



Coalichain

People

Direct

Democracy.

Decentralizing Democracy – an open platform for accountable, representational governance.
Clean and direct bond between voters and representatives.



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> 1.0 Context <

1.1. We live in Groups

People live in groups¹. We all belong to many groups: our neighborhood, town, district, country or continent, at work, in unions, where we volunteer, where we play, where we study, on social media.

1.2. Representational Democracy

For groups to function we developed forms of government. Think of governance as managing and employing the means for realizing the group's purpose.

Democracy is considered to least worse form of governance.

In order for democracy to be effective and efficient we needed to make some concessions. The most apparent² was moving from direct and pure democracy to the representational model. The rationale behind it is simple. The day-to-day operations of a group, be it a country or a start-up company, are made out of many decisions. Too many for the group members to vote on each and every one of them. As the group becomes bigger and has a wider mandate, the complexity of some decisions also becomes a factor, and bringing these decisions to a popular vote is simply not feasible. The representational model took care of that by delegating power from the group members to a smaller group of representatives.

These representatives were given not only the right to vote for us, they were many times given the power to act on our behalf. A CEO of a company cannot go and ask her board every time she wants to buy a computer or engage a client. For the CEO to perform her job, she needs the freedom and power to act independently. The fact that actions are transparent and open to oversight, and that the members (in this case the board) have the option not to vote for a representative next time – should be sufficient deterrents from representatives taking advantage of their power.

Well, they are not (sufficient deterrents).

¹ In this sense, a group is normally more than one person, sharing a sense of belonging, purpose and interaction.

² Others included, the protection of minorities, taking measures to ensure basic rights supersede the majority vote and more.

1.3. Power Attracts the Corruptible

The problem is that the representatives get to set the agenda – the policy, that dictates the operations, allocation of resources and the issues that demand decisions. That provides them with almost unchecked power. Representational democracy puts huge power in the hands of very few representatives that are not accountable to the purpose of the group or the wants of its members.

And this power is seductive. Baron Acton famously wrote: "Power tends to corrupt, and absolute power corrupts absolutely. Great men are almost always bad men,..." Just under a 100 years later, David Brin wrote: "It's said that 'power corrupts,' but actually it's more true that power attracts the corruptible."

Either way we are stuck with corruption.

1.4. Compromise and Proxy Power

The roots of this state of corruption (pun intended) are found in our misunderstanding of representation. We assume that representatives **should** have power (ideally derived from their people). This is simply not the case. Representatives are not supposed to have any power at all. Ideally, they are supposed to be a vehicle of power, carrying and using the group members' power (not their own).

So, how did we get this so wrong? This is how:

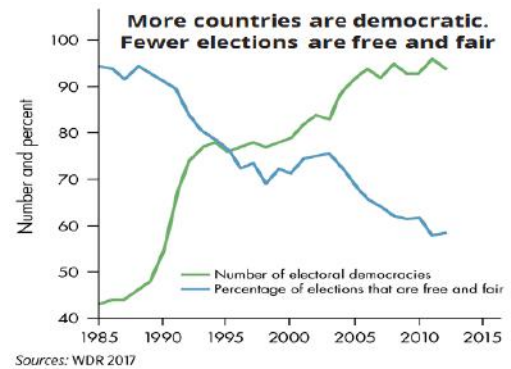
- **Consensus** - It is not clear that it is easy or practical to decipher the wants and purpose of the group. How do you decide what the organization wants if on a specific issue there are diametrical positions that are split 70/30 among the members? Do you ignore the 30%? In all cases? Central representation governance gives representatives more than the ability to voice their members, it gives them the authority to decide, act and influence the entire group, as best they can.
- **Cost** - Even if we could find a way to measure consensus and balance the different variables in a reasonable way, in large groups, asking the members every time a decision needs to be made, what they think, is expensive.
- **Expedience** - A small, authoritative government has the ability to act fast. Deliberating every decision with the entire membership body is many times too slow to be effective.

So, we compromised and gave our representatives proxy power.

1.5. Low Confidence³

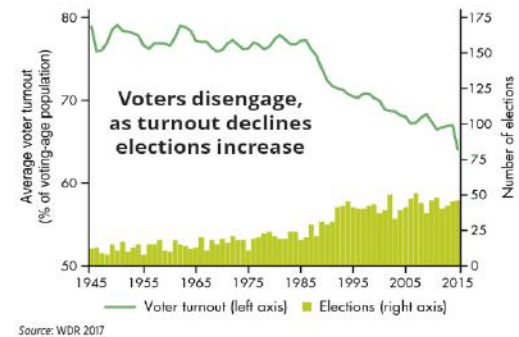
There are 126 countries that claim to be democratic. According to Freedom House⁴, out of 195 countries, 87 countries have reasonably free and fair elections (~2 bn voters).

According to the World Bank, 88% of people think that elections are important for economic development, while only 45% have confidence in the honesty of the elections. Indeed, the influence of interest groups on elections is becoming more noticeable. For example, in the US in 2016 alone lobbying spend exceeded \$3bn USD⁵. A paper published in 2009 in the Journal of Law and Politics⁶, showed that lobbying delivered 220\$ for every dollar spent (22,000% ROI).



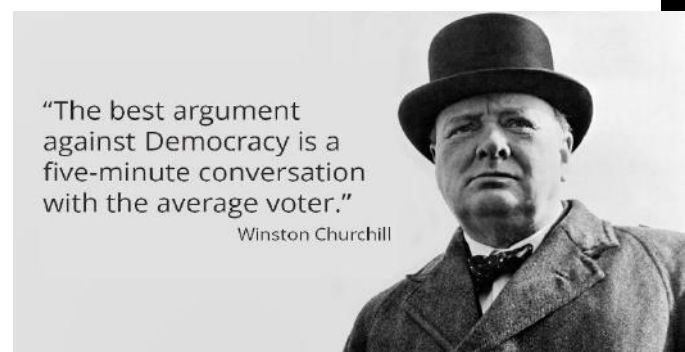
1.6. Voters Disengaging

With low levels of confidence, fewer voters exercise their right. Voter turnout rates in democratic countries are quite low and have been steadily declining⁷. In the US 2016 elections, voter turnout was only 55%. According to a World Bank report from 2017⁸, election turnout over the last 25 years dropped by more than 10%.



1.7. Expensive Process

Elections are expensive. In the US the combined direct cost of the 2012 presidential elections and the 2014 midterm elections was around \$13bn USD⁹. With 126 million voters, that is around \$100 USD per voter. Although the US spend on elections is extraordinarily high, even at \$50 USD or \$10 USD, it is an expensive venture for such poor results.



³ General election is an easy example because they are normally public. As we mentioned above, the scope of our project extends beyond general elections. Nevertheless, the processes we follow are similar and these examples demonstrate our point.

⁴ <https://freedomhouse.org/report/freedom-world/freedom-world-2017>

⁵ <https://www.statista.com/statistics/257337/total-lobbying-spending-in-the-us/>

⁶ https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1375082

⁷ <https://www.idea.int/sites/default/files/publications/voter-turnout-trends-around-the-world.pdf>

⁸ <http://www.worldbank.org/en/publication/wdr2017>

⁹ <http://time.com/money/4556642/election-day-2016-costs-country-voters/> and <https://www.opensecrets.org/overview/cost.php>

➤ 2.0 Pain and Problem ◀

2.1. Pain - Discounted Voters and Disillusioned Candidates

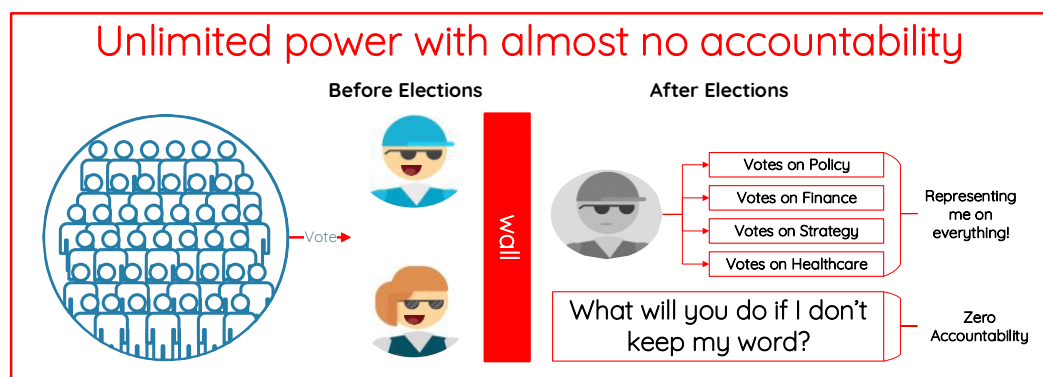
The reality of our different systems of governance is one of powerless, discounted voters and “bent”, disillusioned candidates. The biggest pain we identify is that we have resigned and accepted this as a reality we cannot change. We have become sedated.

