their acceptance. This allows the network to start with fewer nodes, without the risk of being threatened by malicious participants.

However, at least at the beginning, this means that the initiating organisation has some centralised influence over the network. Nonetheless, it is in the core interest of the *eCredits Blockchain* to decentralise the network as much as possible, in a quick manner, in order to mitigate a potential single-point-of-failure, stabilise the network and solidify users' trust in the *eCredits Blockchain* and the *eCredits Ecosystem*.

In summary, the *PoA* mechanism has proven to be an excellent way of launching the *eCredits Blockchain*, ensuring its stability, allowing for higher transaction speeds and preventing malicious 51% attacks. This fosters the ecosystem's trust in the *eCredits Blockchain* and, ultimately, in the *eCredits Ecosystem*. Furthermore, *PoA* is much more eco-friendly than *Proof-of-Work* since there are no intensive computer calculations needed to achieve consensus between the nodes. Finally, it does not favour the unequal distribution of decision power as in the case of *Proof-of-Stake*, where those with the biggest stake (i.e. wealth) have the greatest power. Nonetheless, such consensus mechanisms are continuously reassessed, and

10.Saleh, Fahad, Blockchain Without Waste: Proof-of-Stake (July 7, 2020). Review of Financial Studies, Volume 34, 2021.

the network may collectively decide to change to a better-suited consensus method at any stage in the future.

4.4 Nodes and Validation

To make the e*Credits Blockchain* secure, its integrity needs to be ensured by different participants, the so-called "node operators". These node operators implement the *PoA* consensus method by verifying transactions and keeping the ledger up to date across the network. The *eCredits Blockchain* recognises two different kinds of nodes: *Validator Nodes* and *Supervalidator Nodes*. This is also important for the governance of the e*Credits Blockchain* and the *eCredits Ecosystem* itself. The different node types function as follows:

Validator Nodes verify the transactions, keep the ledger up to date and vote on the acceptance of new validators. If the majority (>50%) of the *Validator Nodes* vote for acceptance, the new node is accepted and added as a validator. If, for example, there are ten validators and only three of them vote for acceptance, the new node is not accepted, while if 6 of them vote for acceptance, the new node is accepted.

Supervalidator Nodes are high quality nodes, meaning that they operate with high reliance around the clock (24 hours a day, 7 days a week and 365 days a year), with a stable internet connection and powerful hardware. They verify transactions, keep the system up to date and participate in voting.

The *Supervalidator Nodes* form their own voting group. If a new *Validator Node* wants to join the network or if a *Validator Node* wants to become a *Supervalidator Node*, either 50% of *Validator Nodes* or 75% of *Supervalidator Nodes* must accept the vote so that the new *Validator Node* is accepted. This mechanism allows the *Supervalidator Nodes* to accept new validators even if the other *Validator Nodes* do not care about voting. Hence, *Supervalidator Nodes* play an important role in achieving a sufficient level of decentralisation whilst removing the risk of node passivity in such decisions.

The *Supervalidator Nodes* are a group formed at the beginning and exist only as long as needed. If the community decides, sooner or later, that the network is decentralised enough, then the *Supervalidator Nodes* can be completely removed from the system, resulting in a network solely governed by the *Validator Nodes*.

Validator Nodes and *Supervalidator Nodes* earn the same transaction fees for keeping the blockchain secure and up to date.

11.Avgouleas, Emilios, and Aggelos Kiayias. "The Architecture of Decentralised Finance Platforms: A New Open Finance Paradigm." Edinburgh School of Law Research Paper, 2020.

4.5 Building on the eCredits Blockchain

eCredits aims to be a global cryptocurrency that is used by many people across the globe, especially non-technically minded, non-crypto people. This opens up huge potential for lots of other applications in decentralised finance[11] (DEFI), marketplaces, voting, events and ticketing, and charity. Currently, such use cases are already being implemented, but they are still mainly used by people with a technical or cryptocurrency-centric background. Also, the transaction fees necessary to run existing technologies such as *Ethereum* are increasingly expensive, leading to a situation where a single order worth $5 currently triggers a transaction fee of $140. This results in a high amount of unused potential and lost inclusion, as it is simply not economical under these circumstances.

The *eCredits Blockchain*, with its cheap transaction fees and with the power of *Ethereum* technology, is opening up a number of blockchain use cases to a wide new audience, who will soon be ready to join the blockchain revolution. Such use cases include, but are not limited to:

Non-Fungible Tokens

Non-Fungible Tokens (NFTs) are digital representations of goods on the blockchain. Such tokens are unique and identify one piece, like collectibles, stamps, artwork, songs or any other goods that are unique. NFT can be maintained and transferred on the *eCredits Blockchain*, and it is even possible to sell these rare items to others.

Tokenised Equity, Securities

Securities are regulated financial instruments (stocks, commodities, debts, real estate) issued by governments or organisations. A Security Token[12] is a representation of such a security on the blockchain. While it is complicated to transfer stocks from one to another, a transaction on the blockchain is simple and fast. Moreover, profit shares can be distributed more efficiently via the blockchain as these are peer-to-peer transactions and no intermediaries are required.

Tickets

It is also possible to issue entrance tickets for Formula 1 races, concerts and other events on the blockchain. Such tickets cannot be tampered with and can be transferred securely by the owner. Such a solution prevents ticket fraud and protects the buyers of such tickets as well as the event organizer. Even if someone is unable to attend an event, the money for the ticket is not lost as it can be sold globally because potential fraud is prevented by using blockchain technology. eCredits aims to be a legally compliant solution, and every measure or feature that reduces illegal activity is in the interest of the "people's currency".

Charity

There are many charitable organisations that could benefit from a global, decentralised blockchain solution. Just to name a few:

> Plant a tree: Fund trees or seedballs with eCredits to ensure that as little money as possible is

12.Lambert, Thomas, Daniel Liebau, and Peter Roosenboom. "Security token offerings." Small Business Economics: 1-27. 2021.

lost on transaction fees. Perhaps you can even get a digital representation of your tree on the *eCredits Blockchain*. You can therefore use an eco-friendly blockchain solution to help the fight against climate change.

- Protect the whales: Much more interesting than "crypto whales" are the whales in the ocean, which are highly important for our climate. Sponsor a whale and get a certificate on the blockchain, perhaps even an NFT, showing your support for such an important issue.

- Donations: reduce costly (cross border) transaction fees for donations by using eCredits.

Other Token Use Cases

There are many other use cases[13] surrounding tokenisation. The issuance of a stablecoin on the *eCredits Blockchain* and the integration of such a stablecoin could provide price stability where it is needed.

Vouchers in general, but especially meal vouchers, are currently hard to handle. A digital representation would allow everyone to have all their vouchers in the *eWallet App*. It would not be possible to tamper with them and it would create a win-win situation for customers and the providers of such vouchers.

University or course certificates signed by the issuer to prevent fraud.

Certificates, seals or other proof of the nature and origin of goods.

Other Blockchain Use Cases

There are many other use cases, ranging from self-sovereign identity, certificates and intellectual property to crowdfunding.

eCredits chose to base its technology on the *Ethereum* protocol to maximise the number of possible implementations of the different use cases mentioned above. Any use case and Layer-2 technology that has been deployed on *Ethereum* can also be migrated and utilised on the *eCredits Blockchain* as well. Therefore, it is important to understand that eCredits is fully compatible with the *Ethereum* blockchain, and allows for the use and implementation of existing applications and dAPPS (decentralised applications) from the *Ethereum* ecosystem too.

