The Commonplace Network (Quilt)

By: Matthew Lopes

The Commonplace Network (Quilt) Matthew Lopes
A Decentralized Innovation Ecosystem

A message to the reader:

At the time that this was written (October 2016 – November 2018) digital feudalism dominates the current environment. The subsequent pages aim to create a construct that will assist in ushering in an age of digital stewardship where both users and platform stakeholders are connected by mutual benefit / purpose and user data is handled with care.

Digital feudalism:

The current state of affairs where users receive minimal benefit (no real economic benefit with the exception of a mere distraction) and platform / website stakeholders create vast gains by extracting user data and selling / using it for their own benefit; users are maligned and their data abused. Because no other options exist users are required to submit to these terms in order to gain access to the technology available to them.

Digital Stewardship:

The presence of having digital platforms / websites in which there is mutual benefit between users and the platform / website stakeholders, where on a one-to-one basis benefit is outweighed towards the user, however, as a result of the large number of users the platform / website stakeholders create significant gains as well; an age where a user's data is used solely to benefit the user and because it benefits the user, it benefits the platform / website stakeholders as well. In this sense there is a connection between the user and the platform and a new sense of digital utilitarianism is created, where the greatest amount of good is achieved.

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"Using an intersect between blockchain and machine learning to create greater trust in real-time in order to unlock the power of the network effect to change the way we develop and share intellectual property and how we innovate."

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Matthew Lopes
https://www.linkedin.com/in/matthew-lopes-2630a352/

Abstract

The current approach to innovation is constrained by a siloed structure and broken incentive system. Resources and efforts are centralized under certain enterprises, groups and institutions that are focused on a predetermined output, limiting access to resources and contribution to members of centralized parties. Freedom of thought and inter-disciplinary education has been replaced with highly skilled single disciplined individuals. The age of hyper specialized knowledge hampers cross-functional contribution and communication, limiting cross pollination of ideas. Current intellectual property practices incentivize individuals to privatize innovation giving way to a centralized approach, impeding collaboration, development and potential magnitude of impact. The solution is a decentralized and reliable innovation ecosystem that protects an individual's intellectual property (IP) and future potential for profit, while incentivizing users to contribute to the ecosystem and expanding access to resources. The first stage is Commonplace, an AI enabled network that fosters collaboration, connection, and thought development, while allowing users to maintain control of their own content. The second stage is the idea marketplace featuring the idea coin incentive token which protects a user's intellectual property, incentivizes contribution, and enables users to stake in the ideas created within the ecosystem. Commonplace and the idea coin incentive token (IDC) are the future of innovation and IP management.

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1. Value Summary

The Commonplace network will provide the following benefits and opportunities to its users;

- Connect and collaborate with other users, ideas, research and projects of varying disciplines through the sites personalized search and AI driven connection features.
- Opportunity to stake in and further develop an individual or group's ideas, research, etc.
- Receive compensation or equity for content development and services provided to the site and other users.
- Permanently document proof of existence for original content on a blockchain and verify content was not previously developed by another user within the ecosystem.
- Protect and track intellectual property without limiting other benefits of the site or hampering collaboration.
- Receive compensation for assigning IP to other users of the network.
- Access to a network focused on thought development and entrepreneurship, free from the contaminated environment of current social networks.
- Access a wide array of reliable resources including information, capital (human and monetary), mentoring, news, education, and other user developed content.
- Gain recognition within a user's desired industry and amongst peers by publishing user developed content (e.g. research, insights, etc.), performing peer-reviews, competing in site-wide competitions and creating / contributing to on-going projects and business plans.
- Communicate across borders and gain global insights on an international collaboration platform.

2. Introduction

> *"We are often better served by connecting ideas rather than we are by protecting them. Like the free market itself, the case for restricting the flow of innovation has long been buttressed by appeals to the "natural" order of things. But the truth is, when one looks at innovation in nature and in culture, environments that build walls around good ideas tend to be less innovative in the long run than more open-ended environments. Good ideas may not want to be free, but they do want to connect, fuse, recombine. They want to reinvent themselves by crossing conceptual borders. They want to complete each other as much as they want to compete."* – Steven Johnson, "Where Good Ideas Come From".

Contrary to the romanticized story of success, ideas are not conceived by a "eureka moment" where an individual of immense talent develops a ground breaking idea from their own superior internal thought. "Good ideas" are developed by connecting strings of thought and logic from the past and present that manifest into something ground breaking. In many circumstances innovation occurs by developing on the ideas of others, in other words, innovation is an iterative process. Often times an idea that was originally developed to achieve a particular goal has horizontal use-cases, impacting numerous industries or verticals of thought. Great inventors of the past maintained notebooks, "commonplace notebooks" as coined during the European Renaissance, which compiled their thoughts across all topics and facets of life and connected their ideas through a system of disciplined indexing. Connection of horizontal thought is a crucial component to innovation, which over the years has become a lost value as we have moved to a sentiment of hyper specialization. The movement to hyper specialization has given way to an age of lost ideas and opportunity.

Historically two drivers of innovation, protecting and sharing of intellectual property (IP), have been at conflict with each other, representing personal profit and progress, respectively. As it relates to innovation, personal profit is an incentive system, and progress the goal. For years IP policy has operated under the methodology of protecting IP (and therefore limiting access) and its potential for future profits as a means to driving innovation. While this notion does have merit, it has given way to siloed networks focused on individual prosperity. However, solutions to today's complex issues require collaboration of highly specialized individuals across a wide array of disciplines and networks. With innovation, progress is a constant, however, incentive structures may change, and the earlier stage that an incentive is changed the lower the degree of resistance. Our vision is to disrupt current practices by developing a new incentive structure, disintermediating the IP protection process, increasing accessibility to resources and creating cross-functional connections while maintaining the potential for individual and group prosperity.

2.1 Limitations of a Centralized Network

Competition has been a key driver of innovation in the free market for years. Whether it is an enterprise jockeying for market share or a collegiate institution developing new research, the race to be the first has always driven new developments. However, due to the nature of competition, it has given rise to the centralization of knowledge. While the extent of centralization may vary by entity (i.e. research institutions publish findings), there are inherent limitations that exist across the board.

In an attempt to maintain a competitive advantage or due to the sheer nature of unevenly distributed resources, knowledge of new developments is often held within the members of a limited group, whether it is an enterprise, collegiate institution, or other organization. In the same sentiment, the resources required to innovate are also centralized around these groups. As a result, individuals that are not members of the group do not have access to these resources and

the members of the group do not have access to the resources that lie outside of the group. Whether the entity is a specialized group of individuals interested in a specific output, or an enterprise of many members with varying skillsets, limitations are a two way street (there may even be limitations within the group itself). Individuals seek these centralized groups because they have a platform (and resources) in which to interact and develop. Because the central group currently is the best (if not only) platform for development and innovation, resources seek the central group, even if the resources are better suited to organize in a different manner. As a result quality resources are limited to the centralized groups rather than the resource pool at large.

As an example, take a collegiate institution researching new alternative energy sources. The research that is being performed by collegiate institution A (CA) uses materials currently known to exist. CA requires a material that contains x, y, z properties. Collegiate institution B (CB) is simultaneously performing research on new materials that share properties x, y, z. The new materials have the potential to optimize properties x, y, z beyond materials currently known to man or in production. As a result, the research done by CB would have an optimal impact on the research being performed by CA. Under the current centralized structure, CA would not gain access to findings of CB until it is published in a science journal or other publication. This may be too late for CA to incorporate the new material into their original research and may require CA to re-perform their research. This results in a number of inefficiencies, and when additional facts such as funding are taken into account, these inefficiencies may be detrimental to the success of the project overall.

The same story holds true to a start-up or entrepreneur that is attempting to develop a new technology or product. There may be other parties who are developing similar technologies or possess the expertise that may assist in development where mutual benefit exists. In a centralized network these two parties may never interact, squandering the opportunity for optimal output and mutual benefit. As it stands today there is no collaboration platform to accurately identify parties across disciplines, which can assist each other based on content and purpose. Current connection techniques are based on an individual's existing network and likeness in discipline, contrary to the needs of an aspiring entrepreneur or start-up.

