decentr

Your data is value.

Use it to pay less online.

WHITEPAPER

decentr

EXECUTIVE SUMMARY

Data is the new currency. Companies have been trading stolen user data for over a decade now – raw data that actually belongs to the user.

This means the majority of users cannot participate in the emerging data economy (worth USD $1.7TRN annually across G7 countries), because users do not own their own data and hence cannot extract value from it.[1]

As a result, vast amounts of unstructured user data – personal, open and Public Sector Information (PSI) – remain out of reach of individual and business users, siloed away for profit by large companies, far from wider public benefit and social good.

Decentr LLC provides a web browsing experience that gives surfing the internet a payable value. We achieve this by facilitating with our token (DEC) the extraction of economic value from user data into fiat or digital currency.

Data as Payable Value

»   On Decentr, users own their personal data, every keystroke of their mouse and detail of their personal ID, stored securely on each user's DecID.

»   Securely stored, decentralised data has the same "value store" properties as money, making it perfect to pay and trade.

»   Personal Data Value (PDV) is the economic expression of a user's DecID; a personal "exchange rate" between *all* currencies, fiat and digital, that is unique to each user.

»   Users' PDV fluctuates (also like a currency): positive engagement will see a rise in a user's PDV while negative engagement will see a similar fall.

A "True" Data Economy

The current so-called "digital economy" is nothing more than a "digital market", where data is bought and sold to those with the "money"-currency to afford it.

A "true" data economy can only be achieved by ensuring all economic currencies, fiat and digital, are controlled at the level of individual users by means of repurposing data as a personalised exchange rate and corresponding currency.

At this point, user data – itself repurposed as a fungible "currency" – becomes both the means and method of payment and exchange: a true "circular" economy.

This radically-new socioeconomic paradigm modulates the excesses of the mainstream economy and the fractional reserve banking system that supports it by ensuring exchange rates between all currencies, fiat, digital and data, are controlled at the level of every user.

The Decentr Web Browser & Web Browser Add-on

Decentr's web browser and platform is a "portal to Web 3.0/4.0". By creating a bridge between the internet user and applications developed with Distributed Ledger Technology (DLT), individuals can now connect with user-centric Web 3.0 applications. This enables users to increase and pay and trade with their "Personal Data Value" (PDV) while accessing a range of native DeFi features, including dPay and dLoan (our native crypto lending and borrowing feature):

1.   DecID records all online user activity that can only be accessed by individual users (and not third-parties).

2.   User data is 100% decentralised and due to security and permanence has the same (or superior) "value store" properties as "money".

3.   User PDV means that each and every user is their own personal exchange rate between all currencies, fiat, digital *and* data.

4.   PDV fluctuates, in a very similar way to "money"- currencies, depending on the quality of users' online engagement.

5.   The future of our browser is to bridge the gap between the current centralised Web and a 100% decentralised Web 3.0/4.0 in a way that is sustainable for every user.
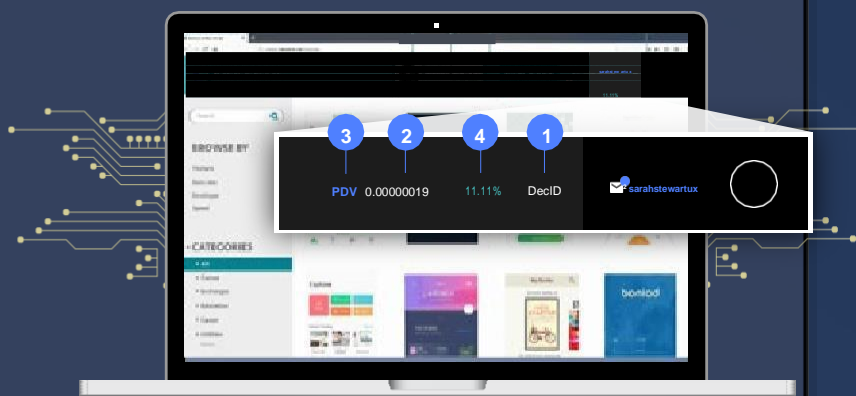
decentr

INNOVATION

Decentr's critical innovation is eliminating the role of "money"-currency (fiat or digital) as an unnecessary and costly third-party medium for online exchanges by:

1. Repurposing data as a near-instant and fee-free medium of economic exchange, reflected in its own corresponding exchange rate (PDV), while;

2. Also delivering a suite of tools as part of our web browser and platform to enable every user to easily and conveniently structure and pay with their private and public data and metadata.

The Decentr web browser and platform is set to achieve this new economy while saving up to 98% on existing energy demands of current digital tokens. This is due to our Web 3.0/4.0 solution being underpinned by Proof-of-Engagement (PoE) that renders obsolete the hugely expensive Proof-of-Work (PoW) "mining" activities of today's digital tokens, while requiring no more energy to run the platform than that consumed by existing devices (and significantly less as our planned energy storage and redistribution solutions come online).

INITIAL SCALABILITY

HOLOCHAIN

BLACK EDGE
CAPITAL

RESEARCH GROUP
BISITE

Ptechnology

Our Team & Advisors

CO-FOUNDERS

Nikita Anikeev,
Co-Founder, CTO

Paul Sluszko,
Co-Founder, COO

Rich James,
Co-founder, CCO

KEY DEVELOPMENT TEAM (BELARUS)

Maksim Ramanousk
Lead Developer

Ivan Kantaef
Senior Developer

Alexei Mayorov
Senior Developer

KEY DEVELOPMENT PARTNERS (SPAIN)

Prof. Juan Manuel Corchado
Software Engineer

Dr. Javier Prieto
Software Engineer

Diego Valdeolmillos Villaverde
Software Engineer

Agustín San Román Guzmán
Research Assistant

MARKETING/COMMUNICATIONS & DISSEMINATION PARTNERS

Lee Hirschmann
Lead Marketing Strategist

Rodolfo Grimani
Communications Consultant

Gianluca Rossi,
R&I Consultant

Lorenzo Impronta
R&I Consultant

Roadmap

'18   **'19**   **'20**

Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021
Decentr incorporated	Completed preliminary research	Completed Decentr backend code	Completed architecture for Web Connector	Completed blockchain integration and testing	Completed architecture of blockchain storage	Complete token sale	Integrate Fintech/DeFi/ data-as-value features	Implement Decentr consensus mechanism	MVP/Medium scale pilot programme

1 - "Digital Realty Publishes Report on Value of Data Economy for G7 Countries" (2019)
https://aithority.com/technology/analytics/digital-realty-publishes-report-on-value-of-data-economy-for-g7-countries/

CONTENTS

1. INTRODUCTION

A "true" data economy is not viable without an Internet of Value (IoV) – one that is controlled at the level of every individual on a "glocal" (global/local) scale.

A "true" IoV requires that economic exchanges are performed at the same near-instant speed as the exchange of information, reducing cost and friction for cross-border transfers.

The fundamental problem as regards an IoV is that no one has yet developed any realistic approach to achieve a viable and sustainable data economy to underpin it.

No one – from start-ups to SMEs and large-scale enterprises, legacy tech companies and governments – has even developed a standardised definition of or approach to a viable data economy – let alone developed standardised technology to deliver on its promise.

Decentr creates an IoV by using data-as-currency instead of money-as-currency as part of the foundations for a sustainable data economy. This will create the technical, contractual, and compliance basis for a global digital single market, controlled at the level of individual users.

As noted by the European Commission and other glocal, state and regional bodies, the world has been slow to embrace the development of a data economy, citing the "lack of trusted and secure platforms and privacy-aware analytics methods for secure sharing of personal data and proprietary/commercial/industrial data" as factors that need urgent address. Decentr comprehensively addresses these factors as part of a radical reappraisal we undertook as to how data is obtained, stored and exchanged online.[2]

This reappraisal was critical in order that we could develop an approach to data reuse and exchange that credits socioeconomic value to data and hence socioeconomic value to the activities of data subjects (users) themselves. This radically-new socioeconomic paradigm favours egalitarian wealth creation for every individual and business, forming the basis of a sustainable, secure and immutable data economy.

Decentr achieves this socioeconomic paradigm by fundamentally redefining the relationship between "data" and "economics": our technology achieves this by radically repurposing data (in "true" IoV fashion) as both the means and method of transacting online, eliminating the slow and expensive impediment of "money"-currency (fiat or digital) for online exchanges. This ensures data never has to be "bought" or "sold" in the traditional sense, freeing up the exchange of data on a voluntary basis. Instead, on Decentr, data itself is reused and exchanged by users (without requiring any change in user's internet patterns or usage) to generate the wealth necessary to acquire/"purchase" more data, as well as other goods and services: a true "circular economy".

As our R&D for Decentr has demonstrated, the only workable approach to creating a "true" data economy is the elimination of the time- and resource-intensive pursuit of a third-party medium of exchange (i.e., "money") to "buy" data. Decentr eliminates this in favour of proactive, socially beneficial data-generation- as-value-creation to support a circular, user-centric economy that favours wealth creation for every user.

---

2   - Digital Single Market - European Commission: "Final results of the European Data Market study measuring the size and trends of the EU data economy - Digital Single Market - European Commission" (2019) https: //ec.europa.eu/digital- single-market/en/news/final-results-european-data-market-study-measuring- size- and-trends-eu-data-economy

2. "GLOCAL" PROBLEM

Trading and Valuing Data: Why the Data Economy Revolution has not Yet Happened

The reason the anticipated data revolution has not yet happened is twofold: data (being mostly in an unrefined and unstructured form) is hard to trade and even harder to value.

Until these two issues are reconciled in the way Decentr proposes – with a view to making data more secure and easier to reuse and exchange – data cannot support the same (or superior) "value store" properties as fiat-money.

As regards comparative "value store" properties, it is critical to understand that fiat is underpinned solely (if loosely) by the strength of the issuing government; fiat is **not** tied to the value of gold or silver or some other precious commodity as many assume: as a result, fiat has **only** *agreed value* but no *intrinsic worth*. Contrast this with Dec, which is underpinned by the secure and immutable generation, exchange and reuse of highly structured and refined data at the level of every individual: as a result, Dec contains **both** intrinsic value *and* worth.

