

# DATAGEN PROJECT

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# TECHNICAL WHITEPAPER OF THE DATAGEN PROJECT

## PREMISES

This document does not contain any formula or suggested practical specific software solution. It must be intended as a detailed (semi)technical exposition of what we intend to create, trying to be more precise as possible, while not venturing into the software development specifics, to be created in partnership with software house contractors and by B-Datagray Ltd.

It follows below a general view of the whole project; analyzed in full and in its part.

## THE WHOLE PROJECT'S ECOSYSTEM

DataGen Project is based on an ecosystem in which at least three main elements work together and, even if each element is technically independent, they work together, as different parts of the same organism, both from the technical, the user and the management point of view.

DataGen ecosystem is based on three elements: **DataGen** itself, which is a 3.0 cryptocurrency with the characteristics we are going to explain; **Minidata**, which is (a fork or, better, an earlier version) of DataGen, with certain characteristics that allows it to power a Web Search Engine; the **Portal**, a fiat and crypto trading virtual exchange.

The Portal (alongside with tokens) will be the first element to be created as because, discussion with developers underlined the exchange will be easier to do without much R&D and will be faster to be developed and able to make revenues in a shorter time.

## DATAGEN&MINIDATA THINGS IN COMMON & DIFFERENCES

Both Minidata and Datagen are going to be **3.0 cryptocurrencies**; both must be studied to match the characteristics of Blockchain and of the BOINC (Berkley Open Infrastructure Network Computing) software, and to make it work; **both** operate as **cryptocurrencies** and as **means to permit the demand and supply of power computing to meet, practically allowing network computing**.

Minidata and Datagen (Datagen without the "G" is the cryptocurrency alone) are going to be bonded together; in the sense that they must be able to share the same network computing and that (as currencies) they are interchangeable at a certain given rate of exchange.

Minidata's functions are more specific. It uses the computing power offered by its network computing both to boost its encryption and to continue running transactions (in the traditional ways cryptocurrencies as bitcoin does) but even to provide the computing power needed by a Search Engine.

DataGen's functions must be much vaster: Datagen uses the computing power provided by its network to boost its encryption and enable its transactions and even to solve computational problems on demand, as

they are proposed by users. Specially for simulations, virtual gaming, programming and for data analysis in chosen languages.

The cryptocurrency of DataGen is represented by the symbol "D#"; the cryptocurrency of Minidata is represented by the symbol "Md#".

## MINIDATA

Minidata, as a cryptocurrency, has its own Blockchain running, but it shares the same network computing (and so network of miners) of Datagen. Even if the network computing is the same, there will be a mark in the code that is telling if was assigned to a miner a Minidata block or a Datagen block to be solved. Nodes holders should have the possibility to store the whole Blockchain of just one of the two currencies or of both of them.

Datagen-blocks and Minidata-blocks are different; because each minidata-block is related to some functions that need to be performed in less than a second -if possible, even in a lesser amount of time-, while for a datagen-block it's not mandatory a short computing power to be solved. When both the cryptocurrencies will be running, a software allocates the datagen-blocks and the minidata-blocks to the miners to be solved; the minidata-blocks are distributed with priority. The dual distribution needs to know how much computing power every single miner will probably provide in the very next calculation sessions, to assign every kind of the two blocks to a suitable solver (in terms of computing power, calculating the demands of both types of blocks).

Payouts are proportional to the calculation capabilities lent in every Datagen-time calculation session; both for Datagen and Minidata. The payouts are made in Md# if you solve minidata-blocks; and in D# if you solve datagen-blocks. How many D# or Md# you deserve to receive after every session is determined by a lottery, that attributes a certain number of D# and Md#, with probabilities to win a certain number of D# or Md#, which are determined by the proportion between the total computing power given by the miners in that session and the computing power given by your computer.

From the side of transactions, we need to distinguish between: **Exchangers' transactions** and **Final users' transactions**.

**Exchangers' transactions** are the ones made by users that are simply transferring cryptocurrency from an account to the other without involvement of other functionalities of the blockchain (both in D# or Md#) and are not so different from the way in which transactions occur in existing cryptocurrencies. Every account has got a unique alphanumeric identification, with a public key, that permits to receive cryptocurrency, and a private key that allows to send it from that account. There are not transaction fees (nodes are rewarded with part of the newly generated units, with a certain percentage of the mined D# or Md# given to them, rewarding node's holders proportionally to the length of the chain they store and proportionally the "honesty" of the node, so proportionally to the statistic conformity of their results to most of the results provided by the other nodes).

Transactions are peer-to-peer and encrypted with Blockchain technology. Exchanger's transactions occur between already existing cryptocurrency units (D# or Md#) and between ordinary users ("exchangers"). A "free of fees" transaction system should attract a lot of people which do frequent transactions.

Where we can see huge differences (both between DataGen and Minidata and between them and existing cryptocurrencies) is in **the Final users' transaction system, which is even the core of the project**. Final users are special users that request the solution of a computational problem. In the case of DataGen, Final Users can be different users with different computational problems to be solved.

In the case of Minidata, the Final User is a unique authorized subject (or at least not many subjects, all of them with similar requests to the network) that uses the computational power provided by the network to set up a Search Engine.

What happens when a Minidata Final User requests for computing power?

Properly speaking, here, the Final User is the Search engine itself (called Minidata Research), but, for the sake of explanation, we can distinguish between: **Minidata Intermediate Final User -MIFU-** (the Minidata Research itself -or Other authorized browsers- that requests to the network the use of computing power) **and Minidata Definitive Final User -MDFU-** (which is the user that purchases researches on Minidata Research -or on Other authorized browsers- and asks to the browser to spend computing power on the research he had requested).

Minidata Research will be a generalist browser (managed by a company that interfaces with the Minidata cryptocurrency -and network-), able to search any kind of information in the WWW. It is the unique MIFU (Minidata Intermediate Final User) with a permanent authorization for asking for computing power to Minidata's network computing (First Browser); but it holds a key to assign temporary certificates to third subjects to do the same; those certificates must have a date of expiry of two, three or five years (those certificates are given after commercial agreements with other search engines; already existing or new ones). MIFUs ask miners the solution of the computational problem in a given language; and miners have to solve it in the same language.