13.Mohanta, Bhabendu Kumar, Soumyashree S. Panda, and Debasish Jena. "An overview of smart contract and use cases in blockchain technology." 2018 9th International Conference on Computing, Communication and Networking Technologies (ICCCNT). IEEE, 2018.

5. eCredits Cryptocurrency (ECS)

At the time of the launch of the *eCredits Ecosystem*, there are two tokens on the *eCredits Blockchain*: The native crypto-currency, *ECS*, which is also used to pay the fees to make transactions ("*Gas*"), and *eActivity* – a token which serves as a reward programme integrated into the *eCredits Blockchain*.

5.1 ECS definition

ECS is the main cryptocurrency (technically called a native token) of the *eCredits Blockchain*. *eCredits Cryptocurrency* has the ticker *ECS*, similar to the way USD and EUR are used as abbreviations for the US-Dollar and the Euro, respectively. As the *eCredits Ecosystem* is based on blockchain technology, *ECS* is a cryptocurrency created on top of the *eCredits Blockchain*. *ECS* is intended to be a cryptocurrency for everyday use. The *eCredits Blockchain* supports fast transactions, making *ECS* particularly attractive for merchants. Furthermore, the *eCredits Blockchain* uses an eco-friendly approach for the verification of transactions (a different consensus algorithm compared to the proof-of-work algorithm used by *Bitcoin*, which is very energy-intensive). To foster accessibility and openness, *ECS* is a free-floating and publicly tradable cryptocurrency. Additionally, *ECS* allows users and businesses to optimise transaction speed and costs while enabling *ECS* transactions with online shops. To achieve its ambitions of becoming "The people's currency", the *ECS* embodies the following core principles:

> The *ECS* is a decentralised, community-run cryptocurrency.

> It must be ensured that in the long term the operation of the *eCredits Blockchain* is not dependent on a centralised body to maintain it.

> *ECS* must be accessible and transferrable without reliance on a central entity.

> The private keys needed to control and manage *ECS* lies in the hands of each user and is their own personal responsibility. No party other than the user has access to the private keys.

5.2 Benefits for merchants

We are living in a time that mainly benefits large corporations, along with their stakeholders and shareholders. As a result, it is quite hard for MSMEs to be competitive. eCredits benefits regional suppliers and service providers, who will be able to save costs on transaction fees as well as administrative expenses. The advantages for merchants at a glance:

> A solution that is simple and highly convenient to use, including tools for maintaining bookkeeping and managing user rights and exchanges, alongside many other features.

> Secure, decentralised cryptocurrency

> Fast transactions without long waiting times, as well as instant access to funds.

> Offers a wide range of marketing opportunities

> Consumers receive *eActivity* rewards for making transactions with *ECS*.

> Increases profits by drastically lowering your transaction fee expenses

> Drastically reduces fees for refunds

> Ensures the privacy and confidentiality of your business account information

5.3 Benefits of ECS for consumers

Some cryptocurrencies out there might suit specific utility purposes, but it is much less realistic to use them for the daily purchases of goods and services. The *eCredits Ecosystem* with *ECS* was born to fill those gaps and provide major advantages for its consumers. The *eCredits Blockchain*, *eWallet App*, and other applications will make transactions more affordable and convenient.

The advantages for consumers at a glance:

- Quick, reliable, and easy solution
- Receive *eActivity* rewards for using and supporting the *eCredits Ecosystem*
- Special offers that are only available within the *eCredits Ecosystem*
- One global currency that consumers can use all around the world
- A secure wallet app that is easy to use
- Ensures the privacy and confidentiality of your sensitive customer data
- Safe and secure infrastructure

5.4 Token structure

Name	eCredits
Symbol	ECS
Technical Base	eCredits Blockchain
Type	Payment Token
Decimal precision	18 for blockchain, 2 on UI
Use Case	Transactions, shopping
Supply	63,000,000,000
Tradeable	Yes, potentially at various third-party cryptocurrency exchanges
Transferable	Yes
Transaction fee (may vary)	**Fees within eWallet:** > 0.1% of eCredits Transaction amount > 0.5% for merchants incoming transactions > minimum 0.01 ECS Gas Price for custom wallets
Distribution	Airdrop, listed on third-party cryptocurrency exchanges

5.5 Transaction fees

For making transactions with *ECS*, transaction fees[14] are charged. The transaction fees are paid by the initiator of the transaction, except in cases where a customer makes a transaction to a merchant, for instance if the customer purchases a shirt at a local shop with *ECS*. The *eWallet App* and the smart contracts on the *eCredits Blockchain* take care of all transaction fees without the need for the cumbersome calculation of *Gas* fees.

For all transactions handled by the *eWallet App*, a minimum limit in the amount of 0.01 *ECS* applies. Transaction fees may be subject to changes in order to keep in line with the scale and demand of the *eCredits Blockchain*.

To protect the *eCredits Blockchain* from malicious users overflowing the network with transactions or draining resources by running smart contracts indefinitely, the *eCredits Blockchain* has established *Gas* fees (as is usual with blockchains). To make it simpler for all users of the *eWallet App*, these *Gas* fees are already included in the transaction fees and do not need to be calculated or paid separately. Other providers, however, may set different fees.

14.Tasatanattakool, Pinyaphat, and Chian Techapanupreeda. "Blockchain: Challenges and applications." 2018 International Conference on Information Networking (ICOIN). IEEE, 2018.

6. ECS token economics

The design of the token economics[16] is essential to how the *eCredits Blockchain* and its cryptocurrency create and maintain value for the intended purpose of becoming "The people's currency". Key elements of token economics in eCredits are how the distribution and allocation of the tokens takes place and what kind of "monetary policy" the *ECS* are governed by.

6.1 Minting process

ECS is supported by the *Decentralised Governance Organisation (DGO)*. One of the potential ways to distribute *ECS* is to sell them through a third-party cryptocurrency exchange, whereby the tokens are not directly offered and sold to potential buyers, but shall be accessible on various third-party cryptocurrency exchanges.

A suitable exchange has already been identified which could act as a partner so as to support the wider distribution of *ECS*. The exchange has a strong focus on a broader population, especially within the EU, and provides technological openness which allows for easy integration. Further information will be given at a later stage.

The *eWallet App* allows users to conveniently buy or sell *ECS* through partnered third-party cryptocurrency exchanges, giving merchants an instant trade functionality and generally making the buy/sell functionality easier to operate.

6.2 Token allocation and distribution

The maximum total supply of *ECS* is limited to 63,000,000,000 units.

A portion of this maximum total supply amounting to two thirds, i.e. 42,000,000,000 units of ECS (66.6% of the total supply), will be locked in the *eActivity Exchange Smart Contract* for further use for the built-in *eActivity* reward system (for further details, please refer to Section 7, eActivity rewards.

6.3 Token economics

ECS is a free-floating, semi-inflationary cryptocurrency on a fully distributed ledger which is operated on a *Proof-of-Authority eCredits Blockchain* at the beginning. To understand token economics, it is helpful to examine these individual parts of the definition:

Free floating: *ECS* is not backed by or linked to any *fiat* currency, commodity or any other underlying assets, and it doesn't impose a mechanism to stabilize a certain value. The price of *ECS* is not influenced, and is therefore driven by the principles of value, supply and demand.

Non-redeemable: *ECS* do not impose a claim in the form of a right to redeem against *fiat* currency, financial instruments, commodities, or any other assets.