- **The Voter - Discounted and Powerless.** Theoretically we, the voters, have a sanction over our elected representatives - not to vote for them in the next election. In reality that rarely works. The average voter is notoriously forgetful and impressionable. The implication is that most of the time, we the voters are chronically discounted, disenfranchised and powerless to do anything. That sucks.
- **The Candidate - Disillusioned.** “The road to hell is paved with good intentions” (proverb). Representatives are not born bad - they become bad. A candidate that wants to win and keep her position, quickly learns that she cannot rely on her ideals alone. She has to either bend or fail.

2.2. Problem - No Real Accountability, No Real Choice

There are two key problems:

- **“Carte-blanche”** – We normally elect one person or a small group of people that are supposed to speak in one voice – our voice. This representative covers all the decisions. We give them “carte-balance” and we do not have the freedom to express our vote per decision, case or situation.
- **Accountability** – there is no real accountability for representatives. With no real consequences, they are free to do what they want. Democracies slowly become de-facto oligarchies. Moreover, even if we don’t vote for them again, the choice of candidates is so limited, it does not really matter.



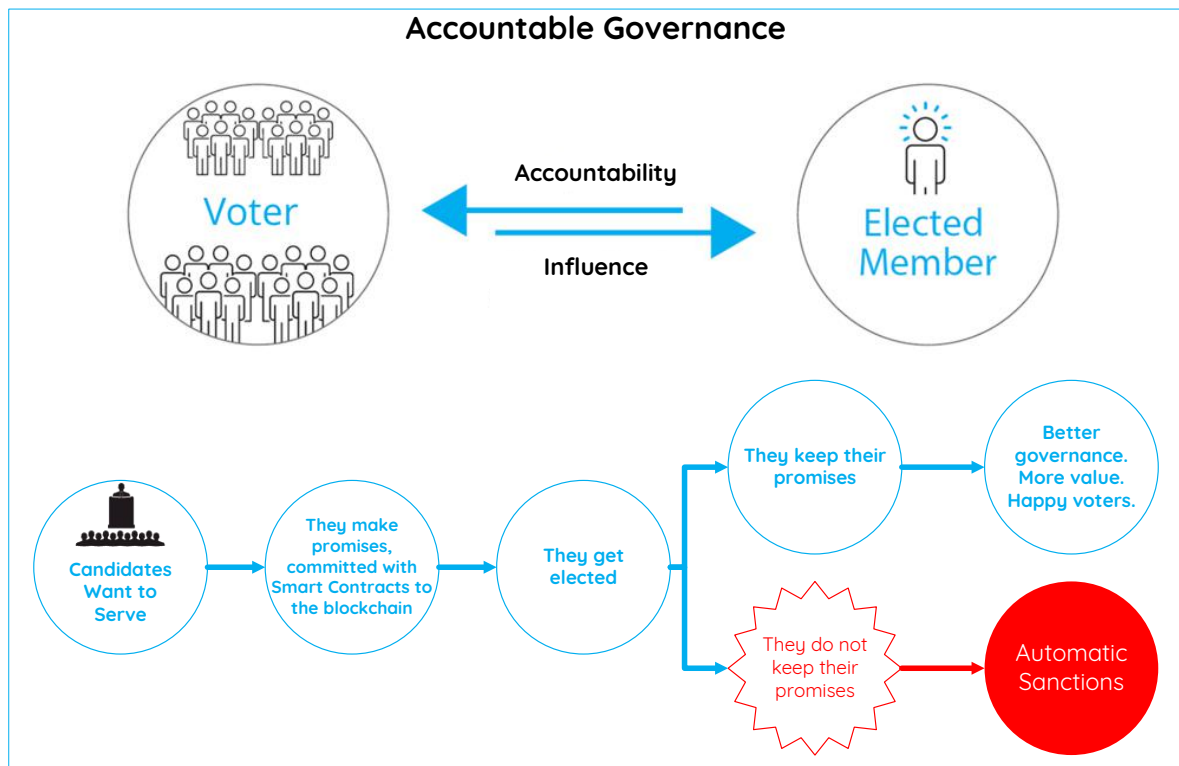
➤ 3.0 People. Direct. Democracy. ◀

3.1. Purpose

Coalichain’s purpose is to realize an effective, democratic and accountable electoral, representational system and reestablish a direct, transparent and trusting relationship between voters and their elected officials.

3.2. Rationale

Coalichain is a decentralized-democracy ecosystem, based on blockchain and smart-contracts and fueled by cryptocurrency. It delivers effective, accountable, people-driven governance to any organization or group of people, from DAOs, through companies, NGOs, municipalities, and all the way to primaries and general elections. Coalichain allows representatives to showcase their agenda directly to their voters; make clear and enforceable promises; transparently raise money and more. It also allows anyone to track the performance of elected officials and hold them accountable.





Coalichain is a carefully designed blockchain, smart-contract, cryptocurrency-based environment that measures activity and involvement, in a way that is secure and resistant to tempering. The blockchain architecture makes sure that all transactions are public, transparent and immutable. Smart-contracts provide an enforceable accountability mechanism, and an internal cryptocurrency facilitates monetary activities and serves as a unit of measurement for governance impact in the sense of activity, involvement and participation. More details below.

3.3. Principles

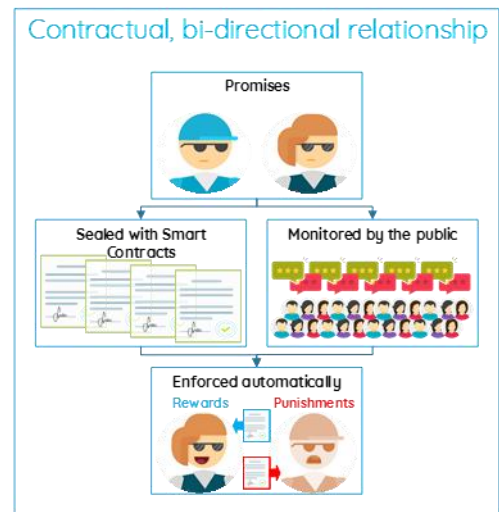
Coalichain follows several principles, aimed at realizing its above stated purpose:

- **Disintermediation** – break the existing insulation between the candidates and their voters and allow for direct accountable communication¹⁰
- **Transparency** – all actions made by candidates on Coalichain are visible to all users – voters and other candidates alike
- **Inclusiveness and Democratization** – people can become candidates without the support of major sponsors. Anyone can support a candidate – no matter the amount of contribution
- **Liquidity** – real life cannot be “boxed” into a single representative’s views. We think it is critical to have the possibility of splitting our views and empowering different representatives to have our proxy-power for different issues.
- **Accountability** – we teach our children that breaking a promise has consequences, we think it is time we all adopt this principle
- **Integrity** – it is vital to keep the integrity of the political process and we try to systematically weed-out foreign interferences or immaterial influences

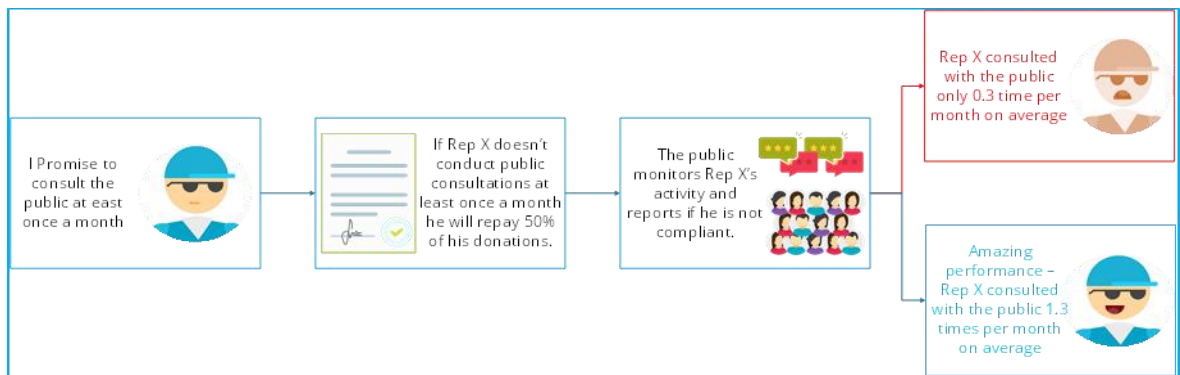
¹⁰ It is true that the proliferation of social media has made it easier for voters to interact with their representatives. However, these interactions are still not an efficient tool for influencing or affecting decision-making and the layer of insulation is still there for most practical purposes. In fact, Coalichain can be perceived as an upgrade to these social media. It will be more transparent, secure and harder to manipulate. It will have built-in accountability mechanisms. A true voice of the people.