Some believe that the answer is a movement towards open source policy. However, the open source methodology lacks protection of an individual's IP and individual contribution may be lost or exploited by others. Even as more enterprises and institutions, such as Nike and Google, begin to adopt an open source methodology, connections are often limited to groups and individuals in a similar field or discipline. In many circumstances there may be other applications for a technology or product that go uncovered as a result of the single discipline mentality. Innovation in the modern era requires connection and communication across different fields of expertise. Innovation is the result of fluid networks and connectivity of thought. Centralized networks limit access to the adjacent possibilities, therefore stunting the potential of future developments and the opportunity for optimization. Current technology provides the

opportunity to eliminate the siloed approach to innovation, the existence of a platform and incentive to do so is the only limitation.

In addition to stifling innovation, centralization of resources has significant societal implications. The centralization of opportunity amongst the groups that have conglomerated resources is one of the greatest (and most easily deterred) threats to the future of humanity and freedom; not only freedom of opportunity, but thought as well, which will both hamper progress of society (innovation) and diminish the foundations of western culture. At its very worst, centralization of opportunity may even result in a transgression of society into a "dark age" where a few authoritarian parties dictate truth and eliminate the scientific method to man's understanding for the world. Today access to opportunity and education is already centralized around certain socio-economic classes which eliminate entire populations of people from contributing to innovation and the progress of humanity. Such practices are a disservice to all of humanity as individuals who may have changed the world are never provided the opportunity or resources to develop their immense potential and are lost to the world. Such trends will be amplified as we enter into a new age of technology if humanity does not utilize the new technologies accessible to man to reverse the harm that has already been suffered by society. As centralized parties with the resources (including data) develop and conglomerate the technologies of the future, access to opportunity will decline, further limiting opportunity to an even smaller group of individuals, which will almost certainly be determined by socio-economic class (similar to current practices). Controlling access to opportunity and financial freedom will eventually result in a small group of centralized parties controlling more and more aspects of society, until they control the economic and societal (e.g. political) means to freedom, threatening a capitalistic society and replacing it with monarchal influence by a few parties. While this threat has been experienced in the past, the overarching impact that new technology will have on society will amplify the pervasiveness of the threat. However, appropriate application of certain new technologies, backed by a network of specialized individuals may place opportunity (and freedom) back into the hands of the people rather than the centralized powers to be, thereby opening the door of opportunity to a larger population of people (including those not a party to the network, as disaggregation of the market will create a greater demand for labor).

Commented [L1]: Be careful who this part is shared with...

2.2 Intellectual Property Shortfalls

Under the current structure there are two incentives at conflict, monetary benefit and technological progress. In order to achieve optimal monetary benefit one will hamper technological progress by limiting access to intellectual property. On the contrary to optimize technological progress one will limit potential monetary benefit by freely sharing intellectual property. In the current market individuals are incentivized towards monetary benefit as a means to continue operations. In the world of institutional research prestige, grants, and funding replace financial profit, however, not as strong, the same forces are at play. It is this incentive structure

that has led to the centralization of resources. In the current construct the potential to optimize both individual prosperity and forward progress does not exist, or at the least hard to come by. While entities may lease intellectual property to other entities, often times it is too costly or untimely to incorporate into an early stage development. In the subsequent pages we propose a platform that will disrupt the current incentive structure allowing users to better balance monetary benefit with progress.

Intellectual property protection can take shape in various forms, ranging from copyrights to patents, each with their own complex qualifications and standards for protection. Many of the protections provided under current IP regulation require a finished piece of work. In an environment of constant collaboration where incomplete ideas complete the ideas of others, protection comes at the cost of time, progress and fluid collaboration. If individuals seek IP protection, under the current construct, they would be required to submit their work to a centralized registry which often times is an inefficient and costly process. Such a slow and costly process prevents fluid collaboration and limits protection to individuals who have the resources to fund the process. Once protection is received tracking of usage and attribution is the responsibility of the individual and often times is lost given an online environment, which can result in individuals losing control over their work. In a collaborative online environment, IP protection, in its current state, becomes overly burdensome. When operating in a collaborative online environment of incomplete ideas, individuals require certain key protections in order to safely share their work. When developing an idea in a collaborative environment three key areas of protection are required, i.) proof-of-creation, ii.) proof-of-contribution, and iii.) proof-of-use. In order for work in a real-time collaborative environment to be efficiently and effectively protected, a new way of registering and tracking individual works is required.

2.3 Investment in the Existing

Currently there are a number of platforms and entities that are focused on providing resources to start-ups. Incentivized by monetary profit and prestige, accelerators and venture capital growth funds may provide early stage start-ups with seed funding, mentorship, and other essential resources, however, there is currently a significant gap in the development cycle. These entities and much of the traditional market, focuses on start-ups that have already established a minimum viable product, and in many cases have already begun acquiring customers. While this provides a valuable service, to date there are few entities focused on providing resources prior to idea inception, and those that do limit access to a select group of individuals (e.g. Entrepreneurs First, etc.).

Incubators attempt to fill this gap by fostering environments focused on the development of new ideas, however, much like the rest of the current environment; incubators are often limited to members of the group and isolated to a particular discipline or field of interest. Often time's incubators are established to develop ideas in a defined field, such as software, and as such do not open their doors to individuals of differing expertise. Incubators are generally small

in nature and do not have the resources to accept a wider array of disciplines which results in a group centralized around a particular expertise. Further, incubators incentivized by monetary benefit, often times do not open up their intellectual property to the greater pool of resources. There is yet a platform for mass adoption of the incubator-like environment that crosses the borders established by hyper specialized knowledge and opens contribution to the larger pool of qualified resources, while at the same time maintaining the potential for monetary benefit. Providing such an environment on a greater scale will bolster innovation and create greater access to opportunity.

2.4 Social Network Quality

> *"Your industry possesses the most powerful voice in America. It has an inescapable duty to make that voice ring with intelligence and with leadership. In a few years, this exciting industry has grown from a novelty to an instrument of overwhelming impact on the American people. It should be making ready for the kind of leadership that newspapers and magazines assumed years ago, to make our people aware of their world."*- Newton Minow[1]

While, newspapers and magazines arguably have not held to their ideals as of recent, Newton Minow's speech to the television industry in 1961 is still relevant today regarding the social media industry. The quality of information that is published on social networks such as Facebook and LinkedIn has recently become a cause for concern. Current concerns surrounding the validity of information, termed "fake news", and other harmful content, has led to criticism of the industry.

For individuals seeking to collaborate with others via a network platform, frustrations are even greater. As a result of the limited governance, whether by the network of users or the site itself, users lack trust in the information and other users (especially new connections) of social networks. There is currently no network based platform where a user can connect and interact with new contacts with confidence. This has led to limited use of social networks for collaboration although there is a real opportunity to connect and share knowledge using a social platform. Social media is a multi-billion dollar industry that retains the attention of millions of people around the world, however a platform is yet to be developed that focuses on the progression of knowledge. The ability to bring a large quantity of users to the same virtual space, termed the "network effect", has proven to be a very valuable resource and any underutilization and/or abuse of such technology is a disservice to society and an abuse of power. If the quality

[1] https://www.technologyreview.com/s/604082/we-need-more-alternatives-to-facebook/?set=604119&utm_source=MIT+Technology+Review&utm_campaign=056ffab32c-The_Download_2017-04-07&utm_medium=email&utm_term=0_997ed6f472-056ffab32c-154396877

and trust of information and users found on such networks is not improved, the potential for the network effect to be used for the benefit of society will be lost. The same technologies used to entertain the mass population today ought to be used to connect and develop the ideas that will change the world of tomorrow.

2.5 National Views in a Global Environment

The current global climate of insularly policies will create strain on innovation by further limiting resources, knowledge share, and collaboration, in an environment that is already handicapped due the centralized nature of intellectual property regulation. In the current environment, intellectual property regulation may be drastically different from one nation to the next which may have a significant impact on the way that individuals from different nations interact. The relationship between China and the US for example, has been significantly impacted by intellectual property disputes. A lack of standard intellectual property rules across nations limits international collaboration and thus hampers innovation, economic development, and trust in markets. However, given today's technological environment, uniformity of intellectual property protection does not have to be achieved through centralized governments; rather it may be achieved within the conduit of interaction. Communications between parties are increasingly trending towards web-based interaction. In web-based interactions a basic set of principals or rules may be applied within the system using current technology, in order to maintain a standard for protecting intellectual property absent legal intervention or change in national intellectual property regulations, thereby enabling users to maintain control over their IP without a centralized intermediary and bolstering international collaboration.