Without data-as-the-new-"value-store" underpinning the intrinsic value and worth of exchanged information and economic value, a true data economy and IoV will continue to remain out of reach.

The potential is evident: the data economy in the EU alone is estimated to have had a value of almost **USD $400BN** in 2016 and is projected to more than double by Q42020, reaching **$939BN**. Globally, it is estimated that better access to data can help unlock at least **$3-5TRN** in global economic value, which represents an increase of **3.7-6.5%** of the Gross World Product (GWP).[3] Yet, despite these predictions, global industry and governments have been slow to embrace the development of a sustainable data economy – underscoring what the true potential might be.

Why the "Data Storage/Sharing Paradox" is Hindering the Explosion of a "True" Data Economy

The problem with the creation of a viable data economy is partly one of definitions: current data exchange platforms, including open (such as social media platforms), open public (such as Gov.uk and similar EU initiatives amongst Member states that comply with Directive 2013/37/EU to make information available for reuse) and paid private/public (such as LexisNexis and Datastreamx) offer little more than datasets for public and commercial reuse: this is not a solution to a "data economy" as they do not address issues of secure and immutable exchange, reuse and distribution.

A digitised service that offers the resale of marketing, statistical and other kinds of data, no matter how comprehensive and well-regulated, does not contain the elements of an "economy" in any real sense (any more than does a "dairy products" economy or an "aerospace components" economy): it is simply another type of B2B/B2C service, misnamed and misunderstood. What needs to be addressed is that the exchanging of datasets – however widespread and accessible – will not lead to a true data economy until Decentr deploys the technology to store data **100% securely**. Moreover, this needs to be addressed in tandem with encouraging the **exchange and reuse** of data by ensuring these enhanced security protocols actually increase user data security in an exponential curve relative to the amount of data exchanged.

We call this overcoming the "data sharing/storage paradox": this paradox refers to the fundamental online data security problem whereby the security of current data storage solutions is directly compromised by current data sharing methods (and vice versa). In other words, the more secure the data storage solution

---

3 - McKinsey & Company: "Open data: Unlocking innovation and performance with liquid information" (2019) https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/open-data-unlocking-innovation-and-performance-with-liquid-information

on current platforms the harder it becomes to integrate data with other applications, whereas the more efficient the data sharing method the harder it is to secure the data being shared while also being harder to secure the ID and other sensitive details of the sharer.

Fundamentally, then, attention needs to be focused on involving users (individuals and industry) and giving them access to data and the technology to overcome this paradox. This will ensure that as IT standardisation faces new challenges as technologies converge and federated systems arise, our integrated Web 3.0/4.0 solution comprehensively addresses them. This needs to be achieved in conjunction with a federated systems approach, which may allow sharing models (uncovered information from data) instead of raw data to benefit data exchange without compromising personal data or other privacy issues. As a result, gaps in interoperability, data storage and sharing and other protocols will continue to be bridged by our solution.

Technical Architecture of Decentr Web 3.0 Portal
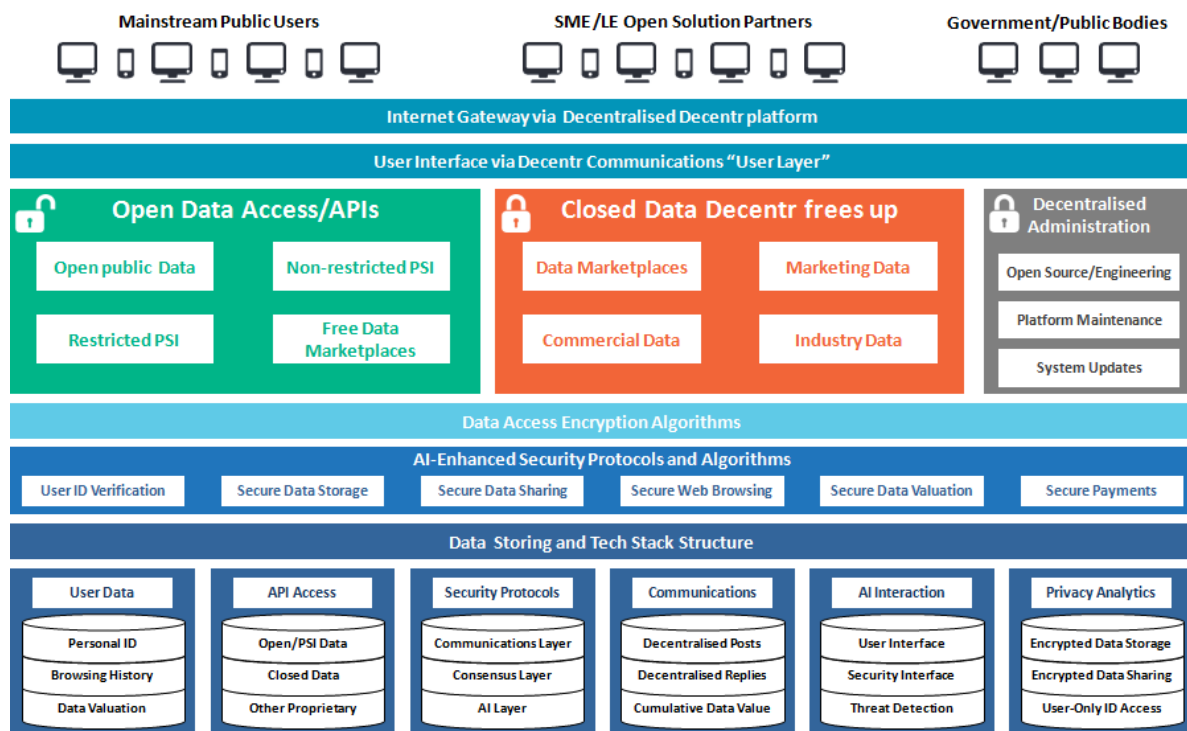
Decentr "Comparative" Data Space Model
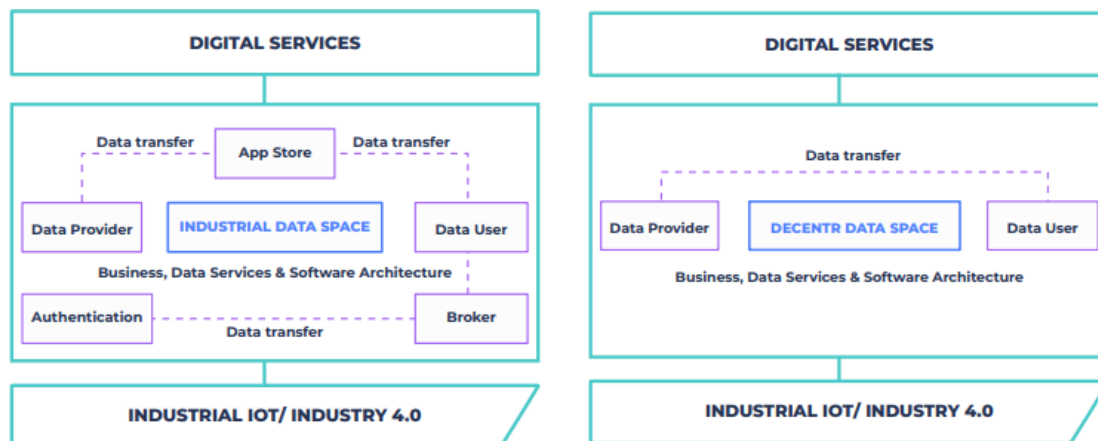
3. THE SOLUTION

Repurpose secure, immutable, decentralised data-as-currency instead of money-as-currency and online payments and trades become near frictionless, instant and fee-free as part of a "true" data economy.

The key to repurposing data-as-currency and creating a sustainable, egalitarian data economy is understanding the limits of current data markets, and exponentially improving on their ability to utilise data for reuse and exchange in a way that benefits in socioeconomic terms every user, **at the level** of the user.

Trading data is currently served by different types of "marketplaces" – in a similar way to shares and currencies that are traded on different types of exchanges. For example, a personal data marketplace, such as Datum, DataWallet and fysical enables individuals to choose who they sell their personal data to and directly receive the proceeds. Whereas a business data marketplace, such as M&STHio, Acxiom and Orb Intelligence allow two companies to buy and sell industry data from each other, including localised product prices, insurance claim statistics or data about recent investments deals in a given industry.

Although different data marketplaces have varied properties, depending on their specific use case, in general the data marketplace paradigm allows for four key value-creation dimensions that Decentr supports:

CROWDSOURCING: By making self-serve data selling a reality, this aspect provides the solution to inaccurate/expensive single-source data.

ALIGNED INCENTIVES: Data owners/collectors directly benefit from keeping data in structured form and making it available to others.

STANDARDISATION: By design, a marketplace defines a common data model and interface for buyers and sellers to exchange data.

FAIRNESS: Instead of having a central authority pricing data, providers can set their own prices, while consumers can choose who they buy from. ("Price setting", in the case of Decentr, being a feature of PDV; i.e., PDV reflects an increase in value when a user releases or exchanges data – and not "buys" or "sells" data *per se*.)

Regardless of the increasing ubiquity of such marketplaces, the uptake of a true data economy has been slow. To understand why Decentr – and not data marketplaces alone – is the missing backbone of a "true" data economy, the three fundamental roadblocks holding back its full potential need to be understood in the context of the above four points:

MOST DATA EXISTS IN UNREFINED (or unstructured) form and it is non-trivial to convert it into structured data – the format needed for use in software.

DATA OWNERS USE INCOMPATIBLE data models to structure their data which is kept in isolated silos, although often sought-after by others.

NO ONE HAS FIGURED OUT HOW to "price" and exchange data efficiently yet. (PDV reflects data as fluctuating "value" rather than "pricing" data per se.)

Decentr comprehensively addresses these seven points by crediting value to all data sharing activities, whether through exchange or reuse, creating a universally compatible data model. This creates the environment for structuring raw, unstructured data through safe, secure and immutable decentralised data storing and exchange protocols engaged in by every user on our platform.