3.4. Smart Contracts for Accountability

Imagine we elect a representative. Coalichain allows him to seal his promises into smart contracts. It means that we, the people, can monitor his promises and actions and rate them. It means that if he does not keep his promises the smart contract will automatically execute consequences that the representative himself recorded.



Here's a concrete example. Imagine X is a representative. He commits a promise into a smart contract that he will consult the public before taking any decision at least once a month. He commits that if he doesn't meet this bar he will repay 50% of his donations. The public monitors Rep X's activities and rates his performance that can be tallied to evaluate if he is compliant.¹¹

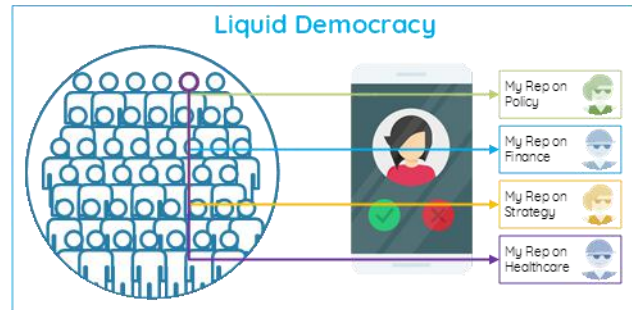


¹¹ Moderation mechanisms and opportunities for the representative to defend their actions will be available on the platform and will make sure this mechanism is not abused. In addition, sanctions will be imposed Pro-rata: If for example 65% of the voters feel that the candidate did not meet his promise (and 35% feel that he either did or that he was justified in not keeping it), the unhappy voters will have the right to claim the pro-rata reimbursement - meaning they can demand 65% of their money (out of the 50% promised) back. There is a range of potential implications for a candidate not keeping his word. Coalichain will offer a "menu" of potential implications, for example, a fine, full reimbursement, denial of additional funds and even resignation. These options will be recorded on the smart contracts.

3.5. Liquid Representation

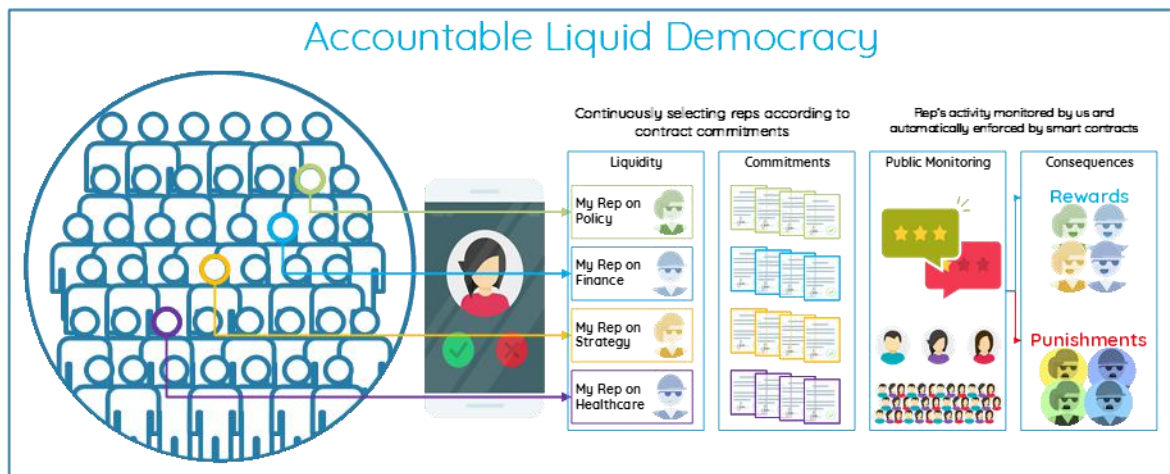
Liquid Representation means we have the ability to express our different views about different topics in multiple votes, through multiple representatives. Coalichain allows voters to decide who their rep will be for each topic and they can also change this decision continuously. This means:

- Rich and dynamic reflection of opinions (No more “one vote for everything”)
- Better more professional decisions
- Everyone’s voice is heard
- Anyone can be a candidate



3.6. Liquid Accountable Representation

Coalichain brings both these dimensions together, to deliver a liquid accountable representation platform.



Finally, it is time to discuss the influence measurement we mentioned. We think this issue is important enough to warrant its own chapter.

4.0 The Proof of Influence Protocol

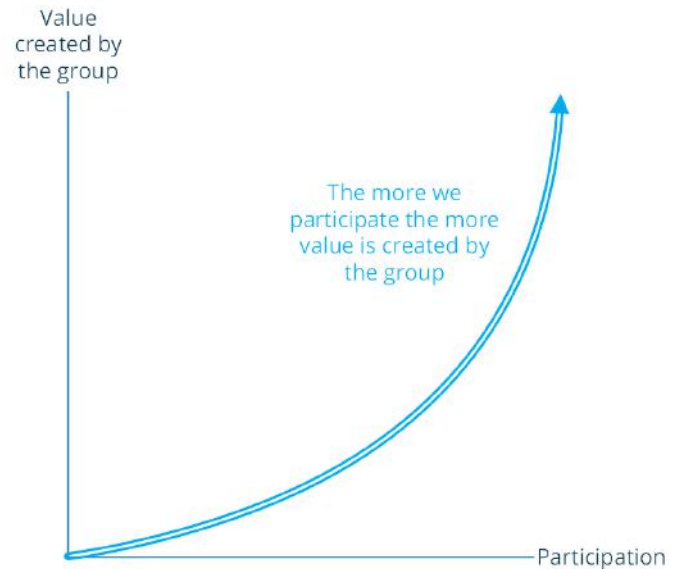
The core innovation in the Coalichain platform is the ability to measure participation, influence and eventually impact.

4.1. Influential Participation ⇒ Value

Coalichain believes that people should participate more in the decision-making processes.

We believe that the more people influence their group’s activities by participating in decision-making, the better their group will be - the more productive and efficient it will become.

In short, we believe that the value created by any group of people is a function of the influential participation of its members.



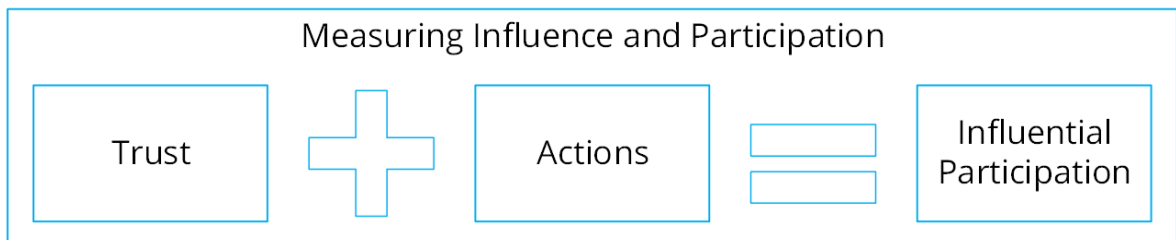
4.2. How Much Participation?

Say we want people to participate and influence more - how much more?

How do we quantify influential participation?

Coalichain has developed a fairly simple equation to measure influence through participation.

Influential participation is the sum of a person’s actions and reactions, such as debating, writing, representing, voting, and the trust they get from other members, that is someone endorsing or rejecting another member as trustworthy on a specific issue.



4.3. Measurable and value creating ⇒ The building blocks of currency

What are the fundamental building blocks of a tender/currency/money¹²? Without going into the detailed canonical definitions of economics, we suggest the following necessary conditions:

- It measures something – in most cases purchasing power. Being measurable also means it is countable – it has different denominations. 100\$ bill would be meaningless if there weren't other denominations for the dollar.
- It has, or it represents value – which means people are willing to use it as tender.

There's one additional important parameter to consider. We've all heard the claim that some types of money do not have intrinsic value. Some people have said that about the bitcoin. Others have said that about the US dollar. What are the implications of this debate? This question becomes more pronounced when one looks at the crypto-token markets with their massive value fluctuations and crashes.