In the midst of Brexit, Trump's executive orders, and other nationalistic movements, the world is trending towards inward facing politics that are set (to attempt) to focus on national prosperity in a global economy. These types of policies seek to centralize resources to an even greater degree. In a reality where issues, such as global warming plague the world, a cross border solution is necessary. Such solutions are produced by a combination of people and other resources (financial, etc.), however, in a world where resources are centralized around nations, national governments become the entities capable of providing said solutions (especially given a government's ability to change incentives and regulate certain industries). National governments can be notoriously slow to provide solutions which often times are motivated by interests not directly related to the problem itself. However, the national governments themselves are not the entities who provide solutions; rather they operate as a conduit for accessing resources. If these resources can be obtained from their source, people, technology, etc. then the limitations created by the centralization of national resources no longer operates as a barrier to global solutions. Once centralization is eliminated the only barrier becomes incentive.

3. Solution

3.1 A New Construct

The Commonplace network is designed to address the short falls of centralized networks. Commonplace will create a platform that enables users to collaborate openly by mitigating the risk of losing ownership or recognition for a user's developed content and contribution. A platform of this nature will increase trust and reduce the inclination to silo knowledge enabling users to develop their ideas in a more efficient and effective manner. Teams will be created organically, dictated by a free market of interests, inter-connected knowledge and demand rather than the inefficient organization of resources that results from a centralized construct concerned with suppressing intellectual property. This will be achieved by carefully constructing a network that allows users to control access to their works and track viewership and usage while utilizing their content to connect with other users that can further impact their work.

IP Management & Tracking

Publishing

The first step is creating a network that provides users with a means of protecting their intellectual property in a manner that does not diminish collaboration, thereby increasing trust amongst users. This will be achieved through the sites IP management and tracking capabilities. Any published work, post, comment, etc. can be shared either publicly or privately. A public publishing grants access to all users of the network, while private only allows access to certain individuals. Permissions will be granted by the original creator of the content or can be delegated to an administrator (or group of users) as the content creator may deem fit. Users will have the ability to show as much or as little of their work publicly, while limiting access to the entirety of their work. For example, users can make the introduction of their work or a portion of their experiment, code, etc. public to the network in order to attract potential collaborators while keeping the majority of their work private. This will allow users to effectively manage access to their works (users may publish work on the site that is only visible to them without losing the ability to find other users to collaborate with, see *Connection* below for details). Note that any content published as research or general knowledge (i.e. anything other than a start-up type idea), will require peer review in order to be published (refer to the *Quality of Information* section for further details).

Commented [L2]: Need to vet out what will require peer review and what will not.

In addition to managing access to content, users will have the option of publishing their user developed content onto the ecosystems blockchain. By "publishing" content onto the sites blockchain users will have permanent documentation of the existence and ownership of the content as of a specific date in time. The distributed ledger will store a cryptographic hash related to the document that includes a certain subset of meta data identifying the content of the document (refer to the *"AI and Machine Learning"* section for further details). Publishing

content onto the blockchain will allow users to record proof of their intellectual property which can be verified if any issues of content authorship arises, adding another layer of protection to a user's intellectual property. There are currently active use cases of this methodology, one example of which is site "Proof-of Existence" (https://proofofexistence.com/about), however, it is yet to be integrated into an ecosystem or utilized for governance or regulatory purposes.

When content is "published" on the blockchain the site will issue a unique cryptographic hash and a digital certificate including certain properties of the content (i.e. users associated with the content, ID, etc.). In addition, the digital certificate will include the provenance of the content which will be updated every time the content is issued or "licensed" to other users or parties (see the *Non-collaborative Interaction* section below for further discussion on the licensing of content). The excerpt below from the Coalition of Automated Legal Application's (COALA) "*How Blockchains can Support, Complement, or Supplement Intellectual Property"* describes how digital certificates can help to protect a user's intellectual property:

> "Unlike paper certificates, certificates written to a blockchain are tamperproof. Multiple certificates can be issued to describe different properties of the work. Certificates could contain bibliographic information, rights information, contractual conditions for use or reuse, and any other important information about the work. Certificates would be cryptographically "signed" by the entity vouching for the validity of the information contained in the certificate, and recorded on a blockchain along with a timestamp. An example can be found in the Cryptographic Certificate of Authority (COA) issued by ascribe. The COA is generated as soon as a work is registered, or when a work is transferred. The COA provides metadata like artist name, title, owner, year, and cryptographic ID of the edition, the provenance or ownership history of the work, and finally the digital signature that allows the validation of the certificate. Ascribe also provides a tool whereby a user can verify the legitimacy of the COA."

There is a previous use case, Ascribe, which utilized this method of issuing digital certificates for artistic content; however the same process may be duplicated for any content "published" on the Commonplace network.

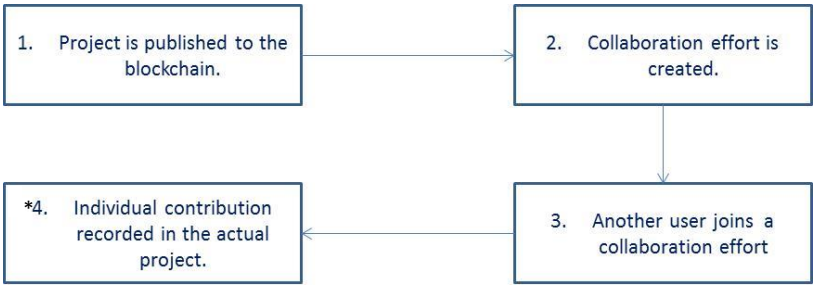
Another aspect to the site's "publishing" system is an AI enabled registry. All content "published" to the blockchain will go through the AI enabled registry that will be used to i) connect users based on the content that they have developed and ii) identify content being published that infringes upon existing content already published (note: users will have the option of privately publishing their content in order to receive these benefits while allowing the user to limit access to the content). The registry will essentially scan the document being published while storing certain unique qualities of the work along with other identifying information or

"key words" about the content (i.e. user, topic, etc.) into a database that can be queried by the site. By storing unique identifiers and information about the published content, the site will be able to connect users with other individuals who publish content pertaining to their work, regardless of field or intention (essentially creating a search engine that will operate for the purposes of connecting users based on content). This will help to create cross-functional connections and solve the problem presented in the "*Limitations of a Centralized Network*" section. In addition, the registry will enable the site to identify other published content with similar unique identifiers which could signal that the content is infringing upon (or using) another users work, refer to the *"AI and Machine Learning"* section for further details regarding document registration.

Commented [L3]: Note that in order to achieve this verification and search method a distributed filing system such as *InterPlanetary File System (IPFS)* may be required (further research is being conducted to verify this).

Collaboration / Tracking Contribution
**While the site will offer a wide array of collaboration tools this section will focus on those impacted by the site's "blockchain publishing system", refer to the "Commonplace Overview" section for further discussions regarding collaboration tools.*

Once a published project identifies other users to collaborate with via the various connection methods (refer to the *Connection* section for further detail) provided by the site, a "collaboration effort" will be created. Each user will be issued a specific identity (evidenced by a qr code or other unique identifier) upon joining the site (refer to the *Ensuring Quality Information* section for further details) which will be used to identify individuals associated with a project. In addition, every project created on the site will have an identity associated with it, which will have further individual user identities associated with it. These user identities will be utilized to document transactions in the distributed ledger used to track user interactions. A collaboration effort on the user end will function as an interactive dataroom where files can be stored and edited by users with the unique project identity and password required to gain access to the files within. Permissions will be granted by the initial project creator or as decided by the project group at large. A collaboration effort will have the same capabilities as the rest of the site, however, will effectively require permissions and access credentials to gain access. Upon entering into a collaboration effort the new parties may be required by the initial creator of the project to agree to collaboration terms which will essentially operate as a basic non-disclosure / operating agreement. Users will have the option of recording negotiations and other agreements to the blockchain as well to further document interaction between parties.