4. A "TRUE" DATA ECONOMY

Realising a "True" Data Economy

Decentr aims to realise the full potential of a "true" data economy by building a secure, open source platform that decentralises current centralised data exchange systems in a similar way blockchain solutions decentralise digital trades, solving the data storage/sharing paradox.
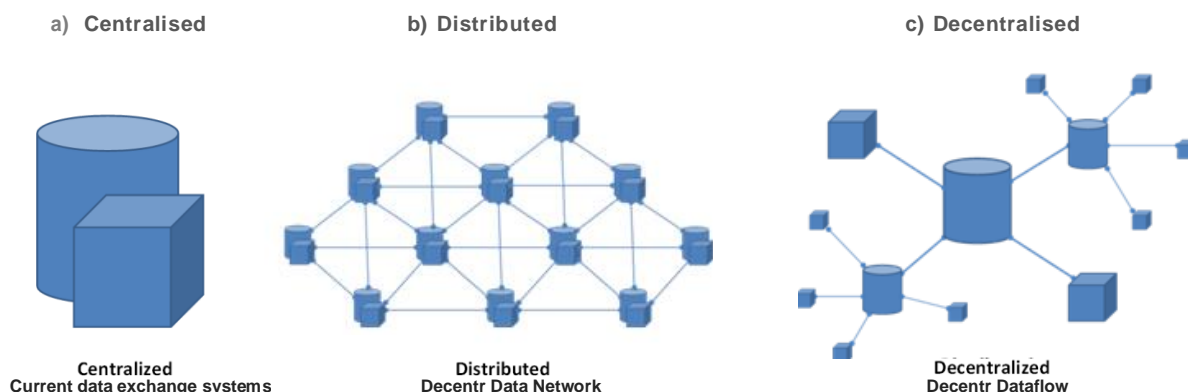
This will allow data to be **securely stored, reused and exchanged** as decentralised and distributed dataflow as part of a true data economy – one that repurposes data as a convenient, secure and fungible "value store".

In order to understand how we achieve this decentralised and distributed dataflow, it is necessary to reappraise the hype surrounding the most common form of dApp – blockchain – and understand its limitations and strengths as applied to data storage and sharing solutions.

The technological paradigm of blockchain was introduced over ten years ago to deliver on the promise of a data economy by creating the framework for a "true" IoV. However, in the intervening decade the various blockchain incarnations developed to deliver on this promise have proven to be **neither technically nor conceptually** up to the task in the way that was hoped.

Decentr takes a radically-new approach to decentralisation. Our platform solves the two primary issues as regards large-scale DLT scalability: 1) mainstream adoption and 2) Transactions Per Second (TPS). As a result, Decentr not only functions as open software on which individuals and industry can build integrated data storage and sharing solutions but also, critically, our technology simultaneously functions as a decentralised "user layer" for blockchain, creating a 100% decentralised Web 3.0/4.0 solution.

This user layer will ensure Decentr is user-centric, secure and safe while actually improving on existing internet usability. In a similar way that Windows and web browsers function as a "user layer" for HTML internet to contextualise and retrieve information resources and display them on a user's device, Decentr is designed to contextualise the data stored on our platform, as well as on Web 2.0, by decentralising its access, reuse and exchange. This will encourage the reuse of open, personal and proprietary data in line with enhanced data security protocols, including industry-leading privacy-aware analytics methods that give control over personal data to individuals.

a) **Centralised** b) **Distributed** c) **Decentralised**

Centralized
Current data exchange systems

Distributed
Decentr Data Network

Decentralized
Decentr Dataflow

This will also simplify compliance with the General Data Protection Regulations (GDPR) (EU) 2016/679 for international business while "establishing trusted networks where data can be transferred, accessed, and used in a secure mode".[4] This will be achieved by overcoming the limitations with existing, non-secure platforms through the integration of our radically-new, decentralised web browser and web browser add-on. By integrating our solution with blockchain, Decentr will be the bridge from Web 2.0 to a sustainable Web 3.0/4.0: in effect, Decentr and the current internet will be complementary facets of our Web 3.0/4.0 solution.

Decentr Web Browser and Platform

Decentr enhances the online browsing experience by providing a convenient "one-stop shop" suite of features and tools, including online transactions (dPay), an immutable and secure, digital ID and wallet (DecID or "dID") and decentralised communications, data sharing and social media services (dNews, dChat, dPost, etc). Individual users engage with each other, businesses and the wider internet by signing up to Decentr to search and browse the web with our web browser, which is similar to "wallet browsers" including MetaMask, Toshi and Cipher in that it allows web browsers, including Chrome and Firefox, to communicate with our platform and other applications, both on Web 2.0 and our decentralised Web 3.0/4.0 solution.

A user's DecID is informed by the information and activity recorded as data and can be used for ease of identification and/or transacting, with all data stored for later retrieval, reuse and exchange in any manner a user chooses.

No single App or dApp, website, platform, interface (or patented technology) offers these combined services with safe, secure and immutable, decentralised internet browsing capability. This decentralised capability is critical due to the primary source of data degradation being the friction created by the hypercentralised control of data that is exercised by the large, incumbent technology and data firms.

Considering that centralised systems account for all online communications and data sharing platforms this means that individuals and industry can currently only access and build centralised data sharing "solutions" – which are actually contributory "problems" as they data-wall in users – with no alternative of any kind (and none in development or even suggested).

Decentr's web browser and platform enhances users' web browsing experience in many significant ways: on Decentr, all user activity – every mouse click and data point – is immutably recorded, and this data is credited with a fluctuating value. This value is arrived at by glocal community consensus, which is based on applied cooperative-game theory, whilst all exchanged data, public, private and open, is distributed in a decentralised manner, also accruing value through exchange and reuse.

Decentralised data sharing exponentially increases the value of this data **while exponentially increasing** data and user security. This is due to Decentr's Multi-Layered Authorisation (MLA) and other security protocols being based on integrated topological protocols that enhance security by masking user details behind interlinked Decentr cloud ("dCloud") network data. In other words, the more a user surfs and generates data, the safer (and hence more valuable) their data becomes (overcoming and actually reversing the data storage/sharing paradox). These cryptographic protocols enable Decentr users to maintain a **100% secure and anonymous** online identity (should they choose) by using an encrypted public key that validates information recorded on a user's private key. Moreover, the sensitive private details protected by the private key are recorded on separate DLT databases, further reducing any weak points in the system that may expose it to malicious actors and activity.

---

4 - CONSIL:Council of the European Union, c (2019) Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data https://publications.europa.eu/en/publication- detail/-/publication/3e485e1 5 -11bd-11e6 - ba9a- 01aa75ed71a1/language-en

They Key to PDV: Applied Cooperative-Game Theory

Cooperative-game theory is the method by which PDV is "credited" an appropriate value by community consensus.

Cooperative-game theory describes the ongoing, qualitative and quantitative "Proof-of-Engagement" (PoE) assessment of transmitted user data among cooperating player (or "user") coalitions.

Cooperative game theory assumes that groups of players (represented on Decentr as "sub-decosystems"), are the primary units of decision-making, and may enforce cooperative behaviour due to democratic consensus across any given coalition.

Consequently, cooperative games can be seen as a competition between coalitions of players, rather than between individual players, all of who function and contribute individually but also as part of the wider "grand" coalition, which is the group consisting of all players.

The basic assumption in cooperative game theory is that the grand coalition will be formed, and overarching ideas, proofs, opinions, shared goals, morals and mores will **continue to evolve** and be updated as a reflection of the grand coalition and its component coalitions – in the same way as societies and there composite community groups evolve similar attributes in real-world society.

One of the main research questions in cooperative game theory is **how to allocate** in some fair way the "payoff" of the grand coalition among the players – and this is where Decentr steps in to shake up the concept with "payoff-as-PDV".

The answer to this question in classical co-operative game theory is related to a solution concept which, putting it simply, is a "vector" that represents the allocation to each player. Different solution concepts based on different notions of fairness have been proposed in the cooperative game theory literature; however, of course, none of these has yet come to a solution based on a 100% decentralised and hence *causal* environment.

As a result, the payoff issue has never really been resolved. (Hence the development of **deconomic theory** to underpin our PDV solution to solve this.)

Decentr's PDV system achieves this "fairness" by assigning a numerical value to the data generated by online engagement (PoE) in a causal system – meaning numerical values assigned to one user are *relative to* all other users across that system.

The decosystem by design is a purely relative, 100% disintermediated environment, and has no central "authority" to assign vector values by third-party intervention. This means that a vector value of increasing value – as expressed by the numeric value of PDV – can affect all other vector values. This is due to the consensually "positive"/beneficial content of data generated, reused or exchanged that allowed this "player" to achieve such a high vector (PDV) value to begin with.

And so it goes on in a sort of digital dance of competing vectors and "player" positions, all adding up to an overall cohesive whole as regards ever-evolving **decosystem-wide** moral and ethical values, etc, as recorded in increasingly refined and structured data (value), and the socioeconomic value they reflect.

The "True" Value of Data

Our collective interdisciplinary R&D has demonstrated that it is **impossible** to fairly and accurately "value" data outside of a **100% decentralised**, causal system that employs cooperative-game theory: this is the fundamental reason why we are building what we are building (and no one else has yet).

By way of analogy, determining the "true" value of electricity encounters the same problems: if we refer to the "market" for electricity then this is shrinking every year as grids and devices become more efficient and prices drop; but the "market value" of electricity does not scratch the surface of the **potential of electricity**: the *true* value of electricity is what it enables us to *do* with it.

Even if we focus on market-value-only to underscore this point, the true value of electricity can still be obscured: in market terms, a user who spends **$400** on electricity is contributing twice the value to that market compared to a user who spends **$200**. But this obscures the broader economic potential (or detriment): for example, if the first user is spending this **$400** worth of electricity on the production of illegal narcotics then the overall "cost" to society in terms of health, policing, legal, etc could be in the negative **$00** thousands. Whereas if the second user is spending **$200** worth of electricity on, say, charitable activities then the opposite outcome could be true.