Here's our position – there's a confusion between money having or not having intrinsic value and money being a function of real value created by a group (company, ecosystem or country). Money doesn't have to have intrinsic value. That much has been established long before the first cryptocurrency. If we all agree that money represents value and that it is measurable and countable, it effectively serves as money. The reason we know this is true, is because most FIAT money is exactly that.

The interesting question is the relationship of the money being minted and the value created by the entity minting it. If the rate in which a country is printing and introducing money into circulation is different (faster or slower) than the growth rate of the economy that it represents, it will lead to inflation/deflation and devaluation/revaluation of the currency. If the money is completely disconnected from the actual value being created, there is almost a certainty that such discrepancies will occur, and they can become toxic very fast.

The point is that if we have something that is measurable, countable, fungible and directly connected to a value engine, we have a good candidate for a new currency. One that is less likely to suffer toxic fluctuations.

By accepting that participation and contribution of the group's members to the governance is a value engine and by employing a metric to measure participation and influence, we effectively created a new economic protocol – the ZUZ cryptocurrency see below § 5.1.

¹² We purposefully avoid the "sound money" vs "stable money" debate because we think it does not really matter for our purposes. It deals with the distinction between money deriving its value from the free market and money that its value is controlled by a central body, that, for example controls its supply. For more about this: www.aier.org/article/sound-money-project/sound-money-vs-stable-money



4.4. **Proof of Influence (PoI) and the Influence Score (I-S)**

Coalichain records the activities of group members and tallies them into a personal Influence Score. This score is recorded on the blockchain as an individual asset. The I-S is used to validate new blocks (in a process similar to that used in Proof-of-Stake). Every member in the group, and possibly, across groups, can delegate her I-S to forging nodes (called “Historians” on Coalichain). The share of I-S holding is limited (in order to avoid few nodes holding too much power). The forging process is called “History telling” and forging of new blocks is remunerated with ZUZ that are distributed, pro-rata, between the different members, with a larger consideration to the forging node. Simply put, the more people participate in the decision-making process the higher their I-S will be, the more reward they will get via the History-telling process.

Moreover, different groups may decide to use the I-S for other purposes. For example, it can be used to define a minimal barrier for becoming a representative, by demonstrating real action and not just talk.

5.0 The ZUZ



5.1. Purpose

The purpose of the ZUZ is to serve as a unique currency. The ZUZ will translate personal influence, participation and social capital into a transactional currency that can be used to incentivize people for participation and to allow them to monetize on their governance related activities.

5.2. Uses

- All on-platform transactions – especially governance-related transaction, because, for example, “supporting” a candidate, does not have a price or denomination (it is “liquid”), and ZUZ allows for micro-payments that will promote inclusion
- Measuring influence and rewarding members (e.g., Historians, voters, and representatives) for participation in governance
- Disincentivizing destructive, and counter-productive behavior such as SPAM/trolling
- Supporting a shared sense of trust, purpose and community
- Easier tracking and managing of financial transactions

5.3. Sources of Value

As a currency, the ZUZ adheres to the two conditions we described in § 4.3 : 1) It has denominations and can therefore be used as a measuring “yard-stick”, and 2) it represents real value being created by actions, reactions and creations of people using the Coalichain platform (participating in the governance of their groups).

When members participate in governance (in any way – it could be liking something or running for office – different actions will have different values), they are rewarded twice. First, their I-S is updated. That means that Zetas¹³ are added to their wallets according to a public tariff. Second, in recording the new I-S onto the blockchain they are rewarded for the pooled I-S used in the History-telling process.

As mentioned in § 4.3, the value of a currency, in its core, is connected to real value being created. Since ZUZ distribution is directly connected to the participation metrics of the members of the different groups active on the Coalichain platform, its source of value is the adoption and use of the platform. The more people adopt Coalichain for governing their groups, the more people are active and participate in the governing process (and are rewarded for that), the better these groups will perform, the more value they will create in the real world, the more real value will back the ZUZ. It’s not magic. It’s a currency that correlates work and actions with value through a unit of measurement.

¹³ Remainder: 1 Zeta = 10^{-8} ZUZ

5.4. Tariff and Reward Functions

We are still working on the participation tariff and History-telling reward function and we will publish them soon. They will include an internal decay mechanism that will most probably be tied to the overall I-S counter. The Rationale is that there should be a connection between the value of the ZUZ and the amount awarded. Instead of guessing that by using an exponential decay, we can use the counter of the I-S (the sum of all of the individual scores), as a metric that indicates the platform’s growth rate and adoption state and those should reflect the real value of the ZUZ

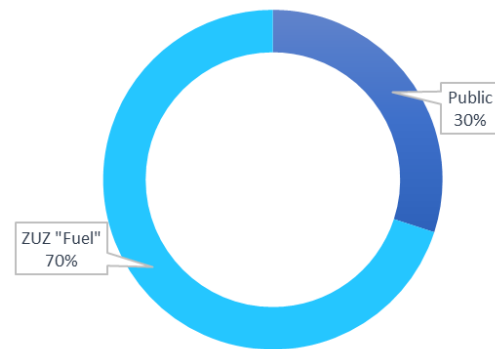
5.5. ZUZ Allocation

Coalichain will issue a total of 770,000,000 ZUZs¹⁴ according to the following distribution:

- **Public - 30%**
- **ZUZ “Fuel” - 70%**

Let’s break it down. Coalichain will use the money raised with the 30% offered to the public to fund:

- Platform development - 10%
- Team - 20%
 - Founders: 7%
 - Executive Team: 2%
 - Advisors: 6%
 - Bounties: 5%



If not all 231 million ZUZ will be sold during the crowd sale, the remaining will be transferred into the “Fuel” reservoir. The remaining 70% (or more) will be allocated:

- Charitable causes - 10%
- 60% (or more) for rewarding History-telling and participation – driving liquidity into the eco-system in a rate that is proportional to its growth.

5.6. Discounted ZUZ

In order to avoid a dump of discounted ZUZ sold during the different stages of the crowdsale, there will be a vesting period on all pre-ICO allocated ZUZ: 25% will mature every 3 months.

¹⁴ For more information about Cryptocurrency Velocity see Appendix A



5.7. Platform Development

The 10% allotted to platform development will serve two missions:

- Development of the platform, including the new feature development, set-up of an open-innovation platform for other development teams and the design, making and maintenance of the Coalichain-dedicated blockchain infrastructure and protocols.
- Funding Coalichain's geographical expansion to additional locations

5.8. Donation to Charities and Causes

10% of all ZUZ issued will be allotted to charities. These ZUZs will be distributed according to the same schedule described in § 5.6. Any charity organization will be able to apply for a donation and all decision publicly published.