Semi-inflationary: All *ECS* were fully minted after the creation of the *eCredits Blockchain*. That means the total supply is limited and guaranteed within the code of the *eCredits Blockchain* itself. The supply can therefore never be increased. However, the circulating supply issued is a fraction of the total supply (as described under section 6.2). Thus, from an economic perspective, *ECS* can be considered semi-inflationary until the circulating supply equals the total supply.

Distributed and decentralised system: The *eCredits Blockchain* is sustained by nodes (*Validator Nodes* and *Supervalidator Nodes*). These processing units, run by independent actors, check transactions for certain criteria and validate those transactions as an essential part of the network's capacity to ensure safe, fast and reliable settlements[16].

15.Buterin, Vitalik and Tarasiewicz, Matthias. Cryptoeconomics and Experiments in Token Sales, RIAT "Future Cryptoeconomics #1", 2018.
16. Yun, Jusik, Yunyeong Goh, and Jong-Moon Chung. "Trust-based shard distribution scheme for fault-tolerant shard blockchain networks." IEEE Access 7 (2019): 135164-135175.

Inflationary aspects: Intended to allow two elements in the eCredits environment:

- Based on economics, inflation increases spending attractiveness, meaning that by increasing the circulating supply of *ECS*, the relative value of *ECS* decreases, making the spending of *ECS* more attractive than holding them as a speculative asset over a longer time. This leads to the strengthening of one of the main selling propositions of using *ECS* for purchases (and not as a means of value storage). In conclusion, marginal inflation is expected and fully intentional by design.

- Inflation increases usage attractiveness. Inflation is partially created by incentivising users to be active and use *ECS* by rewarding their activity with *ACT*.

- *ACT* will be issued to consumers for their active participation on the *eCredits Blockchain*, including inviting new users, participating in votes or joining events. The main driver behind issuing *ACT* will be real world usage, whereby both merchants and consumers receive *eActivity* for actively using the system. The option of a conversion from *ACT* into *ECS* will be handled via a smart contract that holds an *ECS* treasury. In scenarios where it becomes necessary, the community can refill the treasury of the *eActivity Smart Contract* (for instance, in the course of burns or if required due to deflation).

- For any *eActivity* exchanged (e.g. sent to the smart contract by the user), there will be a fixed rate of *ECS* transferred to the user. While this is not minting new *ECS* in the traditional sense, it still introduces further *ECS* units to the circulating supply and therefore has an inflationary effect.

Ongoing sales: While only a limited amount of *ECS* have been generated, the *Decentralised Governance Organisation (DGO)* may hold a treasury of its own.

Deflationary aspects: *ECS* overall has a limited supply, implicating that some events which lead to a decrease in supply lead to deflation. Such events could be the loss of private keys by users and therefore the loss of access to *ECS* funds on a wallet address.

Another possible deflationary mechanism available to the community is that of the *Decentralised Governance Organisation (DGO)*, which is able to "burn" *ECS* from its own supply at its own discretion and as decided by its members[17]. By burning *ECS*, the circulating supply of *ECS* is decreased. The initiation of such burns does not necessarily destroy the *ECS*. Rather, such *ECS* are sent to the *eActivity Exchange Smart Contract,* thus prolonging the time until the contract runs out of *ECS*. By doing this, the "burned" funds are essentially taken off the market and made inaccessible to anyone but the transparent logic of the *eActivity Exchange Smart Contract*.

Gas fees: *Gas* fees are being distributed to *Validator Nodes* and *Supervalidator Nodes* as a reward for confirming transactions and providing additional security to the blockchain. Unlike other blockchain protocols, the transaction fees on the *eCredits Blockchain*

17. Kim, Moon Soo, and Jee Yong Chung. "Sustainable growth and token economy design: The case of steemit." Sustainability 11.1 (2019): 167.

are intended as a percentage value instead of an absolute value. However, this is not implemented on the blockchain protocol itself (i.e. on a technical level) but is rather a suggestion to all providers of wallets. It is important to note that *Validator Nodes* and *Supervalidator Nodes* do not create ("mint") new *ECS*. Hence, this process does not increase the supply of available *ECS* and therefore does not have an inflationary effect; it is rather a redistribution of the transaction fees. The goals of this approach are as follows:

> Introduce a fairer ranking for transactions to be mined

> Generally lowering transaction costs due to the removal of the bidding mechanic of *Gas* fees (usually, in unequal conventional blockchains, faster transactions cost more *Gas*)

> Reducing the impact of and concern over increasing *Gas* fees

These measures are the manifestation of the *eCreditis Blockchain* paradigms, effectively creating a more democratic and equal transaction system for everyone, implementing its vision of *ECS* becoming "The people's currency".

7. eActivity rewards

We believe that active users of the *eWallet App* should be rewarded. Therefore, the *eCredits Ecosystem* has designed the "*eActivity*" programme to reward the active use of the system with "*ACT*" reward tokens. These tokens are automatically added to users' corresponding eWallets upon real world events which trigger the reward with *ACT.* While these tokens are safe and securely stored and therefore can be seen, counted and accumulated, there are options planned which will allow *ACT* to be exchanged or redeemed in the future.

eActivity could be rewarded for activities such as:

- Consumers carrying out transactions to merchants using *ECS*: 1% of *ECS* in *ACT*
- Merchants accepting *ECS* from consumers: 50% of the paid transaction fee in *ACT*
- Spreading the word and encouraging others to join the *eCredits Ecosystem* ("invite bonus"), e.g. when user A invites a new user B, the inviter receives *eActivity* as a reward[18]
- Participating in the *DGO* by becoming a member or voting on future aspects or decisions

The *Decentralised Governance Organisation (DGO)* issues *eActivity* and is furthermore able to launch promotional events and initiatives which are rewarded with *ACT*, for instance, rewards for joining during a limited time period in order to get *ACT* as a starting bonus (e.g. as *ACT* airdrop).

Since *eActivity* is a reward programme, adaptations and changes are expected according to needs and business plans. *DGO* reserves the right to change or terminate the *eActivity* Programme, or any part thereof, at any time without notice and without further obligations to users, including, but not limited to modifications which: (a) govern how *eActivity* bonuses are earned on and after the date of change; or (b) change the value of *eActivity* bonuses.

7.1 ACT Definition

Name	eActivity
Symbol	ACT
Technical Base	Token, similar to an ERC-20 Token, but with some specific modifications
Type	Utility Token
Decimals	18 for blockchain, 2 on UI
Use Case	Reward program, can be exchanged to ECS
Supply	Unlimited – minted when granted
Transferable	No
Tradeable	No, only exchangeable to ECS
Transaction fees	Only for exchanging to ECS – Gas price for execution of exchange smart contract
Distribution	eActivity are minted in an eCredits purchase (in consumer to merchant transactions) or by the DGO

18.Bae, Euro, and Daegon Cho. "Do Token Incentives Work? An Empirical Study in a Ride-Hailing Platform." (2019).

7.2 eActivity exchange Smart Contract

"Loyalty cannot be bought or sold" – *ACT* is not transferable as defined by the purpose and nature of *eActivity*, which is guided by this credo. However, there are plans to allow users to convert *ACT* to *ECS*. This feature will be enabled by a smart contract which will be deployed a few months after the *eCredits Blockchain* successfully establishes a solid foundation. Technically, it will be ensured that *ACT* is transferrable to this smart contract only, which, once enabled, will be able to receive *ACT* and return *ECS*.

This smart contract will be available in the summer of 2022 at the earliest. Once it is enabled, users can send an amount of *ACT* to the smart contract. This amount is limited on a monthly basis and is tied to one of the most important influence factors of an ecosystem: "adoption: the growth of the system".
When the system grows, more *ACT* can be exchanged – the implemented paradigm of participation in success.