When a miner has solved a computational problem requested by a MIFU, a certain quantity of Md#, which is proportional to the computing power lent by the miner, is assigned to him by the Blockchain mechanism of assignation itself (the so called "lottery") -not by the requesting MIFU-. Proportionally to the coins assigned to the miners, a certain percentage of the coins generated in the running block is given to the nodes as a reward (let's say 10-15% of the mined coins), and distributed, proportionally, as above explained.

A certain percentage of those mined -and assigned- Md# correspond to a growth of the monetary supply (**Extra-Mined**); so, the number of existing Md# increase. Other percentage of the Md# given to the miners and the nodes must be counterbalanced with the sterilization (burn) of a certain amount of already circulating currency (**Balanced-Mined**).

It means that the requesting MIFU must have the cryptocurrency to be sterilized on its account and, after the payout to the miner, **a quantity of Md# which correspond to the Balanced-Mined is sterilized**; so, there is a note in the Blockchain that marks those sterilized Md# as not transferable anymore.

The more is the supply of the already existing Md#, the more is the percentage that needs to be sterilized. When the existing Md# reach a certain number, that percentage reaches 100%. When the percentage reaches 100%, for every created Md#, another Md# needs to be sterilized. For those burned coins is paying the MIFU (Browser), proportionally to the computation it requests. The MIFU itself asks that coins (plus his fees) to the users of its services or the related ads sponsors.

This means that mining could ever be possible, even ensuring a limit to the inflation.

To computing power requested to miners by MIFUs must be added the one needed to sustain the Blockchain itself.

That necessary computing power is included to calculate the total number of Md# on prize in every

calculation session; but it is included in the computing power requested in that session by all the MIFU. So, in the limits of the percentage to be sterilized, all MIFUs must take on themselves -each one proportionally to the requested computing power- the computational cost of the Minidata Blockchain itself.

There is a lighten chain that can be stored by nodes, which includes just temporal mark hashes, hashes related to transactions and transactions orders and also the number of computational requests by MIFUs.

Then, there is even a heavy chain, in which, nodes are storing hashes encrypting the content of the MDFU Web Searches.

So, this heavy chain, stores info related to the words digitized in the search bar, plus the clicked results, ads and other data, which are encrypted with a random key (that changes every X blocks), that is send only to the interested Browser (and to the First Browser, that is provided even with the info relating other browsers).

With that key, the MIFU can decrypt the searches' data, but not the identity of the user, his real name and real IP. So, even if the MIFU can make predictions (and so intelligent advertisement) about the user, it doesn't know who he is and what he does. The browser cannot track the activities of its "searcher" (MDFU), which is invaluable for his privacy.

MIFU asks to the Minidata Definitive Final Users (MDFU) -or to the related sponsor- the payment of the amounts it has spent for the searches, plus a fee for the maintenance costs and the service.

The payment is made in Md#, which the users will be able to obtain from their ordinary currency in a simple way on the Portal (explanation later).

But how does a MDFU pay for the Md# that MIFU has spent on its research? And who is a MDFU?

Let's start with the second question. We have to say that there are two types of Minidata's account. This because Minidata Research has a freemium model of business.

You can ask for a Minidata Research Premium Account, that means you don't visualize ads and that your researches are a bit faster and more relevant (priority minidata-blocks and a little more computing power spent on your researches). You periodically charge some Md# on your Minidata Research account (that is ulterior from your in-chain Md# cryptocurrency account). With that amount you can pay subscription to the service or opt for a pay-per use modality.

Alerts avoid users to make a disproportionate number of web search that the amount they charged won't cover. This is done to prevent frauds from and to the paying users. To avoid, for example, that fraudulent ephemeral accounts make requests for millions of researches, just to disappear hours later.

There are going to be business options for companies with great demands. Payments in Md# can be done on a regular basis.

For a domestic user the cost in Md# should be around 2-3\$ per month (depending on Md# price on the market and other factors).

Supposedly, most users are not paying ones. They visualize ads and their researches are a bit slower. Their use of Minidata Research is free. They don't need to open a Minidata or a Portal Account; they just have to download the browser and to open it (it will be compatible with internet explorer and safari and, possibly,

to exist as an app for apple and android and must be possible to have it as a default setting for devices, in the case there is an agreement with other interested company).

In the case of free users, the payment for their research is made by sponsors that send ads to them. The sponsors have special accounts, and they can purchase a certain quantity of ads, depending on the quantity of Md# they have bond on their accounts. In this case they pay before the ads are sponsored on the search engine; we have to decide on what time basis.

Being pay per click is a probable good model, with integrations of pay per view model; with sponsors anticipating the payment of a certain number of clicks -and views-. The amount to be paid for a click (and a view) depends on the quality of the user which is clicking (and viewing).

Explanation of the concept follows:

Not every ad has the same cost to be sponsored. In fact, even if Minidata Research can't track the devices, it must be able to collect and analyze the Blockchain organized web researches.

So, even if Minidata Research can't determine what a single device is searching for, it must be able to have

a special certificate to receive the precise pattern of researches of every single device, whose identity is anonymized and encrypted by the Blockchain. In that way, an algorithm has to decide what ad is better to send to every encrypted identity; the match is made, and the ad is sent together with the results of the requested web research. So, in this way, some encrypted identities are more valuable, as because their digital tastes and identities (anonymized) are better defined.

In this way, **even anonymized and encrypted digital identities can be valuable.**

Other third browsers with temporary certificates can do the same thing; but they must share the collected data with Minidata Research (licensor) and respect the rules about encryption and anonymization of the devices' data.

Minidata Research has to be studied to be able to sell the anonymized collected data to third parts for marketing analysis porpoises.

The same technique can be used even to improve the experience of the users, with a better understanding of the patterns of researches of anonymized devices and users.

Minidata Research, as a browser, will have lower costs than ordinary competitors, since the expensive elaboration of the data is in part a burden of the Blockchain's network computing community, whose reward is partly sustained by the financial value per se of the cryptocurrency and, in that proportion, is a saving for Minidata Research.