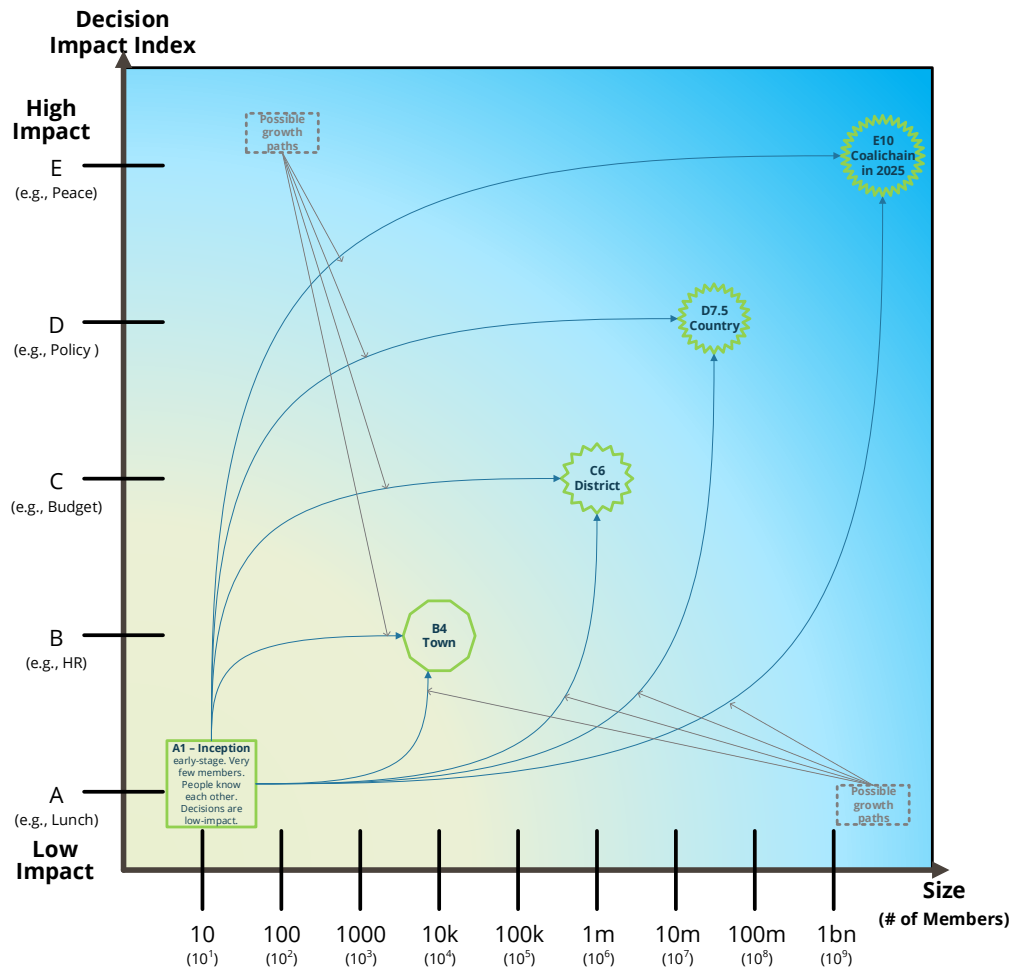


6.0 Ontology

6.1. Things

6.1.1. Groups

- **Group X (GRP_X):** A set of people, organizations or things, that identify themselves and are accepted by other members of that set as belonging to that set and that act in a way that affects other set members. The source of this identification can be a shared purpose, geographic location, language, etc.
- **Classification of the Groups:** We map the Groups in the Coalichain eco-system on two axes:
 - **X axis: Group's Size (# of Members)** - a decimal exponential scale with X marking powers of 10 and a range of 0 to 10.
 - **Y Axis: Decision Impact Index** - an arbitrary index (A, B, C, D, E) designed to reflect the magnitude of impact decisions in the Group have.



Each Group can therefore be mapped on this 2-dimensional scale. For example, A1, which denotes a Group of 10 members with a low impact decision mandate. Another example D3.76, denotes a Group with a high-impact decision mandate and 5754 members.

Each Group incepts at the bottom left and grows according to different possible paths to its potential.

The functionality required for an A1 Group is very different from the functionality needed for an E8 Group. As the Group grows more possibilities and functionalities will become available. The reason for this is that we think it is important to start off simple and easy and not overwhelm the Group with a menu of options that are not yet relevant. As the Group matures, so will its ability to understand and use additional functions.

6.1.2. People/Nodes

- **Pioneer:** The person that incepts GRP_x . The person registering GRP_x can nominate up to 6 other people to be defined as Pioneers (pending KYC).
- **Member (M_{GRP_x}):** A person belonging to GRP_x , registered to the platform, KYC-verified as eligible to vote.
- **Qualified Member (QM_{GRP_x}):** A Member that is allowed to serve as a proxy voter (allowed to vote for others). Voting for others is not a general permission. It is always assigned to a specific Governance Domain (GD, see below). QMs can be candidates and run campaigns to persuade members to delegate them with their votes.
- **Delegates ($DLG_{GRP_x/GD}$):** Qualified Members that have the power to vote on specific GDs by other members. Members can transfer their vote on specific GDs to QMs. This right can be revoked at any time. The extent of this right can be configured during the Inception.
- **Historians:** The “miners” of the Coalichain Blockchain (CB, see below). The Historians are network nodes with the right to validate the new CB blocks. According to the Proof of Influence Protocol (PoI, see below). Similar to PoS, they are selected at random with their weight determined by their Influence Score (I-S, see below).

6.1.3. Governance

- **Governance Domain i of GRP_x (GD_{xi}):** Topics/issues that are in the decision mandate of Group X. These are determined by the first members during the Inception (see below) and can be altered according to the Governance decision making processes also defined in the inception.
- **Decision (D):** A specific question up for decision in one of the GDs.
- **Support Event (SE):** A physical or virtual event, limited in time, in which members debate a specific Decision.

6.1.4. Digital things

- **Coalichain Blockchain (CB):** Coalichain's Blockchain and the only source of rewards for Historians and active Members Based on Pol (see below).
- **ZUZ:** A Coalichain-dedicated cryptocurrency, used for all on-platform transactions and as a means of measuring influence and rewarding Historians, member participation and preventing SPAM. Generated by Coalichain in a single TGE.
- **Zeta:** Participation-generated ZUZ. The Zeta is a type of ZUZ, exclusively used by the Coalichain platform to demark rewards that come from either block validation or members' participation activities. 1 Zeta = 10^{-8} ZUZ. The Zeta is awarded according to the History-Telling process (see below).
- **Influence Score (I-S):** A function that counts Zeta awards. Actions taken in the Group and History-telling, award the Members with Participation-generated Zetas, according to a set tariff.
- **Proof of Influence (Pol):** A consensus protocol, similar to PoS, that is used for determining a single history of activities and decisions. Historians enter a draw to win the right to validate blocks on a Pol CB. Their weight in the draw is determined by their pro-rata, Influence Score. Pooling I-S is not only possible, it is the default state. However, Pooling cannot exceed 5% of the total I-S.
- **Public Profile (PP):** Each member will have a record of his/her relevant attributes and actions, kept on the CB.



6.2. Processes

6.2.1. Foundations

- **Inception:** Creating a new Group on the Coalichain platform. Pioneers define: GDs (to determine GRP classification), Uses (e-voting in A1 GRPs), Member Classes (just Members in A1 GRPs), On-/Off-chain, required majority for changing governance policy, specific voting policies (for example if approval of a vote is required, if a voter can decide to change Delegate if she is unhappy with a decision, Decision proposition criteria, etc.
- **Changes Governance Rules:** The process of changing the configuration defined in the Inception, including criteria, adding/removing GDs etc. Depending on the Group's settings
- **Become a Member:** Being approved as a Member – customizable, authentication process designed to ensure that the member is eligible to be a part of GRP_x. It will include a combination of 3rd-party ID verification services and internal processes (e.g., invitation).
- **Become a QM:** Being approved¹⁵ as a Qualified Member – customizable, authentication process designed to ensure that the Member is accepted by the Group as a GD-specific QM. For example, authentication of formal credentials and internal criteria such as: top 10% Influence Score (I-S).
- **Become a Delegate:** The process of being authorized to vote for at least one member on at least one GD. Member delegating.
- **Become a Historian:** The process of being approved as a “mining” node in the CB.
- **Polling:** All Smart Contract commitments will include an automatic activation of a poll that will allow the members that are a side to the smart contract, or to other members, if so defined, to rate the performance described in the smart contract.

6.2.2. Rewards

- **Update Participation record (PR):** It is the history of the participation of the member. It is kept on the Public Profile.
- **Update Influence Score:** A counter function for activity-related Zeta rewards. Member's activity or received support or History-telling is worth Zeta rewards. Those are counted in the I-S.
- **Update Public Profile:** Each member will have a record of his/her relevant attributes and actions, kept on the blockchain.
- **History Telling:** Validating new blocks on the CB. Historians solve the nonce or an equivalent after being selected according to the PoI Coalichain protocol.

¹⁵ Part or all of the KYC, can be done by a 3rd-party service provider, or by the Group members (open to all or a selected Group). This depends on the size of the Group, the qualifications of its members and the level of authentication chosen by the Group. Note that the term “KYC” is used without determining the method and as a general term that describes an authentication process.

6.3. Actions

We discern between actions that are reactive, meaning they are done in response to actions that have an older time-stamp, and actions that are creative, meaning that they are original (not reactive). In our experience the frequency of Creative actions is lower than that of Reactive.

6.3.1. Creative

- › **Incept a Group**
- › **Propose a Decision**
- › **Initiate a Support Event**
- › **Donate**
- › **Vote**
- › **Proxy Vote**
- › **Post**
- › **Propose a QM**
- › **Become a QM**
- › **Propose a Delegate**
- › **Become a Delegate**
- › **Delegate** (A Member gives his/her vote per specific GD to a QM for that GD.)
- › **Committing** (Any member that makes a conditional promise to other members and committing it and the ramifications of breaking that promise into a smart contract)
- › **Deciding** (a delegate deciding on an issue)
- › **Proposing a Decision:** The process of suggesting a Decision – it could be routine governance operation or, for example the decision to have a general election.