Approximately every 30 days, each user will be allowed to exchange 5% of their eActivity balance, plus an additional amount of up to 10% depending on the growth of minted eActivity in the eCredits Ecosystem. Thus, the maximum exchange can amount to 15% of the user's balance per month.

The *eActivity Exchange Smart Contract* will operate as long as the appropriate *ECS* counterparts are available in the contract.

Calculation Details

Roughly every 30 days (technically speaking every 518,400 blocks), wallets holding *ACT* on the *eCredits Blockchain* may trigger the smart contract to exchange an amount up to the calculated maximum of *ACT* for *ECS*. Technically, when the smart contract receives *ACT,* it will return *ECS* at an exchange-rate soon to be announced.

Let's assume this example; the maximum amount this month is 120 *ACT*, but you send 130 *ACT* to the smart contract: 120 *ACT* will be converted to *ECS* and returned, while the excess of 10 *ACT* will not be converted. In the case of an exchange rate of 1:1 this results in 120 *ECS* and 10 *ACT* in the user's wallet.

The maximum exchangeable amount per 518,400 blocks consists of the following parameters:

- **Base Rate:** 5% – percentage value of the address' *ACT* balance.
- **Variable Rate:** 10% – percentage value of the address' *ACT* balance, depending on the growth of the ecosystem.
- **Rounding up** to trim values after the comma (for example, 41.1 will be 42).

Therefore, the minimum amount of *ACT* that can be exchanged monthly per address is 5%, the maximum is 15%.

Variability depends on the impact factor, the growth of the ecosystem, which is measured by the total amount of minted *ACT*.

To elaborate on this, the maximum exchange amount is calculated as follows:

$$E(a) = \left\lceil a * (0.05 + 0.1 * min(\frac{A_t}{A_{t-1}} - 1, 1)) \right\rceil$$

Maximum Exchange Amount = Ceiling(eActivity Balance of user * (Base Rate + 0.1 * Min((Total Minted eActivity (this cycle) / Total Minted eActivity (last cycle)) - 1, 1)))

This formula can be split into the following elements:

- **Ceiling** (*eActivity* Balance of user * Exchange Rate)
- **Exchange Rate** = Base Rate + Variable Rate
- **Base Rate** = 0.05
- **Variable Rate** = 0.1 * Min(Growth, 1)
- **Growth** = (Total Minted *eActivity* (this cycle) / Total Minted *eActivity* (last cycle)) - 1

eActivity exchange into *ECS* can be triggered by any user by calling upon the exchange smart contract. The calculation of the growth of the *eCredits Ecosystem* is triggered by the first call upon the smart contract within this period (30 days or every 518,400 blocks). The growth is calculated based on the issuance of new *ACT* tokens during this first call in the current cycle compared to the equivalent call in the previous cycle.

8. Decentralised Governance

8.1 Definition

Cultivating and fostering governance, participation and further development of a blockchain project is key for its successful and widespread implementation, both now and in the future[19]. Major decentralised projects are using independent bodies to help drive the project forward inclusively and sustainably, for example, the Swiss foundations for *Tezos* or *Cardano*.

The *eCredits Ecosystem* aims to improve this open approach and set up an independent organisation that helps to support the continuous development of the *eCredits Blockchain* and foster the adoption of *ECS* while being managed by its community. This organisation – known as the "*Decentralised Governance Organisation*" in this whitepaper, *DGO* for easier reference – is independent, ensuring transparency and inclusion, and allowing for community participation in its governance and decisions.

The structure of the *DGO* and its legal form and governance will be further outlined in a separate mission paper (issued by the *DGO* itself) in late 2021.

8.2 Goals of the decentralised structure

The goals of this decentralised approach to managing the *eCredits Ecosystem* are:

> to increase the participation of users and other participants in the *eCredits Ecosystem*.

> to increase the diversity of participants in the *eCredits Ecosystem*.

> to increase efficiency in decision making.

> to align fair incentives for all participants of the *eCredits Ecosystem*.

19.Reijers, Wessel, Fiachra O'Brolcháin, and Paul Haynes. "Governance in blockchain technologies & social contract theories." Ledger 1 (2016): 134-151.

9. Core Values and Dedication

Decentralised Governance in eCredits is guided by a set of values deemed relevant in building local and regional economies. They are the pillars of success which can put MSMEs on an equal footing with global multinationals. Therefore, these values are not only embedded in our actions, but also at the technical and structural level.

9.1 Fairness

This is about the balance of interests between merchants and consumers, as well as the loyalty that is established through fair conduct. In international trade, there are few common interests between consumers, producers, and merchants. Products are often offered in the lowest possible quality at the highest possible price.

This is at the expense of domestic jobs and regional value creation, and has disastrous effects on the environment, creating a culture of low product appreciation and short half-life. This is unfair to everyone who cares about quality, sustainability or relationships.

Fairness[20] can be implied by a system that provides opportunities for local suppliers to reward their customers, allowing them to earn discounts and bonuses through repeated purchases (true loyalty), or ultimately, a system that helps quality businesses to grow through participation and support.

9.2 Liberation of wealth

The key point of liberation is to connect local businesses on a whole new, more intense, direct level with their customers, driven by the consciousness of consumers in regard to how important they are in terms of sustainability and contribution towards local communities, e.g. in terms of paying taxes locally, job creation, innovation and their personal future.

Ultimately, it all comes down to "enabling" and empowering people, providing an ecosystem, a decentralised wallet, with value-added services. Shopping locally with a loyalty mechanism included serves both the merchant as well as the consumer. The consumer, on one hand, supports the local business to grow and is incentivised to increase spending with their local businesses. The merchant, on the other hand, is able to leverage cost-effective and seamless blockchain transactions whilst at the same time increasing customer loyalty.

While this incentivisation will appear to function like a normal reward system at first, over time it will create a whole new experience and emotional wealth, transitioning to a completely new kind of loyalty system; an eco-loyalty system driven by real experiences, real merchants, real relationships and real support from a locally established community as well as through close business relationships.

9.3 Competitiveness

MSMEs lose out when competing with large international companies, even though their products and services are often of higher quality. This has little to do with the products and much more to do with the marketing capabilities and packaging skills of globalised industrial production. Marketplaces like Etsy have shown that this can be different. The *eCredits Ecosystem* is designed to be based around this situational awareness to provide a solution to tackle this inequality, to provide a tool to those who strive for support, and to enable a community to leverage the power that lies within themselves as a group.

20.Liu, Jian, et al. "Toward fairness of cryptocurrency payments." IEEE Security & Privacy 16.3 (2018): 81-89.

There is an old merchant's saying that goes, "Nothing into the packaging, everything into the chocolate". This testifies an attitude that is rare today. It is not true that quality always has to be expensive. If one calculates the true price of industrial packaging and standardisation, it becomes obvious that it often exceeds the cost of the actual product.

The *eCredits Ecosystem* enables MSMEs to access the market at the level of the big players. In the *eWallet App*, merchants have the possibility to advertise in real-time, make offers and respond to customers based on location and need. "Everything into the chocolate" has a future again with the *eCredits Ecosystem*, and the reward system embedded in it will make it attractive for customers to buy again.

9.4 Egalitarianism and Continuity

The *eCredits Ecosystem* is supporting the diversity of life and thus will incorporate social values like equality into its core, code, and functionality. The *eCredits Ecosystem* is based on and driven by blockchain technology which, by nature, is decentralised and secure[21]. More and more nodes and network participants around the world will participate and continue to build out the stable set-up and distribution.