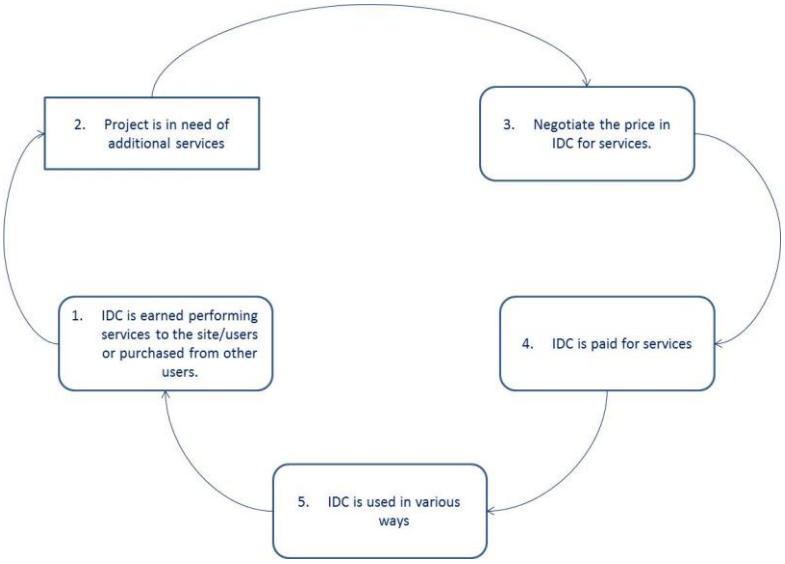
**Each time a new edition is published individual contribution will be recorded via the issuance of a new hash.*

A collaboration effort may take shape in a number of different forms; however, in each case a transaction will take place between the collaborating party or new user and the project itself. The transaction will take place utilizing one of the several types of tokens available on the site. Requiring a tokenized transaction will effectively create permanent documentation of interaction between the two parties, which will be identified by the type of token utilized and underlying user identification information, further protecting a user's IP. Upon completion of the transaction the new user will be identified with the project. A non-compensatory transaction (i.e. cost free association of another user with a collaboration effort) between a new collaborating party and a project will take place as a 1-to-1 transaction utilizing the site's basic IDC incentive token (refer to the "*Aligning Incentives with Innovation"* and "*Token and AI Mechanics"* sections for further details). This 1-to-1 transaction will require both parties (i.e. the project and the new user) to exchange an IDC token (or fraction of) thereby recording the association of the new user with the project on the distributed ledger. Although a transaction may not be required to document a user's association with the collaboration effort, it will further administer the networks incentive structure (further outlined in the *"Aligning Incentives with Innovation"* section). Additionally, requiring such a transaction will signify that the user desires the additional security provided by permanently recording the interaction on the blockchain (note not all interactions will require this additional layer of security). This will ensure that computing costs will only be incurred for interactions that require it. Acquiring collaborative resources may require compensatory transactions which may occur via two methods, i) Direct Method and ii) Equity Method as outlined below.

Direct Method: In certain circumstances there may be user's offering services to projects or other users for compensation (note that projects will have the ability to, via collaboration permissions, limit this individual's access to only documents required to perform the compensated service). In this case a project will compensate the service providing party with the site's IDC token, which will have various utility and value within the site's ecosystem (refer to the *Aligning Incentives with Innovation* and *Token and AI Mechanics* sections for further details regarding the utility of IDC). The amount to be transacted for the services provided will be

negotiated between the two parties, including the timing of payment and other transaction parameters. Again, this transaction between parties will be permanently documented on the distributed ledger identifying that the particular party contributed to the project (the actual manner of which will be tracked within the developed content as described below). Note that a direct method transaction does not entitle the servicing party to any interest or stake in the actual project itself.

Direct Method:



Equity Method: In certain circumstances a user or group of users may want to track individual user interest or stake in a particular project; or offer an interest in the project as a means to acquiring additional resources required to further the project. In order to achieve this goal, users will have the option of creating a NDC1 token (see the *Token and AI Mechanics* section for further details) associated with a specific project that will include the projects unique identity issued at the onset of the project. By including the unique project identity in the data associated with the NDC1 token, the token will be permanently associated with the hashed meta data of the project recorded in the distributed ledger at the time the project content was "published" to the blockchain. Note that the use of a project ID will prevent the need to reissue new NDC1 tokens every instance of a new edition (i.e. when users deem changes to be significant enough to merit permanently recording data related to the new content onto the distributed ledger), rather the NDC1 token will be associated with the most recent publishing by the unique project ID. However, users will have the option to create a new NDC1 token if deemed appropriate, see below for details. The ratio of NDC1 tokens held by a user will

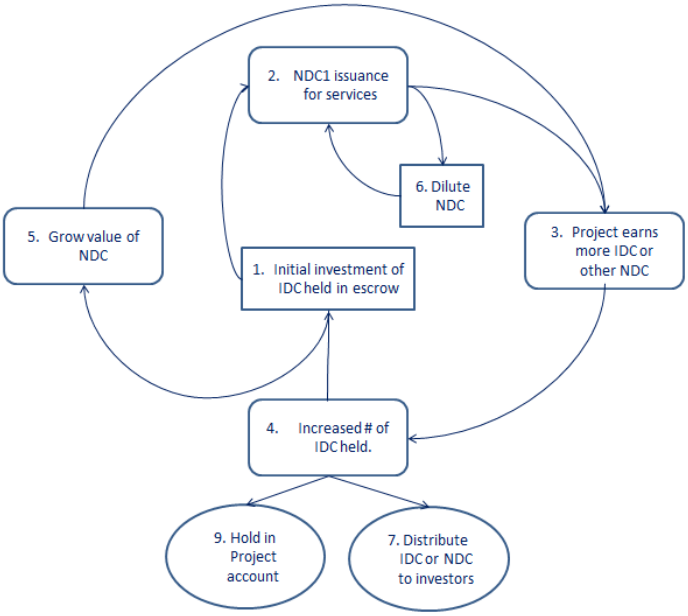
represent that particular user's interest in the project. As such, any changes made to the project will need to be approved by a user or users holding a majority interest in the project. The approval of changes will operate similar to that of "track changes" on a Microsoft Word document within the user interface. Any user's changes to the content (within their given permissions) will be visible within the content, but will remain highlighted (or other means of identifying that the content is not yet approved) within the project's content. Changes will not become effective until approved by the appropriate parties. The backend of the approval process occurs by users sending their NDC1 tokens to the project approval fund (PA) or project decline fund (PD); once the PA or PD reaches a majority or a specified period of time has passed then tokens will be returned to their rightful owners. If the PA reaches a majority changes will be approved and if the PD reaches a majority then the changes will be declined. Note unless a majority interest is held, holding NDC1 does not necessarily grant full access (controlled via collaboration effort permissions noted above), or right of use (evidenced by the NDC2 token noted below, however, users will have the option of including the properties of the NDC1 and NDC2 token in a single token).

Prior to the initial issuance of NDC1 tokens, a specified amount of IDC will be held in a project escrow in return for the issuance of a specified number of NDC1 tokens. By doing so a minimal value will be associated with the NDC1 tokens issued, which will increase the likelihood of users accepting NDC1 tokens in return for services, as a result of a guaranteed liquidity of the token. In addition, pegging the NDC1 token to a minimal IDC value will connect the value of a specific project to the value of the network at large, further encouraging collaboration amongst users (as further described in the *"Aligning Incentives with Innovation"* section). At any time a user may exchange a NDC1 token for the pro-rata amount of IDC held in escrow (unless otherwise agreed upon). However, in order to prevent abuse via dilution a majority approval must be had before issuing any additional NDC1, and if a majority is obtained any dissenters may exchange their NDC1 for the pro-rata share of IDC prior to dilution. At the time of a new issuance all previous NDC1 will be destroyed and exchanged for the approved interest of NDC1. Pending any further negotiations, upon issuance of new NDC1 the proportional interest of the original holders will remain unchanged. For example, if the original holders held interests of 50%, 25% and 25% and a new issuance occurred to double the amount of NDC1 available to acquire further services, the resulting interests of the original holders would be 25%, 12.5% and 12.5% if no further negotiations are made.

Each project will have the ability to earn additional IDC or NDC1 from other users or projects through transacting with or "licensing" of project content (see *Non-collaborative interaction* below for details) to other users and projects. Upon earning IDC or other project's NDC1 a project will have the option of either i.) distributing to NDC1 holders, ii.) holding it in the projects account (to be used to acquire compensatory services) or iii.) holding it in escrow. Holding the earned IDC and other NDC1 in escrow will increase the minimum value or liquidity

of the NDC1 held. NDC1 may be traded, sold or exchanged in various ways amongst users, thereby passing the project interest to the acquiring user.

Equity Method:



While proof of the interaction will be recorded on the distributed ledger via the tokenized transaction previously described, specific contribution to the project will be tracked within the content itself. This tracking of contribution will operate in a similar nature to a "track changes" operation where developed content will be tagged with the actual user's identity. For example, the preceding paragraph would be tagged as developed by my specific user identity. Unless all parties agree to do so, users will not be able to print or share a version of the content that does not tag contributed content with the user's unique ID.