6.3.2. Reactive

- › **Changes governance rules**
- › **Become a Member**
- › **Attend a Support Event**
- › **Become a Qualified Member**
- › **Share**
- › **Comment**
- › **Follow**
- › **Unfollow**
- › **Like**
- › **Dislike**
- › **Participating in a Poll**



6.3.3. Authentication

Several multi-Signature proof-of-identity protocols are considered for ensuring votes integrity on Coalichain, starting with validation through classic official ID and gradually adding more sophisticated systems such as:

- Phone identification (through text message or code generating app)
- 3D-secure Credit Card verification.
- Biometric identification (fingerprint recognition, face recognition)

Before voting, a second blockchain transaction will be independently generated, containing a unique identifier and the expression of the vote.

7.0 Use Cases

7.1. Elections Governance

- **DAOs** - The rise of DAO (or DAO-like) based ventures and ICOs is creating significant demand for governing platforms. The core democratic principles of the DAOs make it a perfect candidate for early adoption. The Coalichain platform (if needed as White Label) will facilitate the participation of and interaction between DAO users, members and communities in the governance and actualization of the DAO as a commons.
- **Corporate and organizational elections and governance** - As mentioned above, Coalichain is an effective platform for electing representatives in corporate and organizational settings, such as board members and other officers. Moreover, it can be used for more effective and inclusive communication channel with different stakeholders (e.g., employees, suppliers, investors). This is especially interesting when considering the rise of new types of organizational structures such as Holacracy¹⁶, in which employees share the decision-making process and affect the governance directly. The desire to participate more in the design and execution of strategy is becoming more prevalent and is binding people to the organization in a sense of ownership and personal responsibility. Another positive aspect is that this type of communication will improve knowledge transfer, innovation and in general help promote a healthy work environment.
- **Local Elections** - Coalichain can run local elections for city council members or a mayoral race. Coalichain becomes the main tool for running the campaign, much like an advertising platform or social media - covering all of the communication needs of the candidate. In addition, as mentioned it will dramatically reduce the cost of running these campaigns. This is true for the next items as well, and basically for any election that demands a significant campaign.
- **General Elections** - In the context of general elections, Coalichain's platform is designed for both small scale polls and bigger ones, fitting countries that do not have the infrastructure for political polls, as well as elections in more advanced places. In a general election, Coalichain's app serves as the voting booth, and citizens can vote without leaving their homes.
- **Unions** - Union members are many times scattered across a country, and this prevents many of them to participate in union board elections. With Coalichain, the board can open a virtual election space on the platform and engage voters regardless of location.

¹⁶ <https://www.holacracy.org/>



7.2. Other Use Cases

- **Public Consultations, Referendums, Surveys** - A city council decides to submit to city residents the decision to ban cars from driving downtown on Sundays. With Coalichain it can launch a week-long, public consultation to gather opinions from the residents and promote the issue.
- **Petitions, non-profit** - An NGO with worldwide reach and with a focus on sustainable development, starts a campaign to raise awareness to their cause, and influence governments to address it. To raise global awareness, the NGO targets politicians and political parties from all sides. This is made easier with Coalichain - initiating public debates between the politicians and their voters, prompting live reactions and eliciting conducive responses to achieve their objectives. Pledges made by politicians can then be tracked and monitored via the platform and acted upon by the NGO and the public if necessary.



8.0 Community Growth strategy

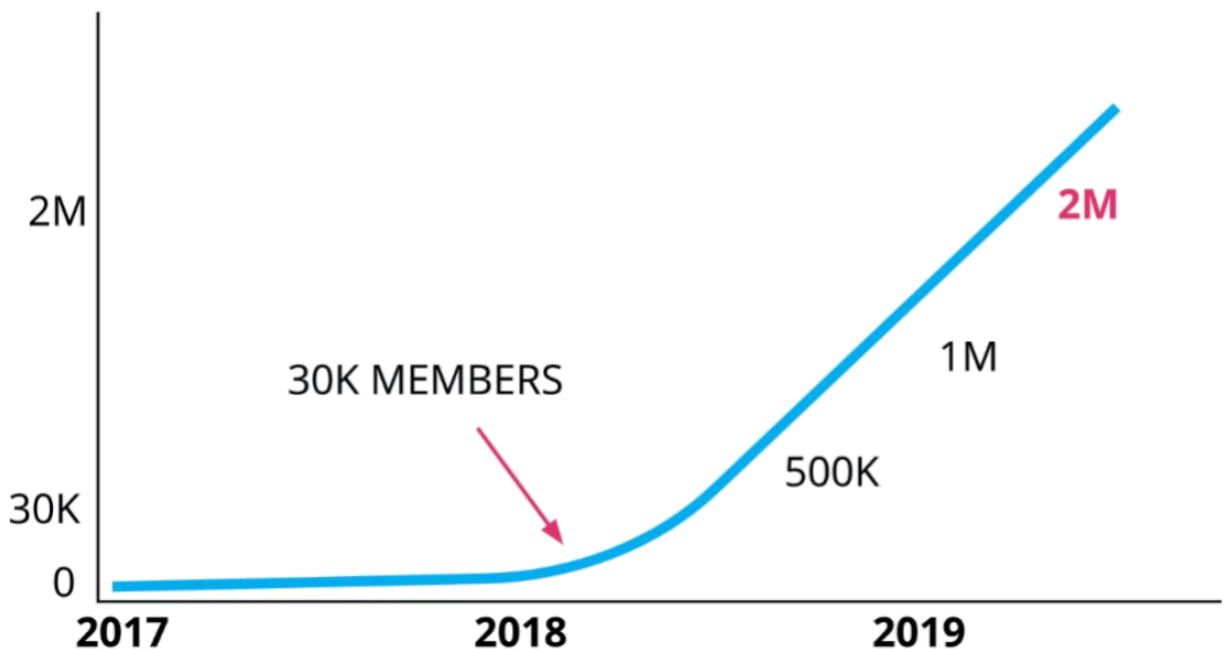
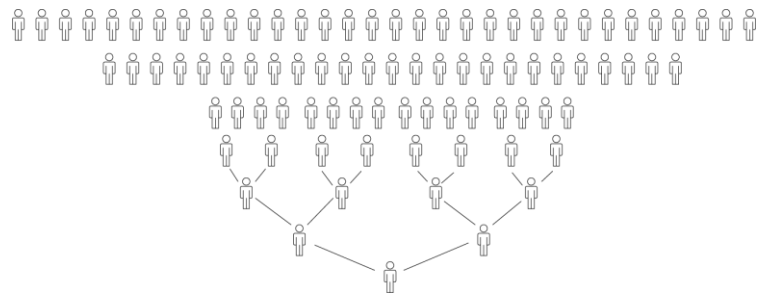
Coalichain is taking a dual, top-down and bottom-up approach in its growth strategy.

8.1. Top down

We are targeting the organizations and leaders to use Coalichain and invite they network to join Coalichain. See roadmap in § **Error! Reference source not found.** for specific goals and milestones.