9.5 Sustainability

When a leaf falls off a tree, it does not become waste but nourishment for the ecosystem!

Today, industrialisation continues in the less well-developed areas of the world. Society has gradually become aware that there are many environmental impacts, but also that we have the ability to take the appropriate actions to ensure a safer and better world for all of us!

The *eCredits Ecosystem* aims at taking a small but firm step towards a more circular system. The goal is to ultimately reconnect people. By once again bringing local suppliers and service providers together with consumers, the environmental impact of goods and services can be reduced.

This may also increase the level of quality as personal relationships potentially lead to more tailored products and services, and eventually, to less pollution. One good example is so-called Fast Fashion, in which the intention is to get the newest trends quickly to consumers. In reality, it just makes consumers buy more often and wear clothes for a shorter period, creating unnecessary waste and resulting in short-lived products.

21.Zhang, Rui, Rui Xue, and Ling Liu. "Security and privacy on blockchain." ACM Computing Surveys (CSUR) 52.3 (2019): 1-34.

10. DGO Commercial objectives

10.1 Business model

In order to fulfil its purpose of establishing and supporting the *eCredits Ecosystem*, the *DGO* needs sufficient and sustainable financial resources – in other words, it needs a valid business model to sustain its existence. The required income is generated with a subscription model as introduced above. Furthermore, another income stream is the transaction fees. Lastly, as the *DGO* is running nodes, it will earn fees for validating transactions in the network like any other node operator.

10.2 Subscriptions

The core functions of the *eCredits Blockchain* are free for everyone to use, including the cashback function, the *eWallet App*, and the basic functions of the Web Portal. However, the use of certain functions and applications is subject to a subscription fee which will be announced on the eCredits website by developers or organisations that offer such applications or services.

10.3 Competitive analysis

At the beginning of our current millennium, the first mobile payment concepts were created and implemented[22] - the digitalisation of means of payment took its course and reached the next stage of evolution with cryptocurrencies shaping a new landscape of implementation, access and user behaviour.

Substantial investment has been made in the development of mobile banking apps and the expansion of mobile payment solutions, with the aim of allowing their debit cards to be used with Google Pay, Apple Pay or similar solutions. Alternatively, some offer self-developed mobile payment applications. Newly established financial service providers, called "neo banks" or "challenger banks", are entering the market with mobile-first strategies to compete with traditional retail banks, while the adoption of cryptocurrencies is steadily increasing worldwide. Even major players have recognised the "Zeitgeist" and are offering more options accordingly.

eCredits as an ecosystem is a suite of mobile applications with its own cryptocurrency, powered on blockchain technology. In this sense, while it is obvious that those legacy debit-crypto hybrid cards could be seen as direct competition, they lack most of the community and reward aspects and fail to offer the element of decentralised governance. Crypto wallet apps alone lack the necessary features to serve the requirements of merchants in terms of an acceptance solution. Similarly, crypto exchanges, which could also be considered competition as they are used by a lot of people to hold and transfer crypto, are not practical from a use case perspective, especially regarding in-store purchases. eCredits, on the other hand, is dedicated to speed and usability, and tailored to real life use cases.

The evolution of mobile payment

Mobile payment refers to both payment transactions and money transfers using mobile devices such as smartphones, tablets, or smartwatches. In simple terms, mobile payment allows cardholders to use a

22.Varshney, Upkar. "Mobile payments." Computer 35.12 (2002): 120-121.

"digitalised" version of a plastic payment card and make it available on a corresponding app on a mobile device. Some of the most common mobile payment options are Apple Pay, Samsung Pay and Google Pay. A study by PricewaterhouseCoopers (PwC), conducted in Germany, Austria, Switzerland, the Netherlands, Belgium and Turkey, discovered that survey participants in all countries state that they intend to use more mobile payments in the future. [1]

Crypto ecosystems

There are several projects in the pipeline around the world that are building crypto and blockchain-based ecosystems. Most of them want to use a cryptocurrency specifically defined for this purpose. These projects primarily seek to provide global, secure, fast and low-cost transactions, with loyalty programmes and other features like in app marketplaces, and multi-currency wallets. In contrast to crypto debit cards, which benefit from an existing network of points of acceptance, the rollout and acquisition of points of sales are based on strong partnerships with retailers and online stores.

10.4 Trends and influence factors

We live in a rapidly evolving world and there are always new trends that affect eCredits. Some of the current developments are highlighted in this section.

Impact of the Covid-19 Pandemic

The COVID-19 crisis has had a major impact on social action in everyday life, and especially on payments[23]. In addition, contactless card payments have increased at an above-average rate and are viewed more positively across all generations. [2]

Furthermore, McKinsey, a consultancy firm, has come to the conclusion that COVID-19 will likely lead to a further decline in cash usage. [3]

As MSMEs recover from the pandemic, they need payment services that are fast, flexible and secure – and that fit the digital economy. [4]

Effect on the *eCredits Ecosystem*: This development favours the use of contactless payment methods, especially mobile payment, which has a positive effect on *ECS* as a cryptocurrency that is also used for daily purchases. Moreover, *the eCredits Blockchain* offers fast, secure and flexible transactions.

QR Code-based payments

According to a study by Capgemini, a consultancy firm, QR code-based payments will be a significant catalyst for the next growth of non-cash payments. Countries around the world are adopting QR code-based payments, which are cost-effective and provide ease of implementation. Payment players are eyeing up significant opportunities in the alternative payments space as consumers

1.Source: PwC study on mobile payment 2019
2.Source: www.visa.de/uber-visa/newsroom/press-releases.3024289.html
3.Source: www.mckinsey.com/~/media/mckinsey/industries/financial%20services/our%20insights/accelerating%20winds%20of%20change%20in%20global%20payments/2020-mckinsey-global-payments-report-vf.pdf
4.Source: www.paymentscardsandmobile.com/research/solving-payment-services-for-smes
23.Mou, Jinjin. "Research on the Impact of COVID19 on Global Economy." IOP Conference Series: Earth and Environmental Science. Vol. 546. No. 3. IOP Publishing, 2020.

seek speed, convenience and superior customer experience. [5]

Nick Maynard, Lead Analyst at Juniper Research explained, "QR payments will gain popularity as they are fundamentally suited to use in emerging economies. Its low infrastructure requirements make QR the best fit for digitalising previously cash-based economies, making QR approaches vital to established financial players seeking new markets". [6]

It is expected that we will see QR code-based payments integrated into even more digital commerce channels to support current omnichannel experiences and new ones as they evolve.

Effect on the *eCredits Ecosystem*: the *eWallet App* is a QR code-based system that is very flexible and can be used for many purposes. Merchants benefit from quick and uncomplicated use at the point of sale, while users benefit from the simple handling.

Super apps

The so-called "super apps" integrate social, financial, utility services, and entertainment functions. Several financial service firms have recognised the power of mobile or digital wallets as a way to leverage customer proximity, and they are developing super apps to build ecosystems. A platform-based business model is an underlying key for super app success. This model weaves around a core product, a scalable supply-side economy, and strong partnerships to fortify the ecosystem. Several use cases, ranging from merchant payments, customer engagement and personalisation, to lifestyle shopping, digital access to loyalty schemes and financial guidance, will make super apps a vital element. [7]

KPMG, a consultancy firm, points out that there are reasons why the financial industry should take heed of these developments very closely. Super app providers are building their brand reputations in financial services. Offering payment services within the app may seem fairly innocuous at first; a marketplace without a payment mechanism may be doomed from the start. Currently, the vast majority of these payments are flowing through traditional banking and card issuer infrastructure. However, most of the bigger super apps now also have strong relationships with banking arms (WeChat has WePay for payments and WeBank for banking products; Alibaba has AliPay and Ant Financial) who are using the super app's brand reputation and reach to access new customers and build trust in financial services. [8]

Effect on eCredits: The goal of eCredits is to become the "people's currency" and with that, create an easy and convenient cryptocurrency with intuitive and well-integrated utilities – an approach that corresponds exactly to the fundamental idea of the super apps. The goal is that users have access to all the services of the *eCredits Ecosystem* via a single app, without media disruptions, and in a secure, simple and easy manner.