Minidata as a mean to do cryptocurrency transactions isn't related with Minidata Research and it is completely controlled by the decentralized peer-to-peer Blockchain.

Minidata, as a cryptocurrency, has its own setting of rules, that can be managed and changed by a DAO. Some rules are not changeable -such as some aspects of the complex relationship with MIFU- or, if it is, it needs necessarily the authorized key to do it (for ex. the Minidata Research Company's one).

Let's remember that, from the Minidata's Blockchain point of view, Minidata Research and the other MIFU browsers are just special users with some special power: to purchase calculus to the network, in a given language; to hold the key to decrypt the users' research patterns; to have a direct bridge to accomplish

automatic payments from Minidata Cryptocurrency Accounts and another link to the users' Portal Accounts.

In fact, Minidata Research "privately" manages an internal system of payment based on credits (called Minidata credits) which represent Md# cryptocurrency units, but which are separate from the cryptocurrency itself.

#### MINIDATA CREDITS

To permit instant transactions, if users don't want to wait for the validation that requires to wait for the creation of the whole block, or if they want to exchange fractions of Md# units from user to user (micropayments), they can ask to Minidata Research to act as an intermediary.

Practically, in this case, is set up a system involving credits about Md# cryptocurrency units held in Minidata Research Premium Account. So, users make **fictional** transactions from one user to the other, via their Minidata Research Premium Account (the service is provided by a subsidiary or a branch of the Search Engine company): they charge certain quantities of Md# on their account, then they make transactions "outside" the Blockchain, practically exchanging credits that represent a certain amount of Md# that you "physically" don't move from your Minidata Premium Account; what is "moved" are credits that Minidata Research grants to exchange with Md# at 1:1 rate: practically, when you charge a certain amount of Md# (or dollars, etc., properly exchanged on the Portal in Md#), you authorize a transaction of Md# cryptocurrency from your own Minidata's cryptocurrency account to the Minidata's cryptocurrency account owned by the company Minidata Research (the main account used by Minidata Research for its operations). The validation of such a transaction requires 20 minutes. In the meantime, those sums of Md# cryptocurrency units can't be spent again by you, or by anyone. While the validation procedure of your cryptocurrency transaction is occurring, you ask Minidata Research Fast Transaction Service to send you a "fictional" correspondent sum as a credit on your Minidata Premium Account, being Minidata Research a grant that those sums had come from an account that has really deposited those sums. And, while the cryptocurrency transaction is not yet validated by the blockchain, the credits representing the cryptocurrency can circulate many times from one Premium Account to the other using the Fast Transaction Service (so, those transaction are not registered in the blockchain and do not concern cryptocurrencies; but credits granted by a centralized "authority" to be changed in cryptocurrency in a given time). Now you have credits, exchangeable at 1:1 rate with Md# cryptocurrency, that can be sent from one Minidata Research Premium Account to the other. Those credits are not necessarily using a blockchain, instead are a virtual currency suitable for users with not particular concerns about the privacy granted by the encryption provided by a blockchain, but that need very fast transaction. All this has to happen instantly.

When the 20 minutes are passed, the sum of Md# cryptocurrency is on the Minidata Premium Search main central account. The corresponding credit on the Premium Minidata Research account of the users is still circulating. When a user (the original one that had charged the Md# or another one that has received the credits) doesn't want any more to do fast transactions with the minidata credits he had received, he asks Minidata Research to give back the sums of Md#. So, in the next 20 minutes, the minidata credit vanished and is substituted by the consequently Md# cryptocurrency units, transferred from Minidata Research main cryptocurrency account to the cryptocurrency account linked to the Minidata Premium Account of the User that holds the corresponding credit.

The fee could be 0.1% per Fast Transaction (or per Md#/minidata credit conversion, to be defined) + the eventual fee asked by the Portal, if its service is required; and makes Minidata Research acquire temporary control of those cryptocurrency liquidities. Those transactions are not granted by a Blockchain register, but by the trust of the users on Minidata Research and on the fact that, when you want, in 40 minutes, you can



have back the cryptocurrency on your Minidata cryptocurrency (not the Minidata Premium one, related to Minidata Research and to the credits) account. The recording of those transactions of credit is destroyed in the terms of law. Possibly, every 48 hours (if some legislation permits it, the Fast Transactions service is located there).

If on your Minidata Credits Fast Pay Premium Account you have fractions of Md# units you can hold those fractions in your credit account, waiting to hold a full Md# unit. Or you can spend them into the Md# circuit, making transactions with other private holders of Minidata Research Premium Accounts or buying Minidata Research services or services provided by Minidata Research partners. Or you can ask to Minidata Fast Pay to change your minidata credits on the Portal (in this case you must have a Portal account) with other fiat currencies or cryptocurrencies that allows to be held in small amounts.

So, the amounts of Md# charged on your Minidata Premium account, are substituted by minidata credits (if with or without fees to be defined) until you close your Premium account (in which case are returned to your linked cryptocurrency account), or you reduce the Md# charged amounts on it (by spending or sending them).

If originally you didn't want to change Md# on your minidata premium account to obtain minidata credits, but instead you want to change dollars (or other currency) in minidata credits, you have a special option, that links you to the Portal [expl. follows], where your dollars (or other currency) is automatically exchanged with minidata credits; with this mechanism: the user deposits dollars (or other currency) in the dollar account that Minidata Research holds on the Portal, the Portal changes the dollars (or the other currency) [in the way we will explain in the next paragraph] in Md# cryptocurrency, that goes in the Minidata cryptocurrency account that Minidata Research holds in the Portal, and then those Md# are changed by Minidata Research in minidata credits, that are given to the user. All in a blink of an eye. The user didn't even notice it (unless he read the policy terms).

So, to summarize, Minidata credits are units of a not-blockchained virtual currency that a user requests for fast or micro transactions giving the blockchained cryptocurrency (Md#) counterpart to the Minidata Research dedicated service via their Premium Accounts (or other currency to be changed on the Portal) and changing the cryptocurrency itself with those credits.

This Credit can be used to do instant transactions from one Minidata Research Premium Account to another one and from an Account to Minidata Research itself as a payment for its services.