The point is, in the real world, the above example is not really a calculation that is worth making as there is no real benefit in doing so: this is not the case on Decentr, as our core algorithms perpetually make and apply such calculations to fluctuating PDV as part of our cooperative-game theory algorithms, meaning PDV is a far more accurate and robust "value store" than "money"-currency (fiat or digital).

On Decentr, we view "data" value in a similar way to "electricity" value – the difference is that Decentr can value data **all along** the value chain.

The "Data Value" of "Transactions"

Critically, no "one value" is ever assigned to any given piece of data in an economic "transaction" on Decentr; it all depends on engagement and other factors related to cooperative-game theory (and to a lesser extent market pricing). For example, let's imagine we have a user who spends **$150** on health products and another user who spends **$150** on brand name clothing. It might be assumed that both users would see an equal rise in PDV as both of them have injected the same value into the retail market; however, *critically*, PDV is *not* purely based on **market economics**.

The interplay of socioeconomic and other factors, determined by game theory, might mean that the health products the health-conscious user is buying are linked to several independently verifiable studies promoting the composite nutrients as vital for health, and therefore potentially saving society on expensive public health care further down the line, increasing this user's PDV (in line with overall community consensus), whereas the user with a taste for designer brands might see a less significant rise based only on sales and purchase data, etc.

On Decentr, all this information is interlinked: in each case, on our system, both the **user and the manufacturer** have access to this information. By using our suite of tools and features both parties can then promote their cause to try and improve social perception of the products in question, and hence the PDV of anyone purchasing them (as well as the PDV of the manufacturers producing and distributing them), as part of a "true" circular economy.

The true benefits we offer to companies and advertisers is the access they have to this information: imagine a business being able to view aggregate figures that determine which of their products is producing **less PDV** for a user-customer who purchases online, while being supplied with links to studies, comments, reports, etc as to why this is the case. A company can then follow this up with customers and other stakeholders, as well as everyone in the supply chain, and work on **improving** overall business/consumer PDV by addressing the concerns that led to such low PDV in the first place.

Benchmarking Decentr with Brave

The Brave browser was launched in 2015 and has in 5 years acquired over 8.5 million users.

Brave boasts two things in common with Decentr: a commitment to speed and user privacy. However, Brave cannot (conceptually or technically) move beyond the online advertising business model favoured by all tech giants (despite Brave eliminating ad tracking). This means Brave's token (BAT), and its pay-to-surf model, operate using a third-party medium of exchange, and can never be 100% decentralised (and hence 100% secure) as a result.

Decentr's 100% decentralised platform credits users secure data with payable value, in the form of PDV, for engaging with ads. This changes the advertising game completely due to the fact the more engagement a user has with the ads clicked on the more data value the user is credited with as PDV. This will encourage users to share, like, comment, etc on ads – all while allowing advertisers to track, profile and target users at every point in the sales funnel, using our suite of dAd tools.

This means that if a user shares an ad with, for example, five friends and they in turn do the same, this will update this user's profile, meaning future ads can be better targeted for this user and all those who the user shared the ad with (depending on their engagement and privacy settings). Due to these tools promoting 100% security and decentralisation, while vastly improving ad targeting and reach, we conservatively anticipate a similar user acquisition rate to Brave over the same period.
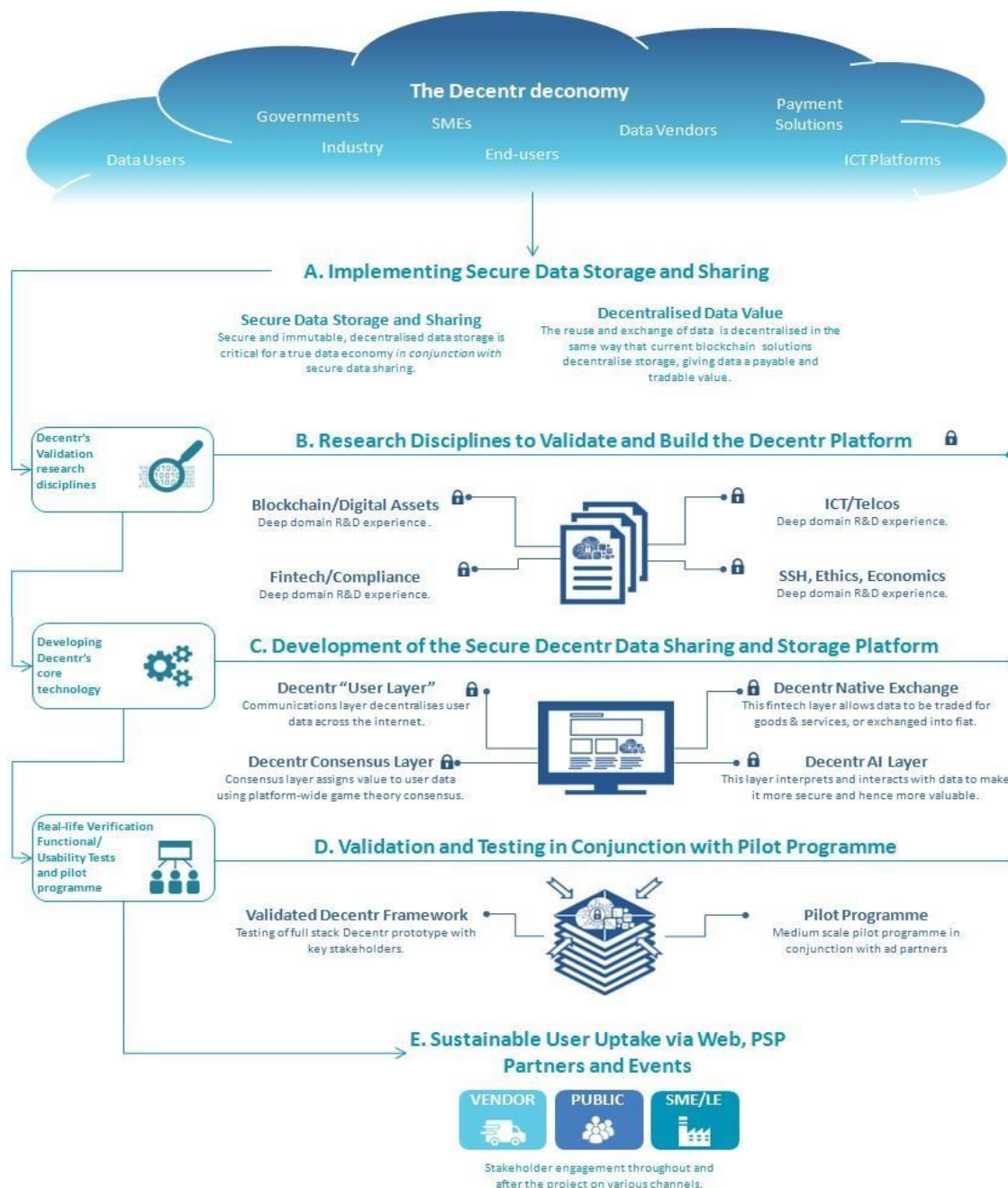
5. POTENTIAL BENEFITS

Decentr delivers a horizontal payments and communications solution that lends itself to many vertical businesses.

The Payment Service Provider (PSP) industry is a good, foundational example, as fast, efficient, low-fee payments underpin all online business verticals:

Relationship of Decentr Horizontal Solution with PSP Vertical Solution

CORE UNDERLYING HORIZONTAL PROBLEM: LACK OF FOUNDATIONAL DATA ECONOMY		
Horizontal Problem	**Horizontal Solution**	**Horizontal Benefits**
Data is difficult to **value and difficult to trade**: until these twin dimensions are reconciled in the way Decentr proposes, a true data economy cannot be created due to the fact data will remain locked up and largely unavailable to individuals and industry.	Network effects created by **aligning safe and secure data storage with data exchange** are critical in order to maximise the benefits of data exchange and reuse – giving data **measurable and hence a tradable** value whilst structuring and refining data **by default of** the valuation process.	By giving data **measurable and hence a tradable** value, this assigns to all data the "value store" capabilities necessary to **repurpose data** as a legitimate "currency" for paying and trading online.

CORE COMMERCIAL VERTICAL PROBLEM: LACK OF DECENTRALISED DATAFLOW		
Vertical Problem for PSPs: **slow and expensive** **cross-border transfers**	**Vertical Solution for PSPs:** **align decentralised** **data storage with** **data sharing**	**Vertical Benefits for PSPs**
Bank/PSP customers (and Bank/PSPs themselves) are frustrated by unnecessarily slow, complicated and expensive cross-border transfers. The EU PSD2 Directive 2015/2366 and the SCT Inst (and similar global) scheme(s) have tried to solve this problem but only partially succeeded due to lack of API interoperability (as SCT Inst has admitted, by leaving the issue "open").	Decentr decentralises dataflow in the same way blockchain decentralises digital trades, eliminating money-as- a- medium-of-exchange in favour of data- as-a-medium-of-exchange.	By eliminating money-as-a-medium-of-exchange in favour of data-as-a-medium-of exchange this removes nearly all friction from online transfers and hence nearly all associated fees as part of a true data economy.