Extinction of plastic cards

Deutsche Bank Research believes that cash will stay, and the coming decade will see digital payments

5 Source: Capgemini, Payments Top Trends 2021
6 Source: www.juniperresearch.com/press/digital-commerce-transactions-to-exceed-1-trillion
7 Source: Capgemini, Payments Top Trends 2021
8 Source: assets.kpmg/content/dam/kpmg/xx/pdf/2019/06/super-app-or-super-disruption.pdf

grow at lightning speed, which will in turn lead to plastic cards becoming extinct[24]. Over the next five years, Deutsche Bank Research expects mobile payments to comprise two-fifths of in-store purchases in the US, four times the current level. Similar growth is expected in other developed countries, however, different countries will see different levels of shrinkage in cash and plastic cards. In emerging markets, this effect could arise even sooner. Many customers in these countries are transitioning directly from cash to mobile payments without ever owning a plastic card. [9]

Effect on eCredits: In contrast to many payment providers, which are currently taking a hybrid approach, namely a mobile app and a physical card, eCredits is focusing on the digital only strategy from the very beginning. This avoids expensive card production and helps to combat plastic waste effectively, while also shortening the time from onboarding to delivery.

10.5 Go-to-market strategy

The distribution of eCredits is planned in two phases.

- **Phase 1:** In this phase, the ecosystem should grow, and users should join the system. Users can earn *eActivity* by using the system and spreading the word, but it is not yet possible to transfer or exchange *eActivity*. In this phase, *eActivity* will also be issued, e.g. for inviting other people.

- **Phase 2:** should start as soon as the system is stable enough due to the size of the whole ecosystem. *eActivity* may be used to decide when phase 2 will start, as *eActivity* represents the growth of the system (more merchants means more shopping, means more *eActivity* rewarded) and is therefore a good indicator for the transition.

9.Source: www.dbresearch.com/PROD/RPS_EN-PROD/PROD0000000000504353/The_Future_of_Payments_-_Part_I__Cash%3A_the_Dinosau.PDF
24.Angel, James J., and Douglas McCabe. "The ethics of payments: Paper, plastic, or Bitcoin?." Journal of Business Ethics 132.3 (2015): 603-611.

11. Legality and Compliance

Cryptocurrencies, in general, are subject to an ever changing legal and regulatory framework[25]. To ensure full and ongoing compliance with all applicable requirements, the *eCredits Ecosystem* has been conducting assessments and monitoring the regulatory environment closely. This section provides some background into the respective key elements regarding the *eCredits Ecosystem* and *ECS*.

11.1 Regulatory implications

The *eCredits Blockchain* has been structured in such a way that, to the best understanding of current legislation, (1) it does not trigger any regulatory requirements; and (2) acceptance of *ECS* from users as a substitute currency for transactions themselves is not an activity subject to authorisation, while such assessment shall not be construed as a guarantee of any kind thereof. *ECS* is not backed by or linked to any underlying asset, currency, financial instrument or other unit of value, and has no value stabilisation mechanisms. Therefore, *ECS* tokens are not provided with a claim in the form of a right to redeem against *fiat* currencies, financial instruments, commodities or assets.

Furthermore, *ECS* tokens do not entail any promise or right to a share in any future company earnings, participation in capital, voting rights, principal or interests, future capital flows or passive income. Additionally, *ECS* do not entitle token holders to acquire or sell any securities, nor do they entitle them to a cash settlement, as provided under Art. 4(1)(44)(c) MiFID II. The latter also means that *ECS* tokens cannot constitute a derivative (such as stock options or futures). As derived from this reasoning, *ECS* tokens do not confer rights comparable to transferable securities, thus they do not meet the substantive financial instrument or transferable securities qualification. Since *ECS* is a free-floating cryptocurrency, not backed by or linked to any asset and without imposing any redemption right, it does not represent a unit of collective investment undertaking either. There is no central institution responsible for *ECS* such as a central bank or any other similar organisation, so there is no institution that supervises them or issues the units. Cryptography is used to secure the *ECS* tokens while decentralised networks are used to manage them.

Thus, *ECS* tokens should not qualify as a so-called "security token", which is a token that has the characteristics of a security or financial instrument, and it should not qualify as so-called "stablecoin", which is a token that has implemented price stabilisation mechanisms by linking their value to one or several *fiat* currencies or other assets or instruments.

While it does grant some utility, the majority of its characteristics do point towards *ECS* tokens being categorised as a substitute payment token, which is neither a "stablecoin" or an "e-money token" as defined under the Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Markets in crypto-assets, and the amending Directive (EU) 2019/1937. It can be accepted by natural or legal persons as a means of exchange and can be transferred, stored and traded electronically.

To the best of one's knowledge and due care, the results of the legal assessments conducted point towards the reasonable conclusion that the payment tokens, up until this point in development, have not triggered any regulatory, registration or licensing requirements, and in particular, the use of ECS for substitute transactions itself is not an activity subject to authorisation.

25.Chokor, Ahmad, and Elise Alfieri. "Long and short-term Impacts of Regulation in the Cryptocurrency Market." The Quarterly Review of Economics and Finance (2021).

Due to the legal uncertainty surrounding blockchain technology in different jurisdictions, there is, however, a risk that in some jurisdictions, crypto-assets, such as cryptocurrencies, might be (currently or in the future) prohibited, considered as a security or a financial instrument, or limited in some other way. The *DGO* gives no warranties or guarantees regarding the legal nature and legal classification or legal assessment of *ECS*, *ACT*, *eCredits Blockchain*, *eCredits Ecosystem* or *DGO* operation. All users shall bear their own legal and financial consequences in the event that:

> *ECS* or *ACT* are prohibited or considered as a security, a financial instrument or a payment instrument, or is limited in any way in their respective jurisdiction.

> the *eCredits Ecosystem* is prohibited or considered as a regulated activity, is subject to authorisation or is limited in any way as a service in their respective jurisdiction.

Due to increased legal uncertainty in different jurisdictions, every user is advised to monitor whether possession or disposal of crypto-assets, including *ECS* or *ACT*, is legal in their jurisdiction. Prior to using *ECS*, *ACT*, or any *eCredits Ecosystem* features, it is recommended that users clarify whether in their respective jurisdiction the intended use is legal and not restricted in any way.

Furthermore, every user is advised to monitor in their jurisdiction the tax treatment of purchase, sale, disposal or other transactions involving any crypto-assets, including ECS or ACT. Prior to using ECS, ACT, or any eCredits Ecosystem features, it is recommended that users clarify whether in their respective jurisdiction the intended use is legal and not restricted in any way, and that users are aware of possible tax consequences of transactions arising from such use. Possession of eCredtis, transactions of eCredits and services related to the utilization of eCredits can also be subject to certain requirements, limitations or additional restrictions imposed by law to perform identification of Users for the purposes of identity verification and detection of money laundering, terrorist financing, fraud, or any other financial crime.