There is a **fee of 0.1% (or more)** when you change your Md# into the Minidata Credit; and **other earnings** go to Minidata Research **by holding the original Md# for a certain amount of time**.

Minidata Credits are particularly useful for users that don't want to hold cryptocurrencies accounts but wish to buy Minidata Premium related services (or to make transactions in that community of users) simply changing their dollars (or other fiat currencies) on the Portal, since you cannot buy Minidata Premium related services directly in dollars.

When you deposit a certain amount of Md# on your Minidata Research Premium Account (even to buy the browser services, for ex.) they are automatically converted in minidata credits, and you can exchange them with other holders of Minidata Research Premium Account or to spend them on Minidata Research services.

## MINIDATA'S AND DATAGEN'S BLOCKCHAIN STRUCTURE

Minidata's Blockchain's code is represented by the hashes of the encrypted researches made by the users of the MIFU browsers (plus hashes related to transactions, transaction orders, encrypting temporary re-encrypted identities etc...), with some random changing encryption, to prevent an easy reconstruction of the users' activity on the search engines. As explained above, encrypting the researches and clicks made by the anonymized-encrypted users in the heavy node.

This is going to save computing power, permitting the computing power used by the MIFU to enhance the Blockchain encryption itself by increasing the amount of the encrypted data. (Who doesn't have the MIFU changing keys must not understand the encrypted data about the web researches content).

Each usual block begins with the registration of the coins mined for the previous computing blocks and the attribution of coins to every miner and node. Then it registers -in order- encrypted transaction from user to user (including the very special users such as the Portal or Minidata Research), MIFUs' requests of computing power, encrypted data about the MDFU activities on the search engines, temporary denomination of users encrypted identities for activities in affiliates platforms; sterilization of certain amounts of coins paid by the MIFU and proportional to the computing power requested in the previous block (as explained in above paragraphs).

Then, the Blockchain ends with the hashes related to the link to the next calculation session.

Maximal priority has to be given to the elaboration of the MDFU requests. So, first, is asked to the miners to scan the WWW searching for the results asked by the users of the Search Engine and to provide suitable ads. If we want to set up a profitable search engine it must be competitive with the existing ones. So, provided this, first the network computing must evade the MDFUs' requests. To evade the MDFU requests without losing time (and so to evade the requests even before verifying them and the "block situation" while the nodes are elaborating them) must be created an algorithm that stops attacks conducted by flooding the network with a huge amount of malicious MDFU requests -for example with a reasonable limit for every encrypted IP to the number of researches each IP can do for free in a certain amount of time; number that can vary according to the increasing power of the network, with criteria to predetermine it for free accounts, and other criteria to make them proportional to the Md# bonded in your account for the premium ones-.

While doing this, the network makes hashes related to the rest of the block's functionalities.

When a block is "ready and finished", the researches purchased by MDFU and calculated by the network, while the already finished block is "already being given to the nodes" to verify it, are put in temporal order, encrypted and inserted in the next block.

Obviously, given the amount of calculation required by the heavy blocks (the complete ones included in the heavy nodes) the "solution" of the block can't be done by a single miner's device: it requires work division, fragmenting the needed calculations to many miners' devices; for this reason the blockchain has to include the BOINC software infrastructure (updated and adapted), to permit rapid work division, with the nodes acting also as "semaphores" to direct the fragment of the whole sum of calculations to the right and suitable miner (maybe periodically testing the hashing performance of every miners' device).

So, the researches on the MIFU browsers must be as rapid as possible; the other functions can wait.

So, the whole block (and the validation of cryptocurrency transactions) can be done in 20 minutes. It can be

even delayed on purpose to increase the appeal of the Minidata Credits (which are going to be more profitable for our private companies -explanation follows-).

So, the information regarding transactions and transaction order are validated by the network at the end of a DataGen-time calculating session, both for Minidata and DataGen.

A similar thing has to be done for Datagen. The encryption of the Final User's requests has to be done regardless of the languages in which the elaboration concerning them have been done.

## DATAGEN

DataGen will be created as the last element of the project, when the cash flow produced by the already existing ones will permit it (unless the developers find a way to produce it in an economical way together with Minidata).

DataGen is the final instrument to purchase computing power.

Its functions as a cryptocurrency are analogue to the ones of Minidata.

The difference is that here there are not privileged users, such as the Minidata's MIFUs.

It is designed to make possible for developers, using every kind of language (or at least more than one), to share computing power to program or to execute.

It can be used, for instance, to do simulations of the molecular dynamics of a new drug, to design a new aircraft, to develop videogames or VR.

The system of the Final Users and balance trough "sterilization" is the same of Minidata. We know that to create such a holy grail needs an immense effort.

This is a long-term objective; but this final goal could be useful even in the early stages of the project, by enhancing from the beginning the value of the whole project in many ways: including the creation of a Datagen token to be sold even in early ICO (alongside with Minidata) and that will be later converted in Datagen cryptocurrency units, when Datagen as a cryptocurrency will be developed.

Maximum number of D# that can exist at the same time is 30 Million (+the ones sterilized) and every Datagen-Token represents 1 D#.

So, when the mining of DataGen as a cryptocurrency begins, the current owners of the Datagen-Tokens are owners of the corresponding D# cryptocurrency units.

Datagen will be an opensource infrastructure and, as so, its code and functionalities will be open to everyone and no one will "own" it. Its management is democratized, thanks to the proper tools of the blockchain technology. Everyone can propose changes to its code, or adding, or develop decentralized open-source application functionalities.

1. How do we prevent competing projects benefitting from our efforts and using clones of Datagen source-code?
2. How can we benefit from the creative and financial efforts we've invested in creating its code?