Non-collaborative interaction

Not all interactions with other users will result in collaboration. As such, users will have the option of documenting any interaction using the 1-to-1 transaction described previously. For example, if a user is attempting to attract collaborators by allowing users to read a whitepaper they have previously published to the blockchain they may choose to require a 1-to-1 transaction in order to permanently record that the viewer had accessed the particular content. Prior to the

publishing user allowing access to the whitepaper they can prompt the transaction which will record both party's user IDs and the cryptographic hash issued to the content when it was published to the distributed ledger. This will enable the interaction to be included in the Infringement Analysis if the viewing user publishes content that may infringe on the content that they viewed (Refer to the "*Token and AI Mechanics*" section for further details regarding the Infringement Analysis).

In order to enable users to better manage the distribution of their content to third parties, users will have the option of generating an NDC2 token which will include smart contracts representative of the permissions granted to the third party (NDC2 tokens may or may not be transferable on the open market as designated by the issuing user). Users will have the option to select various predetermined permissions to include in the NDC2 token related to their content. The smart contracts included within the token will enforce the terms of the "license". For example, if the "license" has a particular term related to it, a smart contract can be included to terminate the token at the end of the term of the license, thereby eliminating access to the licensed content. By transacting with a NDC2 type of token the transaction will be identified as a "licensing" arrangement within the distributed ledger, permanently recording the licensing user's receipt of the project's content. As noted in the "*Publishing*" section above, a new digital certificate will be issued in relation to the provenance of the content each instance of a transaction using a NDC2 type token. While tokenization of this transaction is not a required property to achieve the protection and tracking of usage that the site seeks to provide it will enable users to trade permissions to content, thereby marketizing the published content. Users will have the opportunity to earn IDC from other users by granting access to their privately published content, effectively incentivizing users to share their content with others (note publicly published content that has been peer reviewed and verified will be compensated by the pool of IDC held by the site in order to incentivize users to publicly share content as well and prevent users from creating a scarcity of their content for financial benefit). Refer to the COALA whitepaper, "*How Blockchains can Support, Complement, or Supplement Intellectual Property"* in the *Appendix* for details of current use cases (i.e. ascribe) utilizing similar technology.

Only holders of the NDC2 token associated with a particular published content will be granted access to the content. As such users will have the opportunity to purchase access using IDC or trade access to various content published on the site; effectively creating a market for the content published on the site. If there are NDC1 tokens issued in relation to a particular project or content, any IDC received for the "licensing" of the content will be received into the project's escrow account and subsequently i.) distributed to the NDC1 holders (if deemed appropriate and receiving mandatory approvals by members) based on corresponding interests as evidenced by the NDC1 held, ii.) held in the Project's project account or iii.) held in escrow to increase the liquidity value of the NDC1.

Commented [L4]: Note that this may result in a security designation by the SEC, in which case certain additional procedures may be required to occur. However, as the interest relates to IP rather than an actual "Company" the SEC's jurisdiction may not apply. Need to perform further legal research to determine its designation.

Institutional / Enterprise developed content

As a result of certain use cases (as outlined in the *Use cases* section) and potential revenue structures certain alterations to the standard NDC2 structure are required for Institutional and Enterprise users. Due to the nature of interactions within Enterprise and Institutions the site does not want to create barriers to communication and sharing of content within such entities. While the same protections noted above will be offered to these users, content permissions may be granted to all members of the particular Institution or Enterprise. For example, members of a collegiate institution that has a subscription with the site will all hold a NDC2 token that is specifically identifiable with that institution that will grant the user access to all content published by other members of the institution. As such, users will be able to interact with other members of their institution effectively free of charge. This will allow the collegiate institution to either publicly publish content to the entire network or specific to the institution that will only be shared within the institution's network. Institutions will have the option of partnering with other institutions with subscriptions as well, in which case both institutions will have the same NDC2 token.

Note: while some would argue that this would incentivize institutional users to interact with individuals who are members of their institution and therefore eroding the purpose of the site, this will be implemented to not deter institutions from utilizing the site as we did not want to make it harder for institutional users to interact with other members of their institution (as they could just interact through means of communication already provided by their institution). However, this does not make it more difficult for users to interact with users outside of their institution as the same rules apply outside the institution as it would for a normal user.

Connection

Once the network establishes an effective means of protecting users' intellectual property, and therefore reducing barriers to collaboration, the next step is to provide an effective method of connecting users with useful resources and other ideas that can help users to further pursue their interests. While there are many search engine driven databases of information such as LexisNexis, Thomas Reuters, etc. and sites such as Meta that connect users with a source of information or research, none currently provides users with an effective means to collaborate with the individuals who produced such information and content. As such, the Commonplace network will focus on connecting users with a wider array of resources and not just information. The network will connect users with useful resources by identifying potential connections using both a user's personal preferences and similarities within content itself.

In order to ensure that users are connected to relevant resources, multiple channels of connection will be provided by the site, the first of which will be determined by the users themselves. When a user joins the network (and as part of the "application" process described in the *Quality of Information* section) certain information about the user will be collected that will

be crucial to accurately identifying potential connections with other users. Prior to joining the site users will be required to note their purpose for joining the site (along with various other information outlined below) which will also be used to place the user into the various designations within the network. Included in a user's "purpose" are the types of resources and individuals that they seek to collaborate with and in what manner. The site will provide suggested connections utilizing the following designations and preferences within the network;

- Purpose: A user's purpose will be defined as part of the "application" process to join the site. This will help to identify the user's needs as well as their potential contribution to the site. For example, a user could be i) an aspiring entrepreneur looking for other users to collaborate with, ii.) a college student publishing content which they wish to have peer-reviewed iii) a potential resource who holds a certain desired skill (i.e. a computer programmer) or iv) a user with a general interest in joining the site amongst other things. In addition, a user's purpose will help to determine the Area that a user will join (different Areas will have certain properties tailored for the defined use, however will not limit a user's ability to interact with users in other Areas, refer to the *Commonplace Overview* for further details).

- Weighted preferences: Users will have a number of designations that they will utilize to describe themselves and their interests. Users will be able utilize the same designations in their search for potential collaborators by weighting the designations or preferences by importance to their needs. For example, some users may place a higher degree of importance on location than level of education or vice-versa. Weighted preferences include the following items (*note this is a working list and is subject to change*);
    - *Sector / industry* – this will represent the industry of interest and/or expertise of each user. A user will be able to filter their various streams based on industry / sector. This will operate no different than a news website where you can select from business, politics, etc. articles to read (see *Commonplace Overview* for further details regarding the site user interface). Note that a user's industry expertise will not limit their ability to access other industry streams, however, there will be a designation between a user's industry of expertise and industry of interest in order to better identify users in a resource search. For example, a user's industry expertise may be financial services, but industry of interest may be technology. This user while interested in the technology industry will not be able to assist another user in programming software; as such a clear distinction will be made between the two.
    - *Expertise* – a user's expertise will further identify the skills held by a particular user. This will essentially drill down further into a user's industry expertise. For example, while a user's industry expertise may be financial services, their expertise would be accounting, securities, cryptocurrency, etc.

A user's expertise will be verified to a certain degree as part of the initial "application process" further described in the *Quality of Information* section. Note*: sub-streams may be created in order to further drill-down to the interests of user's. However, this is still a work in process and the impact that this may have on the overall construct of the site still needs to be considered.*

- *Classification* – A user's classification will be tied to their purpose and declared when they join the site. This will help to further identify a user's interests and degree of contribution that they are willing to make to the site and other users' projects. Classifications include the following (*Note: the following list is a work in process*);
    - Entrepreneur - a user interested in acquiring additional resources in order to further their own idea or project.
    - Resource – a user who is interested in contributing to other user's ideas or projects.
    - Catalyst – Investors, financiers, accelerators and mentors
    - Researcher - a user looking to collaborate on research in a particular field or fields.
    - Subject matter expert (SME) – a user with certain credentials in a particular field of expertise that will contribute to the site in various ways including peer review (see *Quality of Information* for further details).
    - Activist / Organizer – a user looking to organize events or develop ideas that require a large user backing.
    - Student
    - General user
- *Education* – A user's education will be verified as part of the "application process" and included in the users profile in order to further identify a particular user's level of education and reliability. This will verify a user's degree level (i.e. bachelors, PHD, etc.).
- *Location* – User's will have the option of including their location in their profile in order to better connect users who have a preference of collaborating with individuals in their immediate area.
- *Status* – status is designed to bring visibility into a user's history on the site. This will essentially operate as a kind of rating system in order to give users a certain degree of comfort with an individual's reliability based on previous contributions to the network. This will provide users with further comfort regarding the individuals that they choose to collaborate with. Users can increase their status on the network by i) making contributions to the site such as public publications and performing peer-reviews, ii) winning various challenges within the site (see *Commonplace Overview* for further details),

Commented [L5]: Need to research to see if the cost of verification will outweigh the benefit to the network.