ECS, ACT, eCredits Ecosystem, DGO operation and services related to the utilisation of eCredits with corresponding content of this website are specifically not directed at persons, who have the nationality and/or residency and/or registered offices in a jurisdiction, where the possession of eCredits, ACT, transactions of eCredits and services related to the utilization of eCredits might be restricted and/or forbidden or subject to any prior regulatory authorisations. It is in the primary and sole responsibility of each interested party to inquire whether such restrictions are applicable based on their nationality and/or residency and/or registered office prior the potential use of the eCredits Ecosystem or ECS. If you use eCredits, ACT, conduct transactions of eCredits and use any of services related to the utilization of eCredits, you do so at your own risk and are responsible for compliance with the laws of your jurisdiction.

Please also consider the legal disclaimer at the end of this document.

11.2 Measures to mitigate illicit activity

AML regulations aim to combat illicit activities such as money laundering from criminal activities or for the financing of terrorism. Such regulations require, in particular, that financial intermediaries conduct background checks and verify the origin of assets. Possession and use of *ECS*, *ACT, ECS* transactions, and services related to the use of *ECS* or *ACT* can be subject to certain requirements, limitations or additional measures imposed by law for the purposes of identity verification and detection of money laundering, terrorist financing, fraud, or any other financial crime. Different entities within a (geographical or operational) sector may pose a higher or lower risk depending on a variety of factors, including products, services, customers, geography, business models and the strength of the entity's compliance programme. Consequently, access to and use of *ECS* may be dependent on the third-party service integration of the *eCredits Blockchain* into their systems and their services, whereby such integration and the utilisation of *ECS* and the *eCredits Blockchain* can be subject to different requirements and limitations of use imposed by third-party service providers or by different regulatory standards and restrictions.

Such restrictions and limitations can, for instance, be applicable for third-party cryptocurrency exchanges that enable users to buy or sell *ECS*, as they act as gatekeepers to the markets in crypto-assets, including *ECS*. Such cryptocurrency exchanges (and other similar third-party service providers) are usually responsible for complying with applicable *AML* regulations.

As such, cryptocurrency exchanges or similar third-party service providers might reject or cease to provide any use or integration of *ECS*, *ACT* or other *eCredits Blockchain* features due to specific restrictions imposed by the *AML* regulations.

11.3 Responsibilities of the User

The *eWallet App* (mobile application) represents a non-custodial wallet for cryptocurrencies on the *eCredits Blockchain*, which means **that the DGO neither stores or has access to user's private keys, passwords or any assets stored on the eWallet App. The DGO does not send or receive assets and cannot access a user's private keys or passwords.** Any *ECS* transaction that occurs on the decentralised *eCredits Blockchain* is not controlled by the *DGO*.

NO RETRIEVAL. *eWallet App* and the associated private key is personal to a user and a user may not share his credentials with anyone. *eWallet App* users are entirely and solely responsible for any and all activity connected to the use of the *eWallet App* and/or their private key.

THE ONLY EXISTING BACKUP IS WITH EACH INDIVIDUAL USER. The *DGO* does not have access to or store passwords, private keys, recovery phrases, passphrases, transaction history, pins, or any other credentials associated with a user's use of any services within the *eCredits Ecosystem*. The *DGO* is not in a position to help you retrieve a user's credentials.

Users are solely responsible for remembering, storing, and keeping their credentials in a secure location. Any third party with knowledge of one or more of a user's recovery phrases or their PIN/password can gain control of the user's private keys, and subsequently their assets (*ECS*, *ACT*), on the *eWallet App*.

11.4 Risks

The user acknowledges that certain risks pertain to the use of services within the *eCredits Ecosystem*, blockchain technology in general, crypto-asset protocols and related technologies. When using services within the *eCredits Ecosystem*, users should closely consider the risks outlined in this whitepaper and other risks not specified herein.

High price volatility

The price of cryptocurrencies, including *ECS*, might be subject to significant price fluctuations over short periods of time on a regular basis (high volatility).

Low market liquidity

The market liquidity of cryptocurrencies can be low and may negatively impact the possibility to sell cryptocurrencies, including *ECS*. The *ECS* may not be liquid.

Insufficient interest

The *eCredits Ecosystem* might not be successful and might be dissolved due to a lack of interest and/or support from its users or the public.

Losing access or hacked accounts

Forgetting your private key, or otherwise losing access to *ECS* funds, might result in a permanent loss of the entire balance of *ECS*, *ACT* or other crypto-assets accessible on the *eWallet App* or other technically appropriate wallets. Users are responsible for securing their private key and restricting access to their *eWallet App* or other wallets as appropriate. Accounts could also be hacked by malicious parties to gain access to the balance.

Regulatory actions

Cryptocurrencies in general have been the subject of regulatory scrutiny by various regulatory bodies around the globe. The *eCredits Ecosystem* or the use of *ECS* could be affected by regulatory inquiries or regulatory actions, which could adversely impact the *eCredits Blockchain* network or the use and utilisation of *ECS*. The use of services within the *eCredits Ecosystem* may require authorisation(s) in some jurisdictions to be used as such, in which case *DGO* gives no warranties or guarantees regarding the legal compliance of the operation of any services accessible within the *eCredits Ecosystem*. **Each user should independently and of their own accord make sure the use of ECS is legally permitted within their jurisdiction.**

Bugs and security issues

The *eCredits Blockchain* or respective applications could be subject to unknown bugs or security weaknesses adversely impacting the *eCredits Ecosystem* network or the use of *ECS* or *ACT*. The *DGO* assumes no responsibility for, and makes no guarantees with respect to, the accuracy of any part of the *eCredits Ecosystem* software. The *DGO* makes no guarantees or warranties that the *eCredits Ecosystem* source

code, software and software updates are free of errors.

Transferability

ECS may not always be transferable due to, for instance, technical matters or legal restrictions.

Non-performance

ECS and *ACT* may not be usable or exchangeable against the goods or services indicated in this document, especially in the case of failure or discontinuation of the *eCredits Ecosystem* project. The *DGO* assumes no responsibility for and makes no guarantees with respect to the effective, continuous operation or error-free functioning of any part of the *eCredits Ecosystem* software.

Taxes

Possession and trading in crypto-assets, including *ECS* may be or become subject to tax and/or any other duty, for example, due to changes in legislation or a user's personal circumstances. The *DGO* does not offer tax advice and if any taxes apply for using the *eCredits Ecosystem* services, *ECS* or *ACT,* it is the user's responsibility to report and remit the correct tax to the appropriate tax authority. The *DGO* assumes no responsibility for and makes no guarantees with respect to determining whether taxes apply for the *eCredits Ecosystem* services used or for collecting, reporting, withholding or remitting any taxes arising from the use of *eCredits Ecosystem* features, *ECS*, *ACT* or other associated services accessible therein.

Loss of value

Users acknowledge that when using *ECS* via *eWallet App* or any other *eCredits Blockchain* applications, they assume the risk of financial loss which may be a consequence of the following, amongst others:

- Failure of devices or software, or poor quality of connection;
- Hardware or software failure (user's, *DGO*'s or third-party service if integrated), malfunctions or misuse;
- Improper use of equipment;
- Wrong settings on the interface;
- Delayed updates to the interface;
- Abnormal market conditions;
- Severe security breaches;
- Force majeure events;
- Judicial orders.

Though the *DGO* conducts its operations with due care and skill, it assumes absolutely no liability, legal or otherwise, for capital losses or losses of profit stemming from the factors above, except in the event that it is caused by fraud, intent or gross negligence by the *DGO*.