Substantial Impacts that Bring other Important Benefits

BENEFITS	ASSUMPTIONS	SAVINGS
Faster/cheaper cross-border transfer's and payments.	By integrating verification and data value so that the two are indivisible at the point of transaction Decentr is set to greatly enhance the implementation of an IoV/data economy. Due to our platform requiring no more electricity (or "gas") than current global internet energy consumption, savings for users and the environment will be dramatically improved. Our radically-new technology is set to save 0.23% of the world's annual electricity consumption (or US $2.6BN).	85-97% increase in speed/costs of transfers. 0.23% reduction in global energy usage.
International transfers/ International Remittance Market.	The exchange of data and digital value are indivisible at the point of exchange. This removes nearly all friction – communications and payments – and hence nearly all transfer fees.	89-98% reduction in PSP fees.
Energy savings as part of an integrated IoV/IoT/IoE.	Decentr provides the framework for an integrated IoT that becomes near self-sustaining. Existing energy consumption can be efficiently redistributed across an integrated IoT in line with IoE principles to reduce reliance on primary power sources, including batteries and grids. Through a radical redistribution of current user energy consumption of US $7TRN per year this will save up to 45% per year. This will offset a predicted 40% increase to 2030.	45% relative reduction per year.
Innovation in the Arts & Sciences.	Decentr will assist with the challenge of striking the right balance between different legitimate public policy objectives in the arts & sciences, including the promotion of cultural diversity and cultural inclusion. Enhance copyright enforcement and facilitate claims by keeping a record of the work of creatives and academics, both physical and digital, as interrogatable data that forms part of a user's personal ID. This will save as much as US $300MM annually (or 0.06% of the estimated US $5BN lost to copyright infringement) in copyright disputes through decentralised arbitration.	0.06% relative reduction in copyright infringement arbitration.

decentr

Impact on Stakeholders

The below listed subcategories are populated by specific agencies and entities that demonstrate overlapping interests between subcategories. Decentr will in conjunction with our communications and dissemination partners generate linking developments in a variety of spheres related to the Digital Market (see "Synergetic/Strategic Partnerships" column [non-exhaustive]).

Stakeholder Group: Expected Impact/Benefits: Short, Medium and Long-term

STAKEHOLDER GROUP	IMPACT: SHORT TERM	SYNERGETIC PARTNERSHIPS
Advertising & Marketing	Increased quality and engagement and improved communications with customers and other stakeholders, allowing for vastly improved customer profiling. The ability to track ads for the life of the ads' engagement.	(Large ad agencies [with whom we have connections]) TBWA, DDB Needham, the WPP network (individual SME's/LE's, charitable organisations, public sector)
Businesses/Industry 4.0 (SME, Industry, commerce).	Reduced payments and other costs, enhanced security, and improved communications with customers and other stakeholders.	(Supply Chains) Aldi (Sp/UK), Carrefore, Tesco (UK) (Telcos) Duetsche Telecom, Huawei, Swisscom.
Financial intermediaries (banks, savings and lending institutions, pension funds, mutual funds, insurance companies, PSPs).	Reduced payments and other costs, enhanced security, and improved communications with customers and other stakeholders.	(PSPs) Global Exchange, Zoom, Santander (insurance) AXA, Allianz SE (pension/ mutual funds) Egon, Alliance Trust, Aviva, MoneyFarm.
Financial markets (equity markets, bond markets, derivative and options markets, futures and commodity markets, other ancillary actors).	Reduced payments and other costs, enhanced security, and improved communications with stakeholders, as well as access to alt. trading options and financial instruments. This will stabilise real-world equity and commodity markets by moderating the imponderables of the fractional free-reserve banking system while minimising financial instability associated with the current debt-based economy.	(Commodity traders) Trafigura, Gunvor, Archer Daniels Midland, Noble Group (ancillary) The European Association for Business and Commerce (EABC), The European Small Business Alliance (ESBA), The European Federation of Accountants and Auditors (EFAA), The Network of European Financial Institutions for SMEs (NEFI), The European Banking Federation (EBF).
Governments and related institutions and bureaucracies.	Improved interaction with citizens and enhanced ability to ensure taxation and other legislative compliance, enhanced access to voting and other public services, etc.	The EU Observatory on Cybersecurity and Privacy, European Association for Digital Humanities (EADH), The European Association of Co-operative Banks (EACB), The European Citizen Action Service (ECAS), The Ecommerce Foundation, The European Association of Development Agencies (EURADA).
Statutory bodies with sectoral responsibilities (utility regulators).	Improved data access to improve overall efficiency and public services.	Cyprus Energy Regulatory Authority (CERA), The Danish Energy Regulatory Authority (DERA) The Bundesnetzagentur (Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railways).
Statutory bodies with *regional responsibilities (local councils).	Improved data access to improve overall efficiency and public services.	*In conjunction with the Council of European Municipalities and Regions (CEMR) 55 national associations of towns, municipalities and regions from 41 countries.
Statutory bodies with subject-matter responsibilities (agencies, markets and regulatory institutions, etc.).	Improved data access to improve overall efficiency and public services.	Court of Justice of the European Union (CJEU), European Central Bank (ECB), European Court of Auditors (ECA), European External Action Service (EEAS) European Committee of the Regions (CoR).

BENEFICIARIES (BNF)	IMPACT/BENEFIT: MEDIUM-TERM	STRATEGIC PARTNERSHIPS
*Civil society.	Over the long term, dramatically improved communications between CSOs and CBOs will continue to promote the wider sharing of common interests and collective commercial, economic, artistic and related public and private sector activity.	Committee for Human Rights (It.), Share The World's Resources (STWR; UK), Synergie developpement et partenariat international (Ch.), United Network of Young Peacebuilders (Dk.), Verein zur Forderung der Volkerverstandigung (Au.), The European Association of Development Agencies (EURADA).
Scientific experts and researchers and ancillary bodies.	Dramatically improved communications will encourage public collaboration and interest, leading to improved public policy suggestions and recommendations.	Neweconomic.org (UK), Centre for European Policy Studies (CEPS), Centre for the New Europe (CNE), European Centre of Excellence for Countering Hybrid Threats (Hybrid CoE).
The European Union's correlated bodies and bureaucracies.	Dramatically improved communications between the EU's correlated bodies and bureaucracies will improve efficiency, reducing costs while offering citizens a greatly improved service.	DGsConnect, ECFIN, EMPL, FISMA, EASME, EUROCHAMBRES, European Union institutions and bureaucracies (departments, executive agencies), EU Blockchain Observatory and Forum, The EU Observatory on Cybersecurity Privacy, European Association for Digital Humanities (EADH), , European Economic and Social Committee (EESC).
OTHER STAKEHOLDERS	**IMPACT/BENEFIT: LONG-TERM**	**STRATEGIC PARTNERSHIPS**
CSO, CBO, ancillary bodies.	Over the long term, dramatically improved communications between CSOs and CBOs will continue to promote the wider sharing of common interests and collective commercial, economic, artistic and related public and private sector activity.	Committee for Human Rights (It.), Share The World's Resources (STWR; UK), Synergie developpement et partenariat international (Ch.), United Network of Young Peacebuilders (Dk.), Verein zur Forderung der Volkerverstandigung (Au.) , The European Association of Development Agencies (EURADA).
Think Tanks.	Dramatically improved communications will encourage public collaboration and interest, leading to improved public policy suggestions and recommendations.	Neweconomic.org (UK), Centre for European Policy Studies (CEPS), Centre for the New Europe (CNE), European Centre of Excellence for Countering Hybrid Threats (Hybrid CoE).
The media.	Over the long term, the media will be of benefit to our platform through awareness-raising while themselves benefiting from new, secure, decentralised communications platforms to disseminate information to their readership.	Bertlesmann, Sky, ITV, Vivendi, RELX Lagardere, Wolters Kluwer, ProSiebenSat and local and regional media outlets.

Exploitation of Project Outcomes

The goal of the exploitation plan is to develop strategies for the exploitation of project results while exploring their wider use, sustainability and business feasibility. This is with a view to maximising the R&D outcomes of our interdisciplinary approach, especially where these pertain to patentable technology and algorithms identified through successful patent searches.

Exploitation of Decentr Project Outcomes by Decentr Stakeholders

Exploitable outcomes	Exploitation options & potential customers	License
Foundational open source technology that creates a decentralised user layer for the current centralised internet. Open source components are an important resource that helps development teams create superior products, faster, and are hence uniquely and rapidly exploitable at scale.	Being a hyper networked open source horizontal solution means Decentr will exploit both 1) platform-wide network effects to create rapid main stream public adoption of our tech and 2) industry network effects where SMEs, LEs and others build on our software to engage with their stakeholders on our platform.	OSI (Open source Licence) Can be freely used, modified, and shared for commercial and non-commercial use With massive individual and industry subscriber acquisition, we can then exploit:
Industry verticals built on our platform are able to build out their own solutions using our open source components, including security, AI and decentralised communications components.	Because it is free for SMEs, LEs (as well as individuals) to build solutions on our decentralised platform, Decentr is uniquely exploitable by industry. This is due to the integrated, hyper secure and networked nature of the solutions users build in conjunction with us on our platform. Decentr subscribership is further boosted due to the unforkable nature of our platform.	OSI (Open source Licence) Can be freely used, modified, and shared for commercial and non-commercial use However, companies who wish to include certain of our algorithms in their products, need to comply with:
Patents (a) (successful patent searches carried out by Decentr's CTO) for 1) the integrated DAG/EEC algorithms underpinning our MFA/SSM security layer, 2) the DAG/EEC algorithms underpinning our consensus mechanism, 3) the radically-new (not built using any existing paradigms) decentralised algorithms for our communications "user layer" and 4) the topological algorithms underpinning DecAI's (our native AI) DL SSN RNN function.	Patented technology (subject to issued patents) will be exploited whereby individuals and industry that require deep integration of our tech into their proprietary products where the products do not form an integrated solution built as part of our foundational tech.	Dual (GNU GPLv2 compliant/ proprietary) The range of proprietary applications include "intelligent" GPS and tracking systems, household Smart devices, etc, but only where these devices do not from part of an integrated IoT/Smart City solution supported by our:
Patents (b) (successful patent search carried out by Decentr's CTO) for 5) the technology underpinning our SCN chip.	Our Smart Chip Node (SCN) (subject to issued patents) will be supplied to IoT/ Smart city developers under license to Decentr. This SCN is uniquely exploitable as any device (built by a third-party developer) that connects to our foundational tech via our SCN requires no additional licence (as described in Patents [a]) hence encouraging mass uptake of SCN (and e-SIM) devices with integrated algorithms compatible with our platform.	Proprietary License The widespread global uptake of our platform/IoT proprietary licensing of our SCN chip will allow us to exploit:

Exploitable outcomes	Exploitation options & potential customers	License
Native payments solutions. Decentr's radical payment solution, which exchanges data-as value and not currency-as-value, is set to save industry and individuals up to 95- 98% on exchange fees for global payments.	Being a hyper networked open source horizontal solution means Decentr will exploit both 1) platform-wide network effects to create rapid mainstream public adoption of our tech and 2) industry network effects where SMEs, LEs and others build on our software to engage with their stakeholders on our platform.	OSI (Open source Licence) Can be freely used, modified, and shared for commercial and non-commercial use With massive individual and industry subscriber acquisition, we can then exploit:
Decentr's native token, "DEC". The unparalleled utility of our native token makes it a uniquely valuable commodity, as this token is set to exclusively support a safe, secure and immutable global data economy.	With a fixed supply of DEC (and without the ability to fork DEC, which creates the kind of unstable and unsustainable deflationary economies seen with current crypts) we estimate a rise in DEC reserve value by Year 5, equating to USD$ 30BN, creating a free, open data economy by Year 5 underpinned by as much as US $1.5TR (or 1% of the GWP) in liquid and other digitised assets (due to wider DEC trading, our internal economics and patent royalties).	DEC is tradable as a utility token (as defined by the "Howey Test"), which circumvents onerous SEC compliance regulations (in the US, with the FCA in the UK having rejected SEC definitions) related to security tokens. This "utility" further opens up possibilities for expanding financial tools for the unbanked and uncredentialled due to automated AML/ KYC compliance as part of Decentr/ DecID site protocols.