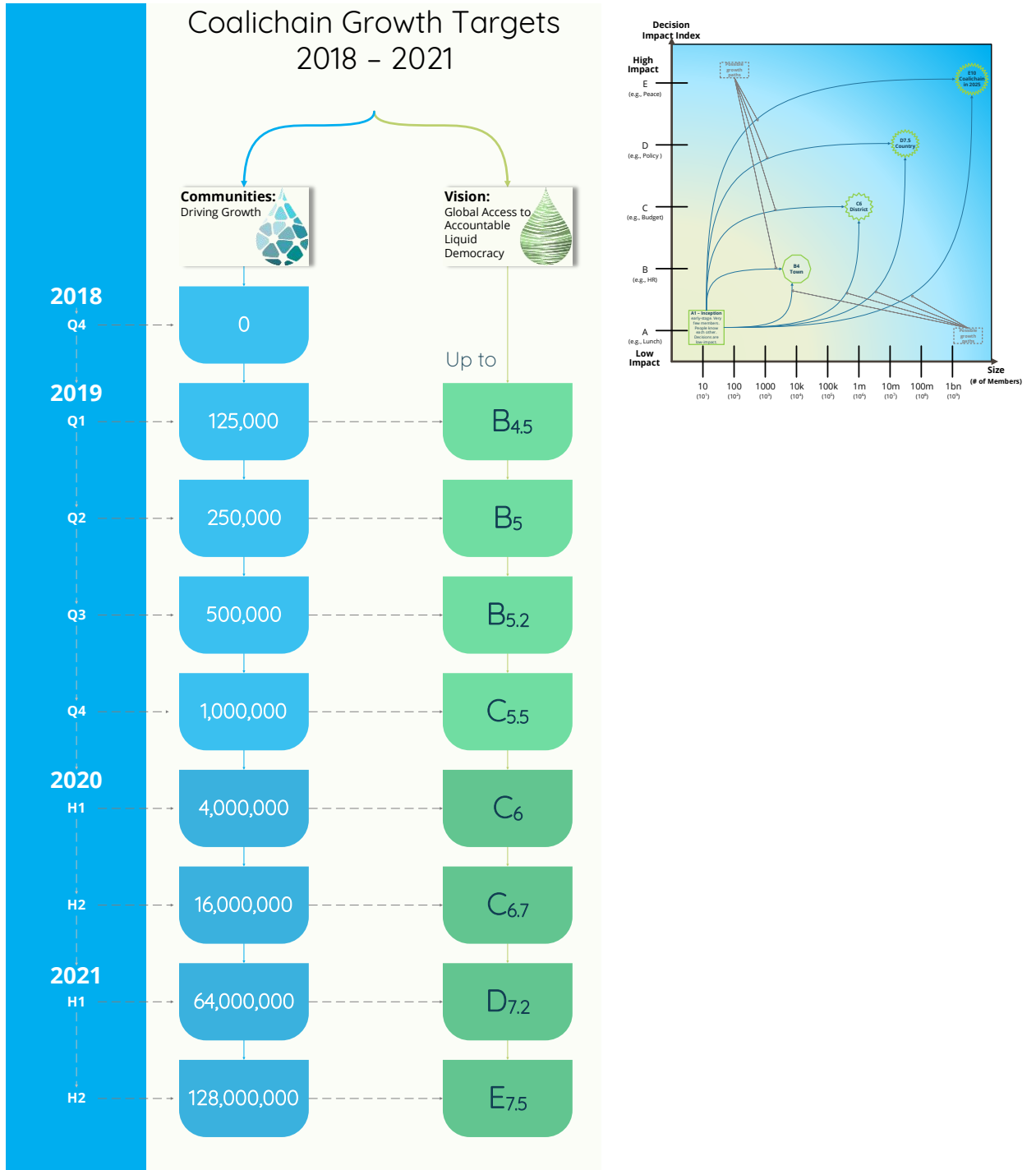
8.2. Bottom up

We are targeting the people and voters directly and invite them to indicate their trusted representatives, participate in polls and governance systems. People prefer that other people join them, and they will invite other members in.



8.3. Growth Targets

Growth targets are based on the terminology defines in § 6.1.1 also shown here below.





9.0 Coalichain Team

9.1. Leadership

- **Levi Samama, Founder, CEO**
Serial Entrepreneur and investor. Founded and led marketing and real-estate companies. Expert in finding problems, designing solutions and getting things done.
- **Shay Galili, Co-founder, CGO (Chief Growth Officer), Interim-CTO**
Experienced in building, managing and consulting on digital marketing tools and strategies for political campaigns, Shay's strategic skills are magical.
- **Shahar Larry, Chief Concept Architect**
Lead writer/editor of this white paper, Shahar is an international innovation expert, experienced in designing and realizing innovations and (esp. DLT) strategies.

9.2. Technology Development

- **Daniel Jaffe, Head of Blockchain Development**
- **Kapil B Grover, Head of Mobile Execution**
- **Virendra Kumar, Senior PHP Developer**
- **Rakhi Bhardwaj, Project Manager**
- **Sahil Bharti, Senior Android APP Developer**
- **Aditya Solanki, Senior iOS APP Developer**

9.3. Business Development & Marketing

- **Partnership Management**
 - **Eliahu Dynovisz**
 - **Moti Ovadya**
- **Marketing**
 - **Erez Yaffe**
- **Design**
 - **Elie Suzan**
 - **Gidon Burcat**

9.4. Advisors and Ambassadors

- **Olivier Rafowicz**, IDF Col. (retd), communication expert
- **Frédéric Lefebvre**, Former Secretary of State - Former Member of UMP, LR & National Assembly, France
- **Gregory Zaoui**, Mobile development expert
- **Marc Lipskier**, Blockchain expert
- **Ilja Šmorgun**, Ph.D., Usability specialist, [Coalichain's Ambassador to Estonia](#)
- **Edgar Kampers**, Cryptocurrency architect, [Coalichain's Ambassador to The Netherlands](#)
- **Adnan Javed**, Blockchain Business Strategist, [Coalichain's Ambassador to Australia](#)
- **Ilja Šmorgun**, [Coalichain's Ambassador to Estonia](#)
- **Peter Merc, Ph.D.**, Blockchain Legal Expert, [Coalichain's Ambassador to Slovenia](#)
- **Quentin Lefebvre**, [Coalichain's Ambassador to France](#)
- **Thierry De Gorter**, Blockchain Expert, [Coalichain's Ambassador to the UK](#)
- **Vadim Fainshtein**, [Web, Mobile Technology](#)

Appendices

Cryptocurrency Velocity

One of the crucial notions in the blockchain world is the concept of “Currency Velocity”. It has been endorsed and revered by prominent blockchain advocates, such as Vitalik Buterin, co-founder of the Ethereum blockchain.

Currency velocity can briefly be described as the number of times an average coin changes hands every day (or other set time interval).

Buterin devised a formula to describe the equilibrium of a cryptocurrency economy:

$$MC=TH$$

M = total money supply

C = Currency exchange rate

T = Transaction volume

H = $1/V$ (the time between coin transactions)

Hence:

$$C=T/(MV) \Rightarrow V=T/(CM)$$

Velocity Properties

Value Indicator

Following the above formula, the velocity of the coin is inversely proportional to the value of the currency. Simply put, the longer people hold the coin, the higher its price becomes.

If velocity climbs too high, it indicates that no one wants to hold it for long periods. Its usefulness, therefore, decreases and the price becomes very unstable as its market value turns into a function of speculation.

ZUZ Velocity

Determining the right range for the velocity of a currency is complex and is subject to the nature of the project, but should stand between 4 and 15 for currencies that are not meant to be considered as stores of value.

Considering the collaborative nature of Coalichain and the fact that the ZUZ carries a political weight that we want to distribute over a large number of potential participants worldwide, the velocity of the ZUZ should be lower, in a range similar to the one retained by a Store of Value type currency, between 1.5 and 2.5.

We ran statistical simulations featuring different configurations of the number of transactions occurring on the platforms and the intensity of usage by geographical



region, taking into account the fact that our international expansion will be incremental and as a consequence, the number of transactions would increase gradually. The following values were interpolated from a model based on medium term, rather conservative development assumptions. In this model, we assumed Coalichain is operational on a perimeter roughly speaking equivalent to G10 countries.

T = 250,000,000 (estimated cruising speed transaction volume)

V = 1,8 (target initial velocity)

C = \$0.18 (price based on the crowdsale price)

This provides us with a theoretical total supply of 771,604,938,27 units.

For the sake of simplicity and having round numbers, we decided to create a total number of 770,000,000 ZUZs.

The substantial number of ZUZs aims to enable us to hold a sufficient amount of coins to ensure the smooth deployment of the platform and will enable the participation of as many people as possible in as many geographies as possible.

Economic Analysis of the ZUZ

Disclaimer

To be clear – the following analysis is a general analysis of the behavior and price performance of cryptocurrencies. It is offered as a service to the community.

It does not imply or suggest that Coalichain intends to, or is at all capable of taking actions that will affect or influence the price of the ZUZ. Nor does it imply in any way that Coalichain is suggesting or promising future appreciation of the ZUZ.

All ZUZ buyers and owners should understand that buying the ZUZ is not, in any way a return-bearing funding investment in a venture.

The ZUZ is designed and purposed to serve as a replacement currency to facilitate transaction in the platform and measure and drive its growth through activities and transactions.

Fundamentals

What will the value of the ZUZ be in 6 months? In 2 years?

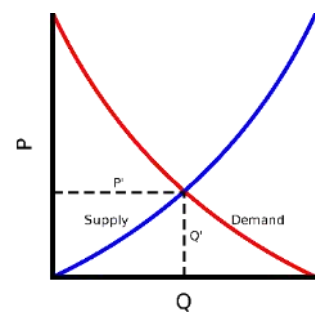
Anyone giving you an answer followed by an exclamation point is too arrogant to be trusted. Still, there are some things we do know and some principles we can follow.

Supply, demand and underlying assets

The simplest and probably oldest one is Supply and Demand. It states that as long as the supply is lower than the demand the price will continue to rise. In most cases, one has direct control over the supply and indirect control over uncovering the demand (the job of marketing). In the case of cryptocurrencies, there is another factor we must consider – the value of its underlying assets or value creating functions. Let's tackle them one by one. First the supply and demand.