Operational risks

Operational risks regarding functionality of electronic devices, as well as the *eWallet App* or any third-party service provider's internal system setups, are inher-

ent in every transaction. Disruptions in operational processes such as communications, computers, computer or mobile networks or external events may lead to delays in the execution and settlement of a transaction. Other than in the event of fraud, negligence or dishonesty on the part of the *DGO*, the *DGO* assumes absolutely no liability, legal or otherwise, in relation to operational process failures, including, but not limited to:

- In connection with the use of computer equipment and data, the user bears the following risks, among others, in which case the *DGO* has no liability for any resulting loss;
- Power cut of the equipment on the side of users or the provider, or communication operator (including voice communication);
- Physical damage (or destruction) of the communication channels used to link users with provider (communication operator) or information server;
- Outage (unacceptably low quality) of communication links;
- Setting of the user interface which are wrong or inconsistent with requirements;
- Untimely update of the user interface;
- Use of communication channels, hardware and software, generating the risk of non-receipt of a message (including text messages);
- Malfunction or non-operability of any part of the software or hardware related to the provision of services.

Risks regarding the eCredits Blockchain

Any unexpected or unintended malfunction of these technologies or protocols can cause crypto-assets, including *ECS* and *ACT* or related services to malfunction or function in a different manner. The *DGO* does not guarantee that in those cases, services shall operate without any disturbances, flaws, errors or defects or bugs that may intervene with the full functionality of services. There are also potential risks with unfavourable regulations or government actions in different jurisdictions that could in any way limit the use of the technologies and protocols. The *eCredits Blockchain* source code (or any other blockchain technology) could be updated, amended, altered, or modified from time to time by consensus of the validators. Moreover, other codes and protocols in the blockchain community, used as inputs or intermediaries in *ECS* and *ACT* transactions can be altered. As a result, any update, amendment, alteration, or modification could lead to an unexpected or unintended outcome that adversely affects the services offered, and thus affecting the price/value and overall market performance. Any possible changes in blockchain protocols could adversely impact the operation of the services we provide and could in the worst-case scenario, ruin the sustainability of these services.

Risk of theft, hacking, mining attacks or loss

Hackers or other groups or organisations may attempt to interfere with the wallets, services provided and/or blockchain protocols in any number of ways, including, without limitation, denial of service

attacks, Sybil attacks, spoofing, smurfing, malware attacks, or consensus-based attacks. There are also other risks which could result in theft or loss of assets such as unintentional security weaknesses or bugs on the eWallet, website, platform, third-party services and/ or apps, any advances in cryptography and other technical advances that could interfere with the *eCredits Blockchain* technology, website, services, or assets, or other unexpected risks. Blockchain networks are susceptible to various attacks, including but not limited to double-spend attacks, majority consensus attacks, and race-condition attacks, which could present a risk to assets themselves, the price/ value of assets and overall performance of the markets in which the user is involved. The *DGO* makes no guarantee that the website, apps, wallet, services or crypto-assets will be uninterrupted, free of viruses or other harmful code, timely, secure, or error-free. *eCredits Blockchain* is a public, open-source blockchain, meaning that any third-party can develop applications on or with integrations to the *eCredits Blockchain*, which could result in such third-party applications, developed on the *eCredits Blockchain*, to be malicious or fraudulent, and this could lead to a loss of funds.

Force majeure events

In the event of a Force Majeure Event, the *eCredits Blockchain* may be disrupted and the *DGO* may not be able to implement some or all of the planned *eCredits Ecosystem* integrations as presented in this document. The *DGO* makes no warranties or guarantees with respect to their development, maintenance, enhancement or implementation. Without prejudice towards the limitations of liability of the *DGO*, users acknowledge that the *DGO* is not liable and does not or have any responsibility for any type of losses (including but not limited to loss of profits) or damages arising out of any failure, interruption, or delay in performing its obligations where such failure, interruption or delay is due to a Force Majeure event.

12. Fast Forward Together

With the *DGO*, we are paving the way into a common future where cultivating and fostering the governance, participation and further development of a blockchain project are key for their successful and widespread adoption, now and in the future. eCredits is aimed to enable the community to explore further use cases and to actively reach out to other projects and developers to "create value" implemented on a solid common foundation, where interoperability, scalability and economic sense are the key drivers. We are thankful and wish to express our respect for the participants, developers, drivers and communities which have, are, and will help to shape today´s blockchain society alongside us.

If you are working on projects in the blockchain sector and want to participate in the *DGO*, or if you wish to discuss integrations or deployments of projects and initiatives based on smart contracts, reach out to us on:
www.ecredits.com

13. Disclaimer

Legal restrictions

This document and all information and statements herein are specifically not directed at persons, who have the nationality and/or residency and/or registered offices in a jurisdiction, where the distribution and/or registration of the *eCredits Blockchain* or *ECS* might be restricted and/or forbidden or subject to any prior regulatory authorisations. It is in the primary and sole responsibility of each interested party to inquire whether such restrictions are applicable based on their nationality and/or residency and/or registered office regarding the potential use of the *eCredits Blockchain* or *ECS*.

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No advice

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The *DGO*, its affiliates and its partners give no guarantees as to the value of any of the crypto-assets (including but not limited to *ECS* token) on the possible secondary markets and explicitly give no warranties as to the suitability of the *ECS*s and/or other crypto-assets to anyone and assume no liabilities thereof.

The *DGO*, its affiliates and partners give no warranties to the implementation of the *eCredits Ecosystem* project plan, price or liquidity of the *ECS* token and make no warranties to the suitability of the *ECS* and/or crypto-assets to anyone and assume no liabilities thereof.

The *DGO*, its affiliates an partners, their representatives and employees expressly disclaim all liabilities for any direct or consequential loss or damage of any kind whatsoever arising directly or indirectly from reliance on any information, products or services contained in any materials and documentation in any form, presented herein, including any error, omission or inaccuracy in any such information or any action resulting therefrom, or acquisition or usage of the services accessible within the *eCredits Ecosystem*.

No representation is made regarding the legal, accounting, regulatory, or tax treatment of crypto-assets in any jurisdiction relevant to a interested persons of this presentation.

Use of the *eCredits Ecosystem* features is at sole risk of individual user and the entire risk as to satisfactory quality, performance, accuracy and effort is with individual user. To the maximum extent permitted by applicable law, the *eCredits Ecosystem* and integrated features accessible therein and any associated services performed or provided within the *eCredits Ecosystem* ("services") are provided "as is" and “as available”, and without warranty of any kind, and *DGO*, its partners and its licensors hereby disclaim all warranties and conditions with respect to the *eCredits Ecosystem*, any of its features and any services accessible therein, either express, implied or statutory, including, but not limited to, the implied warranties and/or conditions of merchantability, of satisfactory quality, of fitness for a particular purpose, of accuracy, and non-infringement of third-party rights. The *eCredits Ecosystem* provider does not warrant against any interference with *eCredits Ecosystem* features, that the functions contained in, or services performed or provided by, the *eCredits Ecosystem* features will meet a user’s requirements, that the operation of the *eCredits Ecosystem*, eWallet or other features or services will be uninterrupted or error-free, or that defects in the *eCredits Ecosystem* or services will be corrected or maintained.

Users acknowledge that the *eCredits Ecosystem* and integrated systems may not be free of errors or bugs. Users further acknowledge that events beyond the *DGO*, the *DGO*’s subsidiaries and affiliates reasonable control may affect, limit, or prevent the use or access

to the *eCredits Ecosystem* whether temporarily or permanently.

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