### 3. Why should third parties invest resources in improving the public open infrastructure?

Regarding the first question: this problem has already been addressed and solved by all the successful decentralized cryptocurrencies: basically, the solution is both represented by the network's value and by the continually increasingly perfecting and refining code, provided by all the updates and the effort put in place by the community. Network's value: to make an example using Bitcoin as a comparison, Bitcoin's code is open source, so anyone can replicate Bitcoin's technical infrastructure and launch a project with the same (or slightly different) characteristics; this has happened many times, but very few of these Bitcoin epigones have gained substantial financial value and no-one of these have gained enough momentum to seriously threaten the original Bitcoin project's success. The reason is that the financial value isn't determined by objective qualities of product; financial value is instead where human communities agree there is financial value. Bitcoin had a community of users who invested money and effort in the product and that agreed to give Bitcoin an economic value (by exchanging Bitcoins with other valuable things). This consideration is not valid only for Bitcoin's currency holders, but also for miners, exchangers, node holders and for all the other members of the community that invested resources in that product and that, being stakeholders having all interest in preserving their investment, they continue to agree in giving a value to the original product. The same network effect will protect Datagen decentralized computing power infrastructure from being harmed by competitors trying to clone the project.

The second and third question will require to explain how "Code-Creators" will be rewarded.

Each time an in-chain D# transaction happens, a fee will automatically be delivered and distributed to the plurality of the Code Creators, accordingly to their efforts (how someone's effort is evaluated by the algorithm will be later explained). There will be different kinds of fees depending on the different kind of transactions: Fees for ordinary transactions (financial transactions between users simply exchanging D#) will be between 0,1% and 0,03% (depending on the transaction amount); since fees are only for in-chain transactions, these kinds of fees can be avoided by users shifting from in-chain transactions to wallet-based exchange managed transactions. The other two kinds of fees instead will be unavoidable, since are structurally linked to necessarily in-chain functions of DataGen. Computational transactions happen any time a Final User (so a user or a SaaS app requesting computing power on behalf of its users) asks to buy computing power; than a 1,7% fee will be automatically diverted from the D# the seller is receiving for his computational effort. Similarly, miners engaged in using computing power for the creation of new blocks, will be subject to a fee of 1,5% from the D# they receive for their effort.

The fee is directly paid in D# cryptocurrency, automatically sending the due amount by diverting it into a smart contract holding all the fees (nominally held by it "as a virtual arbiter" in the name of the benefitting Code Creators until the algorithm distribute them). Every few block-creation-time, the fees are released and distributed to the crypto accounts of the Code Creators.

Every complex societal system (physical or virtual) in which there are operators putting efforts in creating or maintaining a public infrastructure requires a "taxation" of some sort to shift the financial burdens from the ones actively engaged in contributing to the public infrastructure to the general community benefitting from their effort; in this case from the Code Creators generating and updating the infrastructure code to its community. Coders are remunerated accordingly to their contribution (from the code length point of view) and accordingly to the "level" in which their contribution is occurring. Different levels are about different aspects of the source-code and require different community consensus and give right to different fees amounts. To make an easily understandable metaphor is like if, when you are building a condo, you are making a distinguishment between those who built the pillars and the structural elements (on which the building is standing) and those who built the internal walls creating different apartments and rooms inside them or those simply installing windows and painting the walls. Maintaining the structural elements is

different from maintaining the wall painting; both activities are made (ideally) by a plurality of competing operators and both are rewarded by the people living inside the building, but the remuneration is calculated differently and also you need different levels of consensus from the condo's inhabitants when you propose to change the color of the façade than when you propose changes that involves the structural stability of the building.

Out of metaphor, there are 7 levels of Code Contributions, grouped in 4 different Typologies.

The typologies are:

1. Base Coding (regulating the very fundamental rules of the ecosystem): level 7;
2. General Coding (regards specific general functionalities and, when implemented, usually requires changing some already existing functions): from level 6 to 3;
3. Adding functionalities (adds a new type of computational problem to be solved within the infrastructure): level 2;
4. Local rules (adds local smart contracts and hyperlinks): level 1.

Fees shares are reserved to each typology (later explained in Reserved Fees).

By levels:

Level 1\_Smart Contracts rules – hyperlink rules adding.

Level2\_Adding functionalities (non-conflicting rules) – Datamining secondary architecture. Level3\_Adding non conflicting rules to the General Code.

Level4\_Datamining main code architecture functions – Datamining primary architecture. Level5\_Adding encryption levels to the main code

Level6\_Improve encryption by substituting encryption protocols.

Level7\_Primary code that regulates the above 6.

Follows an explanation of singular levels (and related fees) from the 1<sup>st</sup> to the 7<sup>th</sup>:

Lev.1 Smart Contracts or hyperlinks can be added to regulate local groups. They require 51% consensus (by D# shares) of the group members. It's valid for the whole group giving the consent but Not for the whole ecosystem. It can bind D# accounts (with their related D#) or specific mining accounts to follow sets from external (Ethereum) smart contracts or hyperlinks. It gives right to fees determined in the smart contracts themselves, to be collected among the participant to the local group.

Lev.2 Basically, allows new SaaS applications to solve new different categories of specific computational problems (or existing SaaS applications to extend their functionalities to extended categories of computational problems). The Code Creators of the new modifications get a share of the Computational Fees (the ones amounting 1,7% of the D# received by data-miners) generated by the computing power sold pursuing (just) the new specific computational task their coding allows or expands. That share is equal to the 70% (of the 1,7% fee), to be shared proportionally to Code Creator's contribution (hashing weighted) to the specific (new or expanded) application. The other 30% goes to the "Commune Smart Contract". Level 2 modifications require 51% consensus of the whole Code Creators community (hashing weighted) or 41% (hashes weighted) consensus of the whole Code Creators community + 51% consensus of D# holders (weighted as of their D# ownership).

Lev.3 Adding non conflicting rules to the General Code \_ to add functionalities to the general source-code of DataGen infrastructure, which are valid for ALL the specific DataGen applications (but does not affect the way in which the coding rules themselves can be changed). Requires a consensus of 51% of the D# owners (ownership weighted) and of the 51% of the Code Creators community (hashing weighting General Code Creators & Base Code Creators equally). Code Creators of Lev.3 code segments get fees Reserved to Type B lev.3, proportionally to their hashing contribution to the General Code.