Commented [L6]: This could come into play with the potential mobile app that will operate by finding users, based on preferences outlined in this section, to collaborate with based on location, not unlike a mobile dating app.

and iii) utilizing the educational partnerships to gain further certifications among other methods. A users status will be decreased (and eventually removed from the site) for reported abuse and publishing of false information (see *Quality of Information* for further details). Status levels will include the following (*Note: this is a working list and is subject to change as more research is conducted*);

- Amateur – a user who has recently joined the site, with general interest and limited educational background.
- Apprentice – a user who has graduated or currently attending higher education (including potential partner sites such as Udacity etc.). Users would have made a number of contributions to the site and considered an active user.
- Journeyman – has made consistent contribution to the site and is considered to be a tenured active user. This user has had a history of helpful contributions to the site. This user is a college graduate and/or has taken several courses with partner institutions, or otherwise proven track record.
- Expert – has made large contributions to the site with verifiable credentials that prove an individual's expertise in a particular area. Users with expert status will be eligible to perform peer-review on publicly published material (refer to the *"Commonplace Overview"* and *"Quality of Information"* section for further details), and therefore have an increased potential to earn IDC from the site.

Commented [L7]: The true outline of this will be contingent upon what is decided as the minimum for entrance to the site (i.e. will there be a general and professional area included within the site or will they be merged into one).

- Credentials / certifications: Users will have the option of verifying their outside credentials (i.e. CPA, CFA, etc.) with the site. In addition, users can earn certifications from various partner institutions. The site will seek partnerships with certain free-ware provided by educational institutions such as MIT, open source IP sites and online educational "boot-camp" type websites such as Udacity. These institutions will be open to such a relationship with Commonplace because it will provide an additional incentive for users to utilize the partner's site (i.e. increase status and increase a user's credentials in order to further attract potential collaborative opportunities and therefore increase potential for personal profits) and as a result, increase traffic to the partner institutions' sites and services. Adding /earning various credentials and certifications to a user's profile add an additional degree of verification to a user's capabilities and skills.
- Personalized tags: User's will have the option of selecting or creating various other tags to describe their purpose, interests, industry preferences, etc. The site will allow a certain degree of user customization that will allow users to further define and identify themselves.

In addition the site will be structured in a manner that will allow users to readily identify others to connect and collaborate with. The site will have several "Areas" in which a user can participate, in order to provide functionalities that meet the specific needs of the user's within each area. The goal is to have an area for each stage of the idea development cycle i) passion pursuit, idea flow, knowledge collection, etc., ii) idea development / research, iii) resource acquisition, and iv) funding , use case, exit strategy. While the overarching site functionalities will help to foster, support, and execute the various stages of the development cycle, certain stages or use cases may require differing user interfaces to optimize a user's experience. As such the site will include the following areas;

- General
- Research/Academia
- Enterprise
- Marketplace

Users may use area designation to connect with others that retain a particular skillset or expertise that would reside in a particular area. For example, a scientist conducting materials research would use the sites "Research" Area functionalities to help record research results (the research interface will include functionalities to help user's to organize and record research/experiment results) and connect to other users based on the contents of their conducted research. Likewise, the content contained in said area will be geared towards research and academia. A user looking for a scientist can conduct a more defined connection search within the "Research" Area in order to locate a connection / collaborative partner, with such skills. Refer to the *Commonplace Overview* section for further discussion regarding the various functionalities of the different Areas.

While, the site will enable users to create connections based on user preferences and manual searches, the site's true advantage is the ability to create and suggest connections based on user developed content. All published content will require certain metadata / tags to be denoted by the user creating it. This will allow for simplified searches based on tags which when combined with the user's data and preferences will help to connect users based on perceived need. User developed tags will include identifiers such as industry, topic, select weighted preferences, key components, etc. The purpose of these tags will be to help organize user published content and assist the site's keyword search functionality. The keyword search will operate similar to that of a centralized information archive, such as LexisNexis, where a user can input certain keywords or strings of words to locate published content and the associated author that meets the user's designated set of criteria.

However, in order for the network to optimize its value to its users it must connect users with quality resources that cannot be found elsewhere (in one place), and resources that the user may not be aware they need. This will be driven by the network's AI enabled connection and publishing system. As described in the *IP Management* section above any content published to

Commented [L8]: Conduct further research regarding the use of "zero-knowledge" proofs and interaction with the AI enabled database (potential requirement for distributed filing system) in order to best implement this.

the blockchain will be required to be run through the network's registry, which will help to identify certain unique attributes of the published content creating a new level of criteria that can be compared to other published content in order to create connection suggestions. Refer to the *"AI and Machine Learning"* section for further details.

On a high level, the AI enabled connection system will compare a user's published content to the content published by other users of the network and suggest connections based on certain similarities in the content. Connecting users based on similarities in content will encourage cross industry and expertise collaboration, as users may not be aware of other applications of their published content and/or interests. For example, a user may publish a white paper describing the impact that Ethereum and cryptocurrencies will have on society's fundamental understanding of value (i.e. interested in Ethereum with a financial lens). Whereas another user may have published a white paper on how Ethereum can be used to replace current intellectual property practices. While the former is a financial minded user and the latter is a legally minded user, they have an overlapping interest in Ethereum. The connection of these two individuals could result in an interaction that would create value to both parties. When applied to a wide range of use cases and topics, the opportunities for new ideas and developments are endless.

Only content that has been "published" to the blockchain will take part in the AI search. Not only will this encourage users to make meaningful contributions to the network and utilize the blockchain publishing system, but will add an additional level of comfort (beyond the initial user onboarding process described in the *Quality of Information* section) regarding the potential collaborative party. As noted in the *IP Management* section above, the AI publishing system will help to identify any parties who attempt to publish infringed (with in the network) publications. In addition, as described below, certain publications made to the blockchain are required to be peer-reviewed, thereby further legitimizing the content used to generate the connection. Connecting users based on content rather than the traditional methods utilized by sites such as LinkedIn, of connecting users based on discipline and industry will enable interdisciplinary communication and collaboration that is not currently offered by other networks. Additionally, the systematic trust that the site provides will help to lower collaborative barriers experienced within other online networks.

The required peer review process as outlined in the *Quality of Information* section is another potential means of connecting with other users. Certain publications (i.e. research), will be required to undergo a peer review process. During the peer-review process both parties, reviewee and reviewer, will have the option of being anonymous or known to the other party. In the case of an identified peer review, the reviewer and reviewee may decide to become connected and collaborate. If a peer-review is conducted on an anonymous basis, the reviewer or reviewee may request to send a message soliciting connection resulting from the review and/or feedback provided by the peer review process.

Similar to current social networks, the site will offer suggested connections to users based on their interactions and previous contributions to the network. The more interaction that a user has with the site the more accurate suggestions will become. Utilizing the AI publishing system, the site may be able to provide a deeper analysis into a user's personal traits such as writing style, communication style, etc. which can later be used to connect users with others that fit their collaborating styles.

The manner in which users are on-boarded to the network will assist in bolstering connection as well. Users who join as "general users" (i.e. no pre-determined affiliation with a group, project, or individual purpose) will have the option to be admitted to the network in cohorts of a specified count. The "cohort" system will not be used to limit the number of users who can join, rather to provide users with an immediate association with users of different skills and expertise from the second that they join the network. Cohorts will be strategically comprised of a diverse group of individuals with varying skills and expertise. Cohorts may compete in various challenges / competitions sponsored by the network in order to bolster communication and collaboration among users within a particular cohort. One example of a potential challenge / competition is as follows; the cohort will be broken down into smaller groups of "x" users and will be required to pitch an idea or solution to a problem (either given or developed by individual groups). After each round of pitches, half of the teams will be designated as winners and will move onto the next round. Members of the "losing" teams will be required to join one of the winning groups in order to help further ideate the idea. This will continue until there is one winning idea / project, of which the entire cohort will help to develop.