Supply and demand

Since the number of ZUZs minted is set, supply is scarce by definition. This implies that as long as demand is there, even if latent, the value of the ZUZ will be tied to its use and proliferation of the platform.



Underlying assets and value creating functions (Utility)

The factor that truly defines the value of a currency over time, any currency, crypto included, is the value of its underlying assets (or value creation functions, aka, utility). In simple words, if the ZUZ creates or measures the creation of new value, its own value should rise proportionately, unless we “print” more of it – in which case, as long as we “print” at the same rate as that of economic growth, the value of the currency should be stable. However, we will not. The underlying asset value is (or should be) the long-term application of any trustworthy cryptocurrency. It is what will keep people engaged; it is what will support the development of new applications and features; it is

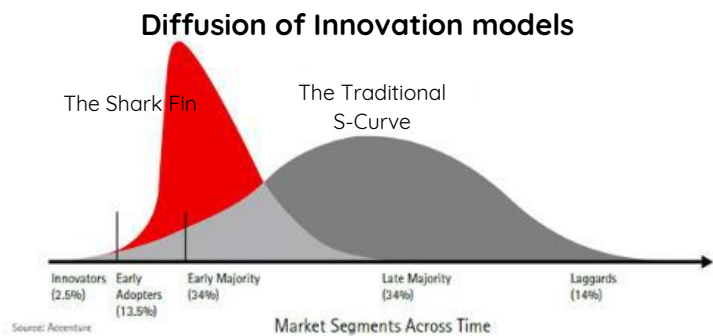
what will drive the growth of the crypto-economy. In that respect, investors should be looking beyond the scarcity factor of supply and into the vision and technology roadmaps that reveal, if there is in fact, a strong enough utility vision that will enable real economic growth (allowing for growth beyond market-share acquisition and toward the increase of the size of the pie itself).

Diffusion of Innovation

From the S-Curve to the Shark-Fin

For many years economists have successfully used the S-Curve to describe Diffusion of Innovation processes (adoption of new products, service and innovation in general).

In recent years a new curve is being advocated to describe the same set of phenomena – the “Shark Fin” adoption curve. The most visible attribute of this new curve is its rate of acceleration. More and more innovations show an exploding growth pattern.



In both cases, the drivers of adoption have been researched and identified and they are, Marketing Efforts and Word of Mouth (WoM). During the first stages of adoption, i.e., the innovators and early adopters, targeted marketing forces are the main drivers of adoption. As we move to the right, WoM becomes the dominant force in the diffusion process. The marker for this change in the force driving adoption, is the inflection point, where the graph stops being linear and explodes exponentially.

ICOs are innovations and exhibit Shark-Fin patterns

We propose to view new cryptocurrencies as Innovations introduced to the market and therefore to explore them with diffusion of innovation models. The rationale is simple: The price of a currency is determined, first and foremost by supply and demand. A spike in adoption directly translates into a spike in demand and therefore a spike in price. Similarly, a decrease in demand translates into a decrease in the price. There is little surprise that when we explored the performance of existing cryptocurrencies we found a Shark-Fin-like adoption curve (with some additional superimposed phenomena) in quite a few. On the right is one such example.





The Three Types of ICO Investors

Before delving into the econometrics, it is important we delineate the main types of investors that affect it:

1. Type A Investors - Short-term speculators

They buy early, spread the news about the cryptocurrency and exit fast, after making a profit.

2. Type B Investors - Longer-term emotionally detached investors

They read the whitepaper. They did some due diligence. They believe in the project and they see it as a long-term investment. They are not emotionally attached to it. It is another “asset” in their portfolio with its associated risk. They don’t scare by local fluctuations, even if they are significant.

3. Type C Investors - The devout users

They will not necessarily invest large amounts, but they will use the platform, service and innovation. They see it as a solution for a problem they have. They will drive the use of the platform and are committed to it. They will be last to sell. For them the financial profit is a secondary reason to buy or hold.

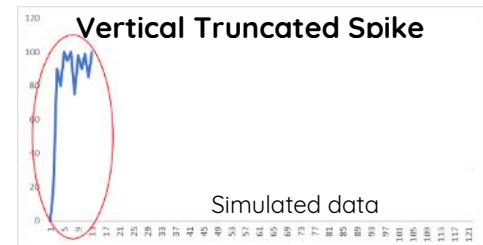
Interpreting the ICO Shark-Fin Pattern

1. The Vertical Truncated Spike

First it is obvious that unlike the Shark Fin described above, the pattern we see after the ICO is “truncated”, i.e., it’s missing its initial incline (which should be rapid but not vertical). That makes sense since the trade starts after the ICO and during the ICO the issuing organization controls the price. The spike in price after the ICO stems from two overlapping phenomena:

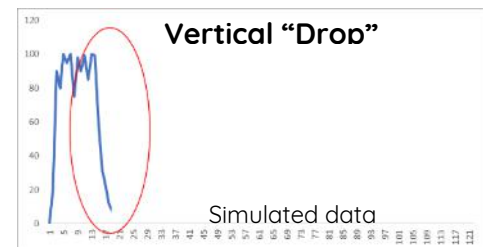
- **Pre-trade marketing and buzz** – The ICO initiator invests in getting the word out and driving “buzz”. Since not everybody hears about it in time or are savvy enough to invest in an ICO, a “pressure” is created that is released when the new cryptocurrency becomes tradable¹⁷.
- **Short-term Speculation** – Demand is mainly pushed by type A investors looking for a low position right after the ICO.

The result is an almost vertical Shark-Fin spike that lasts 2-3 weeks.



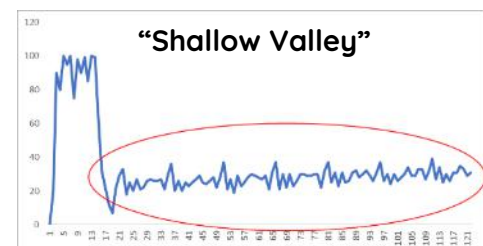
2. The “Drop”

The higher the spike, the more likely it is to have a drop and the more significant it will be. Type A investors start selling their cryptocurrency to realize their position. They flood the market (this is evident by the high trading volume). If these investors carry the bulk of the cryptocurrency sold, the platform will not recuperate. If, however, during the ICO (and/or private sale) a significant-enough number of cryptocurrency were sold to type B and C investors, this drop in price will stop and the platform should survive it.



3. The Shallow Valley

During this period, type A investors decrease in numbers and in sophistication. They may drive a couple of additional, smaller, “spike and drop” patterns, before it subsides. In their wake, the decline will slowly flatten and then start to slowly climb. The reason for this change in trend is the Type C investors. As mentioned above, value is set by demand and underlying assets. Type C investors become the dominant force driving demand via WoM and at the same time they grow the value of the underlying assets by using the platform itself.



¹⁷ The adoption curves of movies behave the same. A lot of buzz is created before the opening weekend, and much of the “normal” curve is compressed into a short period of time.



Investors

Investor Diversification

Type A investors are like an adrenaline shot – they make you feel like superman for a short period of time, and in some cases, they are needed, however, if there are too many of them, you’re gonna get a heart attack. The best way to mitigate the risk of a deadly Spike and Drop scenario, is to diversify the investor cohort and bring to the table both savvy, investors with a backbone (type B – for which this paper was written for), as well as committed users (type C).

Attracting Type C Investors

Below, in “Vision and Technology Roadmap”, we delineate the skeleton of a shared governance program that will combine “Proof of Stake” and “Proof of Work” type of concepts to allow users that both have a certain amount of ZUZ and have demonstrated a certain level of activity to enjoy a higher level of influence on the Coalichain development strategy. This should act as a filtering incentive attracting the ones that are willing to both out in the time and also put in some money.

General Buzz Creating Activities

Coalichain has been and will continue to invest in promoting the ZUZ and its vision in multiple media channels and through its vast network. Many, strong and successful ICOs were driven by only several thousand on investors.

Building a Community

Coalichain sees the ZUZ as a community-building currency, that creates a shared sense of purpose (and sometimes frustration). Building a community, at this stage is many times based on bounties and “airdrops”. Nevertheless, those alone do not explain the buzz around Coalichain, our 10,000 strong and active Telegram group and our strong advisory board. These are the people that will drive innovation in the platform, type C investments and long-term commitment.

Moreover, in order to mitigate the risk that discounted ZUZ acquired through bounty and bonus programs, will be dumped right after the ICO to make a quick buck, we initiated a vesting period of 3 months for those ZUZs.