Lev.4 Primary Datamining architecture \_ regulates all the aspects of original functionalities (which are valid for ALL the specific DataGen applications) allowing decentralized computing power on request of users (so are excluded the parts of the source-code related to encryption itself, to the mining blocks, to the transfer of D# among not-requesting-computing-power users and the Base Coding). To these original functionalities can be added the lev.2 ones (which remain distinct from the lev.4). To alter the Primary Datamining architecture is required a consensus of 51% (hashing weighted) of the General Code Creators + a 51% consensus (hashing weighted) of the Base Code Creators. Lev.4 Code Creators get rights to fees proportionally to their contribution and to the fees Reserved to type B and lev.4.

Lev.5 Adding encryption levels to the main code \_ allows to refine and increase encryption protection by adding encryption protocols but without altering the already existing ones. This lev.5 layers can be designed to increase safety protocols or to increase mining efficiency. In the first case they get (proportionally to their hashing contribution) type B lev.5 Reserved fees. In the second case they get Mining Performance fees. To add encryption levels is required a consensus of 51% (hashing weighted) of the General Code Creators + a 51% consensus (hashing weighted) of the Base Code Creators.

Lev.6 Improve encryption by substituting encryption protocols \_ allows to refine and increase encryption protection by altering the already existing protocols. This lev.6 coding can be designed to increase safety protocols or to increase mining efficiency. In the first case coders get (proportionally to their hashing contribution) type B lev.6 Reserved fees. In the second case they get Mining Performance Fees. Is required a consensus of 51% (hashing weighted) of the General Code Creators + a 51% consensus (hashing weighted) of the Base Code Creators + 51% consensus of D# holders (weighted as of their D# ownership).

Lev.7 Primary code \_ Basically the rules of rules (that disciplines the way in which the rules can be changed). To alter or add code lines to the Base Code is required a consensus of 61% (hashing weighted) of the General Code Creators + a 51% consensus (hashing weighted) of the Base Code Creators + 61% consensus of D# holders (weighted as of their D# ownership). To General Code Creators (proportionally to their hashing weighted contribution) are reserved type A level 7 fees.

We have been saying that Code Creators get shares of the fees proportional to their (hashing weighted) coding contribution and to the typology and level (so A -lev.7-, B -from lev.6 to lev.3-, C -lev.2, D-lev.1-) in which they are contributing. But how are fees distributed among the different Typologies/Levels?

There are basically 5 different kinds of fees: Local Group Fees, Mining Fees, Computational Transaction Fees, Ordinary Transactions Fees, Lev.2 Added Functionalities Computational Fees, and Mining Performance Fees.

**Local Groups Fees** are determined by smart contracts, disciplining groups (voluntarily joined by D# accounts and miners) and are not a general concern of the Infrastructure's community.

**Mining Fees** (equal to 1,5% of the D# that miners receive to mine new blocks):

-75% of the collected fees are distributed to General Code Creators (proportionally to their hashing

contribution) \_ so to lev.3-6 Type B.

-25% are distributed to Base Code Creators (proportionally to their hashing contribution) \_ so to lev.7 Type A.

**Computational Transaction Fees** (equal to 1,7% of the D# that computing power sellers receive from computing power buyers):

-50% are distributed to Base Code Creators (proportionally to their hashing contribution) \_ so to lev.7 Type A.

-30% are distributed to General Code Creators (proportionally to their hashing contribution) \_ so to lev.3-6 Type B.

-20% goes into the "Commune Smart Contract", that distributes the collected D# to Code Creators of all levels (excluding Lev.1), proportionally to their contribution (hashing weighted) to the infrastructure, regardless of the reference level of their contribution.

**Ordinary Transaction Fees** (between 0,1% and 0,03% of the D# involved in all the "not-computational-purchases" in-chain transactions):

-40% are distributed to Base Code Creators (proportionally to their hashing contribution) \_ so to lev.7 Type A.

-40% are distributed to General Code Creators (proportionally to their hashing contribution) \_ so to lev.3-6 Type B.

-20% goes into the "Commune Smart Contract", that distributes the collected D# to Code Creators of all levels (excluding Lev.1), proportionally to their contribution (hashing weighted) to the infrastructure, regardless of the reference level of their contribution.

**Lev.2 Added Functionalities Computational Fees** (equal to 1,7% of the D# that computing power sellers receive from computing power buyers and that are generated by that specific Lev.2 contributions):

-70% goes to the Coders contributing (proportionally to their hashing contribution) to create or expand that specific computational application.

-30% goes into the "Commune Smart Contract", that distributes the collected D# to Code Creators of all levels (excluding Lev.1), proportionally to their contribution (hashing weighted) to the infrastructure, regardless of the reference level of their contribution.

**Mining Performance Fees:** all the increases in mining efficiency performances or yields occurring because of a Lev.5 or Lev.6 encryption performance coding contribution will entitle the General Coders authors of the contribution to automatically retain 10% of the increased yield or performance in mining. This fee is to be distributed proportionally to their contribution (hashing weighted) to a specific mining-increasing-performance-coding and proportionally to the contribution that specific coding intervention is having (among all the other peer Lev.5 and Lev.6) in increasing the overall performances.

All this check and balances contributes to an ordinate development and continual improvement of the decentralized cloud computing infrastructure and also provides the active contributors who enhance the public infrastructure (specifying that they can also become providers of SaaS applications using the tools they developed to intermediate services among users and the decentralized infrastructure as an additional source of revenue) to benefit from their efforts, and so, to put in place the right incentives to empower the services (and so the size of the network).

When, in a deep phase of the project, **DataGen** will be realized, the group that had created it (a part from holding stocks of the currency) will work with **services related** to it; in particular:

-**Code Creation Fees** as above explained.

-**Softwaring and infrastructuring license and activity**, related to infrastructures and software suitable to exploit the computing power of the DataGen's network.

-**A Virtual World Universal Paying System (VWUPS)**, with the creation of a **financial instrument based on D#**, in a system that **mimics the banking system**, with D# that are used as securities for the emission of virtual money (Blockchain based or not), suitable for all the payments in fields related to DataGen (marketplaces, online games, gambling, buying datagen services...). In this way it's created an instrument that is faster and easier to use than D# itself. In this way D# could multiply its value, by creating a derivative instrument that could be used as online-currency. The idea is specular to the Portal one. But, in this case, this is not conceived just as a money exchange, trading instrument, with earnings coming from the brief permanencies of currencies and cryptocurrencies in it; but it is meant to be a much more virtual-bank-mimicking system, with long staying of D# units (used as securities to grant the value of the derivative virtual money) in the VWUPS Datagen accounts, with the possibility to reinvest part of the staying D# units.