In order to further mitigate the inherent risk of collaboration, the network will provide a "risk of loss" profile and/or % to users prior to sharing their intellectual property with another user. Utilizing the information provided about each individual user the network will calculate the likelihood that the potential new collaborator could plagiarize/execute upon the information to be shared outside of the network. This calculation will take into account data points such as i.) the skillset/weighted preferences of each user, ii.) the skillsets/weighted preferences of the potential new collaborators existing connections, iii.) the potential new collaborators prior contribution to the network and status, iv.) the user's connection preferences and needs for the project (e.g. the skillset/resource that the user is seeking to acquire), among other criteria. The risk profile will be presented to the user prior to sharing of content in order to ensure that the user understands the full risk of sharing their intellectual property. Inevitably there is an inherent risk that comes with collaborating with a stranger, however, making users fully aware of this risk in combination with user screening will enable users to make confident more informed decisions on whom they choose to collaborate with.

The true value of the networks connection model is to allow users to maintain the benefits of protecting intellectual property while at the same time gaining the benefits and potential resources that traditionally could only be acquired by sharing such IP with others, thereby reducing the overall risk of loss during the resource acquisition and collaboration

process. The interdisciplinary communication enabled by the network's connection features in combination with the market based atmosphere and incentive structure of the network (as outlined below) will create a new environment that fosters innovation by balancing the innovative forces that have historically been at odds with one another. Establishing an environment that creates systematic trust will make disaggregation of work possible and reduce the risk of collaboration, and thus the need for centralized groups as such centralized groups primarily exist to i.) establish trust and ii.) ensure profits. Disaggregation of work will reduce unutilized time, creating more efficient use of resources thereby reducing the cost of innovation. After establishing trust amongst all users, incentives (e.g. profits) become the next hurdle to diminishing the limitations of centralized entities.

3.2 Aligning Incentives with Innovation

A great deal of resources are required to innovate in the current environment, many of which have historically been centralized within large corporations and institutions. In a centralized environment such resources may be extremely difficult for an individual to acquire, therefore limiting the number of individuals who can contribute to innovation to the members of said centralized entities, of which can support a limited number of members. However, in a decentralized network, individuals can be incentivized to provide the services/resources historically provided by a central organization, which will allow for greater access to said resources, as a network can support a greater number and variety of members than a single organization or institution. A network of individual users, if appropriately incentivized, will organically create a network that is just as, if not more, capable of providing the resources that have traditionally been monopolized by large corporations. In such an environment rather than creating a scarcity of resources, prevalent in the current centralized strategy to innovation, an abundance of resources will be created.

Competition, which has widely been accepted (especially in western culture, e.g. capitalism) as a significant driver of innovation, is stifled by a centralized environment. In a centralized environment parties can compete, and win, by creating a scarcity of resources, rather than providing superior outcomes. In a properly incentivized, decentralized environment, that has reached critical mass, an abundance rather than a scarcity, of resources exists. As such, in order to compete and win, parties will be required to generate superior outcomes, thereby amplifying the innovative benefits of competition.

When large centralized parties hold the resources for innovation, the required incentives for innovation are far greater (i.e. large profits), thereby making the required margin for change/progress much greater as well (i.e. innovation will only occur if there is a potential for large profits in the near future). However, at the resource or individual level, incentives are far smaller (and change in incentive much more achievable), especially at the inception of an idea prior to reaching the stage where large profits are required and/or desired. As such changing the manner in which we innovate is significantly easier at the resource level. In a network

environment where the required resources are available and large centralized entities do not dominate the incentive structure, innovation is freer to pursue its cause, rather than being controlled by large incentives. With smaller incentive barriers found at the resource level, users will be able to obtain the resources they require at a smaller cost, enabling for more individuals to participate in innovative works, and hence increasing the potential for innovation.

The decentralized Commonplace network will essentially utilize a large number of individual users to provide the required resources to drive innovation (which has historically been provided by large corporations and institutions) by incentivizing users to contribute to the network in the various ways noted below. Through use of the Commonplace network, a much larger population of people will gain access to capital and resources (refer to the *Commonplace Overview* section for a description of specific resources provided by the Commonplace network), therefore increasing the number of individuals who can contribute to innovative works. This in combination with the wide array of skills held by its users and interconnectivity of ideas provided by the Commonplace network will result in a more powerful innovative environment than currently exists today.

In order to incentivize it's users to contribute, the Commonplace network will implement an incentive token, Idea Coin (IDC). IDC will be used to incentivize users to contribute by performing services / tasks geared towards increasing the overall value of the network. Users can earn IDC by contributing in the following ways;

Increasing usership – As in any network, increasing usership will be crucial to the Commonplace network's success. The more active users there are on the network the greater value the network will have to its users and the more attractive it will be for new users to join. As such, the site will compensate users in IDC for following;

Commented [L9]: Note: this is a working list

- *Increasing status / rank* – As noted above, the site will have a "status" or ranking system to help users better identify the level of reliability of the users they interact with. This will operate as a sort of review system (complaints will decrease a user's status whereas positive interactions and contributions will increase a user's status). While user's will already be incentivized to increase their status in order to have a greater notoriety within the network, the site will further incentivize users to increase their status, as an increase in status would be the result of i) taking classes and utilizing partner sites (driving traffic to partner sites will be a key part of growing these relationships and in some circumstances, revenue to the site), ii) making positive contributions to the site (i.e. publicly published content, contributing to public projects, etc.) and iii) otherwise being an active user of the site (note users can be "passive" users of the site as well, this would entail using the site for news, articles, etc. rather than making active contributions). As users will be adding value to the site by participating in the required activities to increase status, users will be incentivized to do so.

- *Bringing in new members* – reaching a critical mass of users will be key to the success (and corresponding value) of the network. As such, users will be incentivized to bring on new users and will be compensated to do so with IDC. However, once the site reaches a critical mass the "position of power" changes, as users will have a greater desire to join the network than the network will require new users, therefore the site will no longer need to incentivize new users, and as such will stop offering this incentive.
- *Winning site wide / sponsored challenges* – On a periodic basis, the site and potential sponsors (or users), will offer site-wide or public challenges that will vary by industry and skill set. Challenges can take shape in many forms, whether it is to solve a problem of a particular sponsor, game, or social experiment (to name a few), the sponsors or site will compensate users in IDC for winning the challenge. From the site's perspective, challenges will take place in order to incentivize users to collaborate and actively participate on the site, in which case, users will be compensated. From a sponsor's perspective this is a way to utilize the power of the network to solve complex issues, find potential employee candidates, receive feedback, etc.

Commented [L10]: And potentially require users to pay to join the site.

Publishing public content – The volume of user developed content is directly related to the value of the network. The more quality user developed content on the site the more value the network will have as a resource. While the site offers a multitude of functionalities to help protect user developed content, the network will incentivize users to publicly publish content. Publicly published content will be viewable by all users, further adding to the resource pool available to all users. Note that similar to the new member incentive, this may change once a "critical mass" of user developed content has been obtained. The reasoning being that once the site has obtained a certain level of value as a resource, users will gain more by creating published work on the site than the site will require a user's published content.

Performing tasks for the site – Certain tasks and procedures that are required for the site to operate effectively will be conducted by the user base. Utilizing the user base to conduct certain tasks will not only help to reduce costs of operating the site, but allow for the network to operate in a more democratic manner and enable the site to better service the community utilizing it. User performed tasks will be geared towards maintaining the quality of the network (see the *Ensuring Quality of Information* section for further details).

- *Peer review* – Certain published content will require a peer review prior to being published publicly (i.e. research). The purpose of the peer review is to ensure that content published to the network is not false, misleading in nature, or otherwise detrimental to the network. The peer review will help ensure that quality is maintained within the network and not diluted by poor content. As such, users will be incentivized with IDC to conduct peer reviews. In order to conduct a peer review a

user must be of the "expert" status and/or retain an objective verified credential that validates the user's knowledge on the topic.