6. DECENTR TOKENOMICS

"Deconomics" & "DEC"

Deconomics (or "decentralised economics") is a radically-new type of heterodox/behavioral economic model that we developed to support the exchange of data-into-money and money-into- data in a data economy currently worth USD $1.7TRN.

Deconomics gives our native Decentr token (DEC) unparalleled utility. DEC is the sole token that supports exchanges between data and all currencies (fiat and digital) as part of a new global economy based on economic extraction from structured data.

The Basis of Deconomic Theory

Decentr overcomes the data storage/data sharing paradox (see Section 2) by creating a 100% decentralised Web 3.0/4.0 solution.

What is critical to note – as this is key to understanding deconomics – is that within a 100% decentralised Web 3.0/4.0 solution all third-party mediation is entirely eliminated. This means that the only expression of online activity on a 100% decentralised internet is **cause and effect**, rendering Decentr a purely **causal ecosystem**.

It is worth considering for a moment the profound implications of a web based on causation: what our R&D has proven is that in a purely causal system the principles of Einstenian relativity predict that everything is bydefinition relative, **including economic value.**

Economic value being relative is the basis for a user's "Personal Data Value" (PDV).

PDV is a personalised "exchange rate" that is unique to each user and is determined by the consensus value credited to a user's securely recorded internet activity as part of their DecID, as determined by cooperative-game theory.

Consequently, **economic value being relative** is the method by which PDV can be exploited by users on our site for economic extraction from their immutable, securely stored data.

Mainstream Economy vs. Deconomy

- Fiat-money supported by collective social delusion

- Exchange rates dictated by other-centric activity

- State actors/glocal events dictate other-centric exchange rates

- Exchange rates apply to state-issued currency

- Payments and trades made with "cash-money"

- Payments and trades made at fiat-money exchange rates

- Payments and trades online are expensive and slow

- Payments made via third-party PSPs, banks, etc

- Dec token supported by immutable personal user data value

- Exchange rates dictated by user-centric activity

- Online user engagement dictates personal user-centric exchange rates

- Exchange rates apply to individual user-data-as-currency

- Payments and trades made with user data/pieces of code

- Payments and trades made at personalised user-centric exchange rates

- Payments and trades online are near-frictionless, instant and fee-free

- Payments made directly P2P to friends, relatives, businesses, etc

PDV Use Case

On Decentr, all economic exchanges are made at a rate unique to each user due to users' relative PDV.

PDV fluctuates depending on a user's level of positive engagement and data exchange and reuse; again, this fluctuation is similar to a regular "money-currency" exchange rate.

On our platform, DEC is always fixed at "DEC: 1.0000" relative to fluctuating PDV value (and the value of all other currencies, fiat and digital). So, if through positive engagement and online activity a user's PDV reaches

PDV: 1.0001 I DEC: 1.0000

then a real-world-value, **USD $10** purchase (all figures in the following examples assume an exchange rate of **USD $1.0000 I DEC: 1.0000** for ease of calculation) will "cost" this user (underpinned by DEC/Decentr) $9.9990, and so forth.

It is simple math; but such a system – once mass-adoption is achieved, causing PDVs to maintain consistent value – represents nothing less than a new paradigm shift in economic thinking and socioeconomic liberation – which is exactly our aim.

Fundamentally, the PDV system is designed to allow cash to be extracted in ever-greater amounts from the mainstream economy and redistributed according to glocal consensus. This is because by using a "personal" exchange rate (PDV) nothing can ever by definition be "free" or "given away" (unlike with gift tokens, "monetised data", etc, which we see as false directions to take as they are still only "third-party impediments" to true socioeconomic disintermediation). As a result, real-world money always passes through our native exchange gateway – but only to support our internal economy, not participate in it. Within this system, money (fiat or digital) is "modulated" in favour of a user's PDV. (It would be hard to conceive of a system that is more user-centric than that – a critical part of what we aim to achieve.)

How "Deconomic" Theory Ensures DEC Utility

Put simply, Decentr exists to extract and redirect GWP via PDV in a fair and socially responsible manner on our platform – a platform that is designed to promote mutually supportable and supportive stability for both our alt economy and the mainstream global economy.

As regards deconomics promoting wider economic stability, our interdisciplinary R&D has demonstrated that a system underpinned by causal value will rapidly determine a sustainable and equitable economic level for each user, relative to the needs, wants and engagement of every other user. For example, although majority affordability (PDV: 1.0001 I DEC: 1.0000) is predicted, based on current internet usage patterns and data generation, the majority of Decentr users are not predicted to dramatically increase their PDV to unsustainable (system) levels.

Overall, what is critical to note is that Decentr aims to ensure all currencies and all economies are controlled at the relative level of every single individual. Anything less, by definition is not "decentralised", but pseudo-decentralised at best, and is therefore not an economy that favours individual wealth creation over mainstream extraction of value from each individual (which is precisely what the mainstream economy is set up to do).

Decentr changes this mainstream economy status quo, putting every single user in control of all currencies, fiat and digital, to the benefit of individual and community wealth creation for personal and social good.

Maximising DEC Token Velocity

The total number of DEC created and the initial listing price is a reflection of the enormous potential utility that DEC is set to support.

As a result, DEC is designed with volume in mind to create an alt economy (or "deconomy") that aims to support and be supportive of the mainstream economy.

Token velocity is maximised due to DEC being the sole currency that allows a user to exchange data into money (fiat and digital) and vice versa on our decentralised Web 3.0/4.0 solution. The bottom line with deconomics is that Decentr appreciates that, according to the IDC, there will be over 33 Zettabytes of data generated annually online by 2025: DEC is the exchange gateway between increasingly refined, generated, exchanged and reused data, with data-to-currency and currency-to-data exchanges taking place on our native decentralised exchange (dEx). The dEx is the world's first and only "data-money exchange" designed to achieve this "digital alchemic" exchange between fiat/digital and data (and vice versa).

Decentr's dEx

On the dEx, users can trade between listed currencies, fiat and digital, modulated by a user's PDV. The dEx also allows users to on- and off-ramp fiat by using a convenient third-party solution that will be seamlessly integrated into our platform, providing exchange and payment services for selected popular crypts, as well as digital credit cards, bank accounts, etc. When a user buys Dec on the dEx, this currency is bought on the open market, in a similar way to all other tokens listed on the dEx.

Deconomics predicts that buying DEC on the open market (where this is required to exchange currency used as part of transactions used to pay for good/services via dPay) via our platform will always be competitive with other exchanges, due to the fact that its value is linked to the value of the system reserve, which will further stabilise the overall system while supporting token value. This is because the "monetary peg" established between the DEC system reserve and DEC, as supported by data generation (as expressed in PDV), will on the open market address speculative and volatility issues that plague all other cryptocurrencies. This is the result of an active, automated exchange rate regime that buys and sells DEC reserves to force the reserve to maintain a certain level of value. This minimises for DEC the wild fluctuations based on supply and demand and price manipulation by malicious parties that current cryptocurrencies are exposed to.

To achieve this, Decentr will always maintain a fixed reserve of DEC that will only ever be in circulation as part of our internal alt economy. This is vital in order to ensure the system is always able to support the "dFintech" ("decentralised fintech") features our data economy requires and that deconomics underpins. This reserve can never be publically bought and sold on the open market, and can only be used to supplement periods of heavy purchasing/spending and larger loan amounts, while also underwriting dInsurance if any instances of theft or hacking were to occur, thus functioning as the underpinning asset that allows data to be exchanged into money and money into data as part of a data economy currently worth USD $1.7TRN.

How DEC's "System Reserve" Stabilises Decentr's "dFintech" System

Decentr's DEC system reserve is designed to be a stable asset that underpins confidence in DEC payments and transfers, as well as crypto lending/borrowing, as part of Decentr's dFintech features (including dEx, dPay, dLoan).

When a payment is made on Decentr, a data transfer (essentially a "digital IOU") is made between ecosystem users, relative to the individual buyer/seller's PDV (and also relative to the value of the currency in which the item is being purchased).

The difference (due to the buyer's PDV) between the asking price for an item and that transferred is supported by DEC that has been loaned by individual users from our investing pool as part of our DeFi dLoan function, meaning the system reserve is not touched as part of regular transactions and dLoan services. This differential amount (raised via the dLoan function) is "credited" to the seller as a "digital IOU", as part of the sale price amount. For example, where a user's PDV is (a hypothetical for ease of calculation)

PDV 1.5000 I DEC 1.0000

then a $10 real-world item will cost this user $5. The user clicks on "pay" and $5 will be withdrawn from their dWallet and held in system escrow (until withdrawn by the seller) in DEC (or automatically exchanged into DEC, if it is not paid in DEC but another nominated currency supported by a user's dWallet). The remaining $5 is credited to the seller from other nominated users who are participating in the dLoan investing pool. This is added on the seller's side to the buyer's $5 and $10 is credited to the seller's dWallet to the corresponding DEC amount as a "digital IOU". This can be withdrawn by the seller as DEC (or a nominated currency) at any time.