-**Creation of Virtual Goods** (immersive gameplays; simulation for militaries or civilian uses; intelligent algorithms) to be sold. Created by spending held D# amounts or directly mining it and using the software and infrastructure developed by the other company.

## THE PORTAL

That's how Minidata and DataGen, basically, are intended to work and to make circulating economic value.

But how to make enter economic value in the system?

**The Portal is an exchange platform (semi-decentralized), studied to avoid that Minidata and DataGen users have to go to third intermediaries to change their dollars or their bitcoins (for example) in D# or Md# and as well as to be an instrument to exchange other cryptocurrencies and to trade with them without fees or other hidden costs.**

The Portal uses a Blockchain for internal use; as cheap as possible in terms of development economical cost and of computational power needed (centralized if it is a cheaper and more manageable option).

The Portal will be designed to Exchange 8 Cryptocurrencies (Bitcoin; Bitcoin Cash; New Ethereum; XRP; Litecoin; Chainlink; Eos; Bitcoin BSV) and 8 Fiat Currencies (American Dollars; Euros; Yuan; Ruble; GB Pounds; Rupia; Australian dollar; South African Rand) Plus Datagen -at the beginning the Datagen-Tokens- and Minidata cryptocurrency.

Other exchangeable fiat currencies and cryptocurrencies can be added with a special mechanism of keys and smart contracts voting.

The Portal acts as the owner of an ordinary account / wallet of those 8 cryptocurrencies and the owner of a bank account of those 8 currencies. And as a special owner with special privileges of a Datagen and a Minidata cryptocurrency account. Datagen (and previously the Datagen-Tokens) acts as the benchmark to determine the exchange system. All the suggested exchange rates are determined in comparison with Datagen (or Datagen-Tokens).



The use of Datagen as a benchmark can lead to temporary distortions comparing to the ordinary market middle exchange rate; and thus, determine interest in short-terms investors and traders. Exchange rate between D# and Md# is fixed and predetermined.

What happens?

A user (via his ordinary bank account or cryptocurrency account / wallet) sends a certain quantity of fiat currency or of cryptocurrency on the bank account or the crypto account / wallet that the Portal maintains to receive payments with that kind of currency.

In that moment, the Portal becomes the legal owner of that sent quantity of currency or cryptocurrency. You receive, at that point, an equity token, which correspond to your deposit and that acts as a virtual currency (portal-currency) in the payment enclosed circuit of the Portal.

You receive a portal-dollar (or a bitcoin-portal), as example. 1 portal-currency's exchange rate is always equal to 1 real-currency counterpart (1:1 rate; so, 1 portal-equity-tokenX: 1correspondent-currencyX).

Inside the Portal you can exchange the portal-currency you hold with other portal-currencies as many times you want and, then, ask the Portal to change the portal-currency you finally hold (expressed in the portal-fiat currency token or portal-cryptocurrency token you have at the end) with the same amount of the correspondent fiat currency or cryptocurrency, within the times normally needed to receive a payment with that particular cryptocurrency or fiat currency.

You give your crypto-address or bank address to the Portal and the Portal makes you the deposit.

**The Portal does not ask any fee; but holds and/or invests a certain percentage** (determined and limited to the rules stated by the code) of the various ordinary currencies and cryptocurrencies it holds on its crypto and bank accounts and that correspond to the equity tokens circulating in the Portal.

The Portal holds in a safe -bank or crypto- account the 80% (percentage strictly limited by contracts and smart-contracts), of the various currencies and cryptocurrencies corresponding to the circulating tokens; these liquidities can't be used as collaterals and produce profit only in the form of bank interests; the other 20% -both of crypto and fiat liquidities- while remaining in safe crypto or bank account and **not** at the free availability of exchange, can be used as a collateral to obtain further liquidities; this liquidity is used for profitable low risk diversified investments.

All these operations happen automatically and almost instantly and the user doesn't need to worry about that: obviously there are terms he agrees in full, but, practically, he puts a certain amount of currency on his Portal account and he receives a virtual currency (equity token) that he knows he can exchange with other virtual currencies (equity tokens) at a certain exchange rate.

All the users (a part from the exchange rate of Md# to D# and vice versa, predetermined) can exchange their equity tokens at any rate with other users, but it's provided a suggested exchange rate (used by the Portal in "official" operations) determined by middle exchange rate between equity token1 and D# and middle exchange rate between D# and equity token2.

So, the suggested exchange rate between two portal-currencies is referred to the suggested exchange rate of each one of them with D#.

If a user wants to use the portal-equity-token as a mean of payment towards other users, the user can send his portal-currency to other users without receiving another portal-currency in exchange.

The user can ask at any time to the Portal to give him back (with 1:1 exchange rate portal-currencyX: real equivalent currencyX) the assets changed in another currency (or in the same one, if he didn't exchange different kinds of equity tokens) when he has finished his operations on the Portal.

Relatively to DataGen and Minidata, there must be a "botton" that links you directly on the Portal home from all related Minidata and DataGen services; so, if you want to exchange your Datagen and Minidata with other currencies you can make it in an easy way. The initial cheap Blockchain have necessarily to be possible to be enhanced later. And, at least, even at the beginning has to be sure from hackers and other security threats.

If it's considered a better solution, in particular in the earlier times, instead than an original blockchain, the Portal could be managed via an Ethereum Smart Contract.

The Portal is going to work online and must be compatible with Microsoft Office and OS operative systems. It must be easy to use even for people without special skills in informatic.

In a second moment will be created a mobile app compatible with iOS and android.

## ICO LAUNCHES

In different phases of the project are going to be done some ICOs. The timing and the targeted goals of these ICOs depend by the time in which developers think are going to be able to finish the different phases of the project and by the prospected costs.

The ICO strategy also depends on which development strategy we are going to choose with developers.