What is important to note is that only when the seller (or any user) wants to "exchange" this "digital IOU" into fiat or digital currency, is DEC actually paid to a user, with the amount requested drawn from the dLoan investing pool, further protecting the system reserve. Deconomics predicts that due to PDV being linked to DEC value the majority of users will prefer not to withdraw DEC but to hold it, ensuring a healthy DEC system reserve.

Deconomics further predicts that although the system reserve is technically being depleted in quantity by exchanges into currency to complete payments and trades, the volume of payments and trades (which subsequently result in exchanges) required to make any insupportable reduction in the amount of DEC available from the dLoan scheme will mean that it will be rare that any significant quantities of DEC will be required from the system reserve to supplement the required amounts, further ensuring the stability of the overall system due to leaving the system reserve intact while guaranteeing symmetry between lenders/borrowers while reducing friction.

The degree to which the reserve increases is determined by Decentr's cooperative-game theory protocols in relation to PDV and PDV in relation to DEC market price. Cooperative-game theory protocols form the basis of our PoE protocols, which, when benchmarked against Bitcoin's Proof-of-Work (PoW) protocols, ensure that the value credited to data in the form of PDV will always multiply overall DEC market price by $x10^7$, further ensuring the liquidity of the platform reserve.

How Decentr's DeFi dLoan Function Benefits DEC Holders

The Decentr dLoan Concept

Decentr is designed to be a market-leading Defi solution that allows not only large-scale entities and businesses to access and accrue interest in the crypto loans market but also regular users. This can be achieved by regular users with even very small sums of DEC, held in their dWallet on their secure Decentr account. DEC held within a DEC dWallet can accrue interest via the dLoan system, with no specific crypto or trading knowledge, allowing Decentr to access the underserved (and potentially very lucrative) consumer crypto loans market.

How dLoans Compare with Similar Protocols

The Decentr dLoan function has significant economic and functionality advantages over comparable DeFi Dapps and protocols. This is because the dLoan feature is underpinned by a suite of mutually supported dFintech functions: including dPay, Personal Data Value (PDV) and the Decentr DEC system reserve.

---

5   - Forbes.com (2019) *Bitcoin Mining Uses As Much Power As Ireland. Here's Why That's Not A Problem.* https://www.forbes.com/sites/christopherhelman/2018/01/16/bitcoin-mining-uses-as-much-power-as-ireland-and-why-thats-not-a-problem/ *Bitcoin rose from 33 Billion in 2018 to 66 billion in 2019, while the cost of mining was approximately 3.83 billion for the same period, revealing a x10 value increase.*

In effect, each one of these interrelated functions further strengthen the stability and hence the value of the others, giving the dLoan function unparalleled liquidity and fungibility. This is achieved because the PDV function is a personal "exchange rate" assigned to each user that allows users to pay for goods and services online at a fluctuating PDV rate that is determined by a user's positive internet usage and engagement, as expressed in data. (Decentr's core tech creates 100% secure and decentralised *dataflow* added to blockchain decentralised *data storage*, giving data superior "valuation" and "value store" properties to "money".)

Note: *Aggregate system-wide PDV – what we term Aggregate Data Value (ADV) – is a key factor driving the market price of DEC, with DEC market price on average increasing 10x the amount of ADV (DEC's data-value-mining-as-a-PoE-protocol being a direct analogy with Bitcoin's PoW protocol).*

How dPay Benefits dLoan Participants

In the previous example, the dPay system requires that a user physically pays the hypothetical $9.90 in a currency that the user nominates, and this amount is exchanged for DEC from the open market, driving the overall demand for DEC up, with the remainder of the amount required being drawn from the dLoan investing pool of participating users.

The money loaned to match the needs of purchases and loans means that the DEC system reserve remains intact and can only be used to supplement periods of heavy purchasing/spending and larger loan amounts, while also underwriting dInsurance if any instances of theft or hacking were to occur.

Unmatched Liquidity

The advantage with Decentr is the liquidity offered by the dPay feature: the dPay feature is not like a traditional peer-to-peer (P2P) platform or an exchange; in a P2P/exchange scenario a user's assets are typically matched and then lent to another user. On Decentr, our protocols aggregate the nominated supply of each user as part of the larger total aggregate investing pool. This investing pool is determined by economic activity on the site, as the investing pool is the sum total of the amount required to supplement PDV "discounts" as regards purchases and loans.

dLoans are also attractive for borrowers because they are made at a fluctuating rate of interest personalised to a user's PDV, with repayments also being reduced at an amount determined by a user's fluctuating PDV.

Benefits to DEC Holders in the dLoan Investing Pool

Any user can nominate a DEC amount from their dWallet to be automatically included in the dLoans aggregate investing pool. This amount accrues an aggregate fluctuating APR; however, what is critical to note is that this APR is directly linked to ADV, and is fixed at a fluctuating X% that is always higher than ADV. This means APR can never fall below this X% amount, assuming stable ADV: this assumption of stability is critical and is based on the ADV/PDV feature incentivising the generation, reuse and exchange of high quality, refined and structured data on the platform (which, as discussed, underpins DEC value) – to the benefit of DEC holders and the wider DEC token price.

However, where a user's PDV is above the platform average, the user's APR increases accordingly, meaning users who provide value to the platform will benefit with increased returns, further incentivising platform interaction and high-quality data generation, reuse and exchange. This differs from traditional DeFi, as currently those who have the most capital are the ones who typically benefit the most, creating an asymmetric economic system that favours capital over output. On Decentr, data-as-value, underpinning as it does DEC value, trumps pure capital in terms of generating ROI, evening the playing field between the haves and have nots while making this the ideal, user-centric paradigm to service the consumer crypto loans market we are carving out.

Considering that PDV is based on data generated, the activity of releasing funds as part of the aggregate dLoan investing pool itself generates significant data as part of a lender's PDV further ensuring overall stability of the platform and hence DEC utility and market price.

7. ROADMAP

We have completed core tech (TRL 5), demonstrating the viability of our "user layer" technology, greatly mitigating investment risk. We have also completed the Decentr blockchain architecture solution. We are moving to integrate dFintech features with our core tech to deliver MVP by Q1 2021.

'19

Q1 2019 Completed preliminary research
Completed preliminary research for core Decentr features, including consensus mechanism, user layer and dfintech/DeFi functions.

Q2 2019 Completed Decentr backend code
Completed the game-changing core technology for Decentr's "blockchain user layer" solution. This allowed us to demonstrate in backend testing the viability of decentralised data distribution, as well as the viability of decentralised data as robust and sustainable, payable currency.

Q3 2019 Completed basic architecture for Web Connector
Completed basic architecture for Web connector (browser and platform) to Decentr using results from interdisciplinary H2020 R&D.

Q4 2019 Completed Blockchain Integration
Completed preliminary internal (backend) testing of Web browser with various potential blockchain solutions.

Q1 2020 Completed architecture of Decentr blockchain storage
Completed and tested architecture of Decentr blockchain storage, and compatibility with other core technical elements.

Q2 2020 Complete token sale

'20

Q3 2020 Integrate fintech/DeFi/data-as-value functions
Integrate and test the various elements comprising our "dFintech" solution, basic dPay, dLoan and dEX architecture.

Q4 2020 Implement Decentr consensus mechanism
Implement Decentr consensus mechanism and integrate with user layer and dFintech features to create a Web 3.0 platform that is 100% decentralised, resulting in 100% decentralised dataflow that is repurposed as payable, exchangeable currency by our dFintech protocols.

Q1 2021 & Beyond: MVP/Small-Scale PSP Pilot Programme
Medium scale international pilot programme targeting 150,000 PSP customers in primarily the Spanish/LAC markets in conjunction with our PSP partners who are expanding into these territories. In conjunction with our ongoing interdisciplinary R&D, we will continue to identify further use cases and partners that will derive benefit from and offer benefits for the Decentr platform and ecosystem.

8. PARTNERS

We are currently engaging with several commercial partners and will continue to update these exciting partnerships as they progress.

Black Edge Capital is a leading blockchain fund, consultancy & service agency, active in the space since early 2017. Black Edge Capital helped raise over $120M USD for clients in 2017/18 and in 2019 is predominantly focused on developing and incubating the next wave of token offerings.

The Bioinformatics, Intelligent Systems and Educational Technology (BISITE) Research Group is formed of a group of researchers whose principal interest is the development and application of intelligent computer systems to different types of problems: AI, ML, Deep Learning, Emotional Systems, Fintech, Blockchain, IoT, Industry 4.0, Smart Cities, Smart Grids, Intelligent Textiles.

BISITE has around a hundred members with a very wide range of professional backgrounds: computer scientists, biologists, pharmacists, physicists and economists, all of who contribute to Decentr's inter-disciplinary, cutting-edge R&D. The group collaborates on R&D projects with companies, universities and research centres.

Rotechnology creates ad hoc design and communications solutions that are "secure by design". Rotechnology's unique insights into both technology and marketing and communications places them at the forefront of Decentr's adoption strategy by LEs, governments and other influential bodies in the EU and globally. ROT develops and validates applications, tools, firmware and hardware components for several markets including Defence, Telco, Aerospace, Smart cities, Agriculture and Transportation, and has participated in several research projects and other European and national organisations and initiatives.

9. TEAM & ADVISORS

We are a tech startup skilled in Mobile Applications, Enterprise Web development Blockchain, Fintech and Cryptocurrency development. Our marketing strategists have worked for some of the best agencies in the world, including DDB Needham and the WPP network, on campaigns for Coca Cola, McDonalds and GM. Our token sale partners have completed more than 20 successful raises with over USD $120Mn raised.