Probably, there will be an ICO during the first year after the beginning of the development. This ICO could be made after the development of some products and services or before the development of any product.

## MARKETING

Depending on the financial availabilities provided by ICOs, financial availabilities obtained via ordinary capital collection and the earning coming from services and the value of expendable stocks of cryptocurrency and tokens, we are going to do multiple marketing campaigns to expand the acknowledgment of the cryptocurrencies and tokens which are at the basis of our services and all the related services that we are going to provide (such as the Search Engine's services). This marketing campaign, we think, should invest most of its resources in web marketing (without excluding minor investments in other kinds of marketing, such as meetings or events or advertising on specialized magazines) and has to be targeted as much as possible. Marketing and marketing strategies has to be done by specialized companies.

Marketing, especially in the early phases of the project, will have a main role to have a successful acquisition of clients and investors, for this reason it will absorb an important part of our initial budget.

## MINING

Before Minidata or Datagen become mineable cryptocurrencies or tokens, a company/ company branch equipped for mining in the very early stage of their existence has to be settled. The main scope of this company/company branch is double: to obtain stocks of D# and Md# tokens and cryptocurrency when mining them is very cheap from a computing power point of view; and to grant that eventual fluctuations of the mining markets don't affect the main functions of Minidata and DataGen related services -specially having concerns about the reputation of Minidata Research as a good browser and of the Minidata's network computing solution to be a good solution to be adopted by other browsers-. When the computational power of the mining communities of both cryptocurrencies grows, this mining company will proportionally lose its effectivity; but at that time, we hope ours to be progressively more appealing and prized cryptocurrencies and that the mining company is going to hold -at that time- valuable cryptocurrencies stocks.

## GENERAL WEBSITE, APP AND PC PROGRAM

When more than one of the DataGen, Minidata and Portal related services are ready and operative for the public, and the financial situation allows it, shall be created a unique app -and an equivalent program even for pc- where the user can switch from one service provided by the group to the other. This app should be provided with a general home and explanations concerning every single service, its benefits, eventual future ICOs, and the whole project. The app also should link to a guide for the creation of a cryptocurrency direct account and directly to the subscription to our related services. This app will be appealing, compatible with the major operating systems, easy to be used, easy to be downloaded and installed and easy to be understood even by people with no height skills in IT.

The project needs (early) even a web site, both for info and to be linked to the online and offline services provided and info about "where" and "how" you can have direct access to a Minidata and a DataGen blockchain account, as miner or exchanger, if you don't want to use our intermediation services.

## MARKETPLACE

**The marketplace is not inserted in the road map** and in the costs and time schedules, as because it is not a main element of the project. It's just an eventual one that could be interesting to develop, if the economic and non-economic conditions permit and suggest it.

Somewhen after the creation of Minidata Services and the Portal and before the creation of DataGen, could be created a marketplace to sell physical and non-physical goods. Due to its characteristics, we think it should be suitable for buyers which are also resellers and it's not going to be a company that takes care even of the physical expedition of the goods. It should be conceived as a place where sellers and resellers can sell and buy and make deals to sell goods. The payments could be done with minidata credits (or Md#), via Minidata Research Premium Account special option.

In this way the earning comes four times: for the Marketplace itself (thanks to fees). For Minidata Research (that changes Md# in minidata credits; with the consequential earnings). For the whole system (inflating the usefulness and so value of Minidata cryptocurrency Md#). For the Portal (that changes other currencies or cryptocurrencies with Md#, with the related earnings).

Controls must be done, to ensure that transactions concern just products that are legal in the countries where they are sold/bought. Note: this is just an eventual, hypothetical adding to the main project.

## IN BRIEF

We aim to create a complex blockchain ecosystem comprehensive of: two different cryptocurrencies, financial products using cryptocurrencies as securities, a Web Search Engine able to use decentralized network computing for encryption and required computational power, a Portal able to exchange fiat currencies and cryptocurrencies in a way which is safe and cheap for the user and profitable for us and, finally, an envisioned decentralized platform to sell, buy, require, donate, lend, rent computing power in a very flexible way and for a wide range of applications in an increasingly virtual world. Our project, even if will require the reaching of different milestones along the way, will be a very ambitious and long term one, more similar to a marathon than to a short run. We think Datagen could be operative in 5-6 years, with a lot of R&D to be done to make it possible, while other milestones could be achieved easily and before: ICO and running token in 3-4 months, the Portal in less than a year and the Search Engine in 3. Along the way, the companies responsible for the project will grow and turn profitable, while the ultimate goal is to become primary players in a fast-growing fast-changing digital economy, by using a unique and complex digital ecosystem, in which every element works alongside with the others to gain more strength together, by mutually attracting attention, users, investors, by having shared more solid financial and technical means and by having a flexibility, able both to look at the crypto and at the non-crypto economic worlds, that will give it a substantial advantage over competitors.

## SOCIAL IMPACT

Datagen project will have a positive social impact on two different fronts: On one hand will promote better practices regarding the use of global citizens data, by making a more privacy-friendly business models competitive with the present ones (which heavily relies on data exploitation) outperforming the current legal European privacy regulation (which is among the most advanced in the world) and promoting citizens awareness in regard of the increasingly greater importance of their data and the necessity of being cautious in handing them over. On the other hand, the decentralization of cloud computing infrastructures can enhance their democratization, helping to curb the increasingly oligopolisation of this rapidly growing industry, with increasingly greater barriers to entry in this market for the small players (data miners, SaaS app providers), potentially benefitting small player with access to lesser capitals, in the developing world or from disadvantaged geographical areas and ethnicities or younger entrepreneurial realities. In the same way, a fee free cross-border currency exchange able to trade with several different currencies and cryptocurrencies can benefit merchants and unbanked people (including women) from remote areas of the world, being an internet connection and a mobile device the only necessary requirements, who can overcome hurdles to trade with the rest of the world. A web search engine in which advertising is payed in a native cryptocurrency easily exchangeable (on our exchange) can also benefit small businesses from remote and disadvantaged areas of the world (whose currencies are not worldwide accepted and from whom opening an multi-currency ordinary bank account can be an hard barrier) to marketize easily their products globally.