Co-Founders

Nikita Anikeev, Co-Founder, CTO

BSc (ITC) (Telecommunications Engineering), City University, NYC. Experienced Project Delivery Manager with a demonstrated history of working in the information technology and services industry. Skilled in Mobile Applications, Enterprise Web development, Project management by Agile Methodology.

https://www.linkedin.com/in/nikita-anikeev-3866755/

Paul Sluszko, Co-Founder, COO

Background working for UK Courts service and national UK charities, with a remit to improve process, business communications and workflows. Experienced with Gov.uk intranets and B2B and B2C information and business delivery systems, primarily in the public sector.

https://www.linkedin.com/in/paul-sluszko-791216170/

Rich James, Co-Founder, CCO

Experienced technical, conceptual and H2020-H2027 bid writer. Professional Blockchain/Crypto, AI and business writer and editor for government, businesses and not-for-profits. Responsible for turning complex heterodox economic, SSH & communications principles and systems into executable specs for dev team.

https://www.linkedin.com/in/rich-james-93a30b66/ https://medium.com/@Rich.James

KEY DEVELOPMENT TEAM (BELARUS)

Maksim Ramanouski, Lead Developer

AWS & GCP Certified: Architecture, Microservices, Kubernetes, Java Google Cloud Certified Professional - Cloud Architect. Google Cloud Certified Professional - Data Engineer. AWS Certified Cloud Practitioner. Experienced in media, advertising and publishing domains (news portals, advertisement/classified ads portals etc.), microservice-based Java applications, containers, Kubernetes.

Ivan Kantaef, Senior Developer

Belaruski Dziarzhauny Universitet: Bachelor's degree, Computer Science, Computer Security, Physics. Faculty of Radiophysics and Computer Technologies. 10+ years of Mobile development with proven record of building AI AR applications from scratch for both iOS and Android.

Alex Majorov, Senior Developer

Belarusian State University of Informatics and Radioelectronics Field Of Study Telecommunication Engineer. 5+ Years in blockchain development for outsourcing company - including but not limited to exchanges, data storage, distributed computing.

KEY DEVELOPMENT PARTNERS (SPAIN)

Prof. Juan Manuel Corchado, Software Engineer

PhD in Computer Science, University of Salamanca and PhD in Artificial Intelligence from the University of the West of Scotland. Currently a Professor, Director of Postgraduate Programs in Security, Information Systems, Social Media, Mobile Telephony, Digital Animation, IoT and Blockchain, and Director of the BISITE Research Group of the University of Salamanca and Visiting Professor at the Technological Institute of Osaka (Japan).

https://www.linkedin.com/in/corchadojm/?originalSubdomain=es

Dr. Javier Prieto, Software Engineer

PhD in IT and Telecommunications, University of Valladolid, BA Telecommunications Engineer and BA Market Research and Techniques. Manages R&D Programs at the AIR Institute and Secretary of the Foundation. Worked for Center for the Development of Telecommunications in Castilla y León Foundation (CEDETEL), the University of Valladolid (UVa) and the Massachusetts Institute of Technology (MIT) in Cambridge, MA (USA). https://www.linkedin.com/in/javi-prieto/

Diego Valdeolmillos Villaverde, Software Engineer

Graduate in Computer Engineering & Senior Technical Application Development. Assists BISITE collaborate intensively on projects with companies, universities and research centres on research that has both practical, real-world applications as well as a theoretical focus and dimension.

https://www.linkedin.com/in/valdeolmillos/?originalSubdomain=es

Agustín San Román Guzmán, Research Assistant

Research Assistant at BISITE Research Group. Assists BISITE in many areas including the development and application of intelligent computer systems to different types of problems: AI, ML, Deep Learning, Emotional Systems, Fintech, Blockchain, IoT, Industry 4.0, Smart Cities, Smart Grids, and Intelligent Textiles.

MARKETING/COMMUNICATIONS & DISSEMINATION PARTNERS

Lee Hirschmann, Lead Marketing Strategist

Award-winning copywriter and strategic planner. Worked for DDB Needham, TBWA and the WPP network, McDonalds, GM, Ford, HP, Adidas and Levi's. Acted as a personal strategic consultant during the break-up and restructuring of the CondesaGroup in Spain and BellotaHerremientas by a Canadian investor, and its subsequent restructuring.

Rodolfo Grimani, Communications Consultant

MA Electronic Engineering achieved at the University of Rome "La Sapienza". Undertaken EU research projects related to web platforms that integrate innovative technologies and oriented IOT (Internet of Things). Involved in Seamless (Italian National project) and SafeCOP (ECSEL RIA) projects. Has worked for Selex Es (former Selex SistemiIntegrati Spa), URMET TLC SpA, Olivetti Tecnost Spa, FarfisaSpA, Texas Instruments Italy.

https://www.linkedin.com/in/rodolfo-grimani-66546813/?originalSubdomain=it

Gianluca Rossi, R&I Consultant

Strong professional consulting skills in Innovation Management, International Development, Management Consulting, Project Planning, and European Union initiatives. Project manager for several EU projects (from EU-FP5 to Horizon 2020) with a demonstrated history of working in the financial services industry.

https://www.linkedin.com/in/gianluca-rossi-66778b6/?originalSubdomain=it

Lorenzo Impronta, R&I Consultant

Sociology Degree, University of Rome "La Sapienza". Involved in the dissemination and exploitation tasks of SafeCOP (Ecsel JU 2015), Megamart (Ecsel JU 2016) and Teinvein (POR-FESR RegioneLombardia) projects. Tasks performed included project impact sections concerning CPS, market analysis using the Business Model Environment (BME) and Business Model Canvas (BMC) methodologies.

10. DISCLAIMER

PLEASE READ THIS SECTION CAREFULLY. IF YOU ARE IN ANY DOUBT AS TO THE ACTION YOU SHOULD TAKE, YOU ARE ADVISED TO CONSULT YOUR LEGAL, FINANCIAL, TAX, OR OTHER PROFESSIONAL ADVISOR(S).

The information listed below may not be exhaustive and does not imply any element of the contractual relationship. While we strive to ensure that all elements of this document are accurate and up-to-date, this material does not constitute professional advice. Decentr LLC does not warrant or accept any legal liability arising from the accuracy, reliability, timeliness or completeness of any content in this document. Investors are advised to seek appropriate independent professional advice before relying on any material-based obligation or transaction published in this document for which material is published for reference only. Decentr streams are not intended to create titles in any jurisdiction. This document does not constitute a prospectus or an offer of any kind and does not imply that it is an offer of securities or an application for investment in securities in any jurisdiction whatsoever.

IMPORTANT NOTICE:

Read the following note carefully before reading this document prepared by the company ("whitepaper"). This notice applies to everyone who has read this document. Please note that this notice can be modified or updated. The whitepaper is only prepared for the public sale of Decentr Token (DEC), which will be known as "DEC tokens". No shares or other securities of the Company are offered for subscription or sale in any jurisdiction in accordance with the whitepaper. The whitepaper is publicly available for information purposes only and does not require any action by the public or shareholders of the Company. The whitepaper does not constitute an offer or invitation to anyone to enter or register shares or other securities in the Company. Currently, the Company's shares are not offered for registration under the Securities Act of a country or a securities law of a country. No one is obligated to enter into any contract or legal obligation to sell and purchase the DEC token, and no whitepaper will accept cryptocurrency or any other form of payment based on this whitepaper.

ELIGIBILITY: You are not eligible and you are not to purchase any DEC tokens if you are a citizen or resident of a geographic area in which access to or ownership of the DEC token is prohibited by applicable law, decree, regulation, treaty, or administrative act.

THE TOKENS REFERRED TO IN THIS WHITEPAPER HAVE NOT BEEN REGISTERED, APPROVED, OR DISAPPROVED BY THE US SECURITIES AND EXCHANGE COMMISSION, ANY STATE SECURITIES COMMISSION IN THE UNITED STATES OR ANY OTHER REGULATORY AUTHORITY NOR ANY OF THE FOREGOING AUTHORITIES EXAMINED OR APPROVED THE CHARACTERISTICS OR THE ECONOMIC REALITIES OF THIS TOKEN OFFERING OR THE ACCURACY OR THE ADEQUACY OF THE INFORMATION CONTAINED IN THIS WHITEPAPER UNDER, THE U.S. SECURITIES ACT OF 1933 AS AMENDED, OR UNDER THE SECURITIES LAWS OF ANY STATE OF THE UNITED STATES OF AMERICA OR ANY OTHER JURISDICTION. PURCHASERS OF THE TOKENS REFERRED TO IN THIS WHITEPAPER SHOULD BE AWARE THAT THEY BEAR ANY RISKS INVOLVED IN THE REGISTRATION OF TOKENS, IF ANY, FOR AN INDEFINITE PERIOD OF TIME.

FORWARD LOOKING STATEMENTS

Some of the statements in the whitepaper include forward-looking statements which reflect the Company's and/or the Management current views with respect to product development, execution roadmap, financial performance, business strategy and future plans, both with respect to the Company and the sectors and industries in which the Company operates. Statements which include the words "expects", "intends", "plans", "believes", "projects", "anticipates", "will", "targets", "aims", "may", "would", "could", "continue" and similar statements are of a future or forward-looking nature. All forward-looking statements address matters that involve risks and uncertainties. Accordingly, there are or will be important factors that could cause the actual results to differ materially from those indicated in these statements. Any forward-looking statements in the whitepaper reflect the current views with respect to future events and are subject to these and other risks, uncertainties and assumptions relating to the operations, results of operations and growth strategy. These forward-looking statements speak only as of the date of the whitepaper. Subject to industry acceptable disclosure and transparency rules and common practices, the Company undertakes no obligation publicly to update or review any forward-looking statement, whether as a result of new information, future developments or otherwise. All subsequent written and oral forward-looking statements attributable to the Company or individuals acting on behalf of the Company are expressly qualified in their entirety by this paragraph. Prospective buyers of the DEC token should specifically consider the factors identified in the whitepaper, which could cause actual results to differ before making a purchase decision. No statement in the whitepaper is intended as a profit forecast and no statement in the whitepaper should be interpreted to mean that the earnings of the Company for the current or future years would be as may be implied in this whitepaper. By purchasing the DEC token I hereby acknowledge that I have read and understand the notices and disclaimers set out above.