- *Vetting process* – In order for users to join the site they will be required to go through a "vetting" or "application" process. This will be conducted to ensure that the users joining the site are of a certain quality and will be able to make contributions to the site, further preventing the dilution of the network. Additionally, this will help to prevent the creation of false or duplicate accounts. While some aspects of the application process will be objective (verification of credentials, education, etc.), there are others that are more subjective. For example, if a particular user does not maintain a certain degree of objectively verifiable credentials, the perspective user will be required to record their "purpose" (as noted in the "*Connection"* section above) for joining the site. This "purpose" will essentially operate as an example of the user's skill and/or interests that they would like to pursue. In order for the perspective user to be granted membership to the network their "purpose" must be reviewed and accepted by a certain number of current users (for example 2 out of 3). As such, the site will incentivize users to conduct "purpose reviews" not only to reduce the cost of operations, but to further democratize the sites procedures and better serve the community using the site. In order to conduct a review a user must maintain a certain status level (e.g. Journeyman or above). Note that certain security procedures will be in place to ensure that the review is conducted fairly without releasing an unnecessary amount of information about the perspective candidate to the reviewer (see the *Ensuring Quality of Information* section for further discussions).
- *Conflict resolution* – As further described in the "*Infringement Analysis"* section, in certain cases where the provenance of published content is flagged by the site's publishing registry, an objective 3rd party will be required to perform a review. In some circumstances, users who perform the review will be compensated by the site (or the infringing party). Refer to the "*Infringement Analysis"* section for further details.

Furthermore, IDC or NDC (as described above) tokens may be acquired by transacting with other users. Users may transact in various ways including;

- Performing services for other users and contributing to their projects.
- Granting access to privately published content or licensing user developed content utilizing the NDC2 token.
- Transacting for NDC1 ownership within a project.
- Wagering in competitions / debates – Users will have the option to challenge other users to various competitions or debates that will be judged by an objective third party with relevant expertise. The winners, as well as the judge will receive a certain percentage of the wager. Refer to the *Commonplace Overview* section for further details.

- Purchasing IDC using fiat currency from the site (or potentially other users).

In order for IDC to appropriately function as an incentive (i.e. have value to the user) there must be a certain level of utility tied to it. In addition to the properties described in the *A Decentralized Approach* section, IDC will allow users to transact within the Commonplace network. Transactions that require the use of IDC include, but are not limited to the following;

- Privately publish content – Subsequent to the network reaching critical mass (both user and content) users will be required to pay IDC to privately publish content. As noted above, publishing content to the blockchain (privately or publicly) enables users to participate in the AI connection search, which once the network reaches critical mass, will provide significant value to users. While public publishing of content will add value to the network, privately published content will mainly create value to the user/users associated with the content, and hence will require payment from said user.
- Issue NDC (both 1 and 2) – Subsequent to the network reaching a critical mass, users will be required to pay IDC, or a portion of NDC1, to the site in order to issue NDC. Prior to reaching critical mass the "fee" will not be charged as not to deter user adoption.
- Gain ownership of ideas and IP – As described in the *Decentralized Approach* section users can purchase ownership in a project (NDC1) from other users with IDC.
- Acquire services and resources (using both IDC and NDC);
- Gain access to premium content – users will be able to purchase classes or subscribe to partner content using IDC. In addition, once the network has reached a critical mass, certain functionalities may be designated as "premium" content and require payment in IDC.
- Gain access to privately published / licensed work; and
- Wager in debates/challenges.

While many tokenized networks claim to be an "ecosystem", few have real utility to the user in a way that adds value to the network. In the Commonplace network utility is geared towards increasing usership, bolstering the economic value of the idea marketplace, or driving connections within the network, all of which will have a positive impact on the network at large, therefore increasing the value of the network and the underlying means of transacting. In the same sense, available means of earning IDC are geared towards contribution to the site or other users, thereby creating a more valuable network. Creating an environment where the means of transacting can only be earned or utilized through actions that positively impact the network will further align incentives with the goals of the network, innovation.

As with any network token, the true value is the network in which it allows users to transact. In the case of the Commonplace network, the more quality connections, content, collaborative tools and opportunities on the network, the greater value the token will have. Hence, the value of

the IDC token will be connected to the success of the network as a whole. For example, if a successful start-up or a breakthrough in research occurs from the use of the Commonplace network, the underlying means of transacting on the network, IDC, will increase in value. As a result, users on the network will be incentivized to help the network (i.e. other users) as a whole succeed, further driving innovation.

3.3 Bridging the VC and Accelerator Gap

Funding, mentorship and experience are all crucial resources historically provided by venture capital and accelerator firms. However, currently there exists a gap in the development cycle in which such resources are provided. Two phases in the development cycle that lack significant investment in the current innovative environment are, i) thought stimulation and ii) pre-organization/start-up. Traditional venture capitalists, accelerators and other organizations do not invest at this stage due to the extreme amount of uncertainty related to potential investments during this stage. However, this uncertainty and under investment makes ideas during this stage perfect for a decentralized / network structure. Potential start-ups can gain access to necessary resources by tapping into a much larger pool of individuals while resources mitigate their risk by limiting their stake.

Focusing resources at an earlier stage will help to foster a stronger innovative environment. Providing greater access to such resources (increasing the size of the pool) at an early stage (increasing the quality of the pool) will also help to increase the number of potential quality prospects for venture capital and accelerator groups who generally focus on ideas further along in the development cycle. Therefore, VC and accelerators will have a related interest in the network, and as such will desire a presence on the site. The Commonplace network does not aim to replace the current VC and accelerator institutions; rather close the gap in the development cycle by providing crucial resources to ideas in their infancy and enabling such institutions to identify future partners and investments at a much earlier stage (Refer to the *Revenue Structure* section for potential means of monetizing this relationship).

In addition to feeding more traditional institutions, the Commonplace network will provide a market for early stage ideas that currently does not exist. The goal of the Commonplace Idea Marketplace is to create a market where users or groups of users can freely trade ideas without losing proof of contribution (as described in the *A Decentralized Approach* section, the blockchain will maintain a permanent record of transaction), thereby providing an environment where value can be assigned to such ideas. Additionally, this will allow users who no longer have interest in a particular idea to relinquish their stake to a user that does have an interest or use for it. Creating such a marketplace will help to ensure that novel ideas do not reach a dead end. In certain circumstances users may not be willing to relinquish their stake in a particular idea, however, may be willing to allow others to utilize the idea in their own works for a price. In this circumstance users will have the option of utilizing NDC2 to allow users permission to use their works, while maintaining ownership and recognition (through tracking of

use on the distributed ledger) for them. The key to this approach will be the successful implementation of the NDC1 and NDC2 tokens described in the *A Decentralized Approach* section above. As previously noted, NDC1 and NDC2 will represent a user's stake / contribution and right of use in a particular project or idea, respectively. In order to further solidify the terms of the transaction certain standard agreements will be populated based on the terms of the transaction (some of which will be enforced by the smart contracts chosen by the user) that will include both parties to the transaction's digital signatures, denoting a user's acceptance of the terms. Such agreements will not be required to function within the network, as terms will be governed by certain smart contracts; rather, agreements are aimed towards adding legally enforceable documents to the transaction as to not deter users with serious future plans for their projects.

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One can view the NDC1 or NDC2 as rights to intellectual property. As such, the Commonplace Idea Marketplace will create a market place where users can acquire resources to help contribute to an idea by offering them a stake in the intellectual property being produced through the use of NDC1. This stake may be traded with other users in part or in whole, creating an environment where value is attributed to the particular idea based on demand, need, or interest by others in the network. Perceived value will help to further stimulate other users' involvement in a particular idea, further driving innovation. Historically, there has not been significant value attributed to an "idea", rather, value is not typically attributed until a particular item or service is being produced. This in particular is a major flaw when it comes to innovation. While a particular idea may not be the end all product, it may lead to another idea, which leads to another idea (and so on), which leads to the final iteration. Such is the nature of true innovation, and until value is attributed to ideas themselves, innovation will be stifled. Combining the functionalities of NDC tokens and capabilities of the Commonplace network with the innovative forces of a free market will further align the innovation process with the natural progression of thought.

3.4 Ensuring Quality of Information

Quality is directly connected to the value of the network and its potential to attract users. Maintaining quality during the user acquisition process will be crucial to the network's success. While reaching a critical mass of users is imperative to creating a new network, it is important that quality is not sacrificed for quantity to ensure that potential connections within the network have value to new users. In order to maintain the desired level of quality the Commonplace network will implement a series of controls regarding new user on-boarding and content published within the network.

Vetting Process: As noted above in the *Aligning Incentives with Innovation* section the Commonplace network will require new users to complete a vetting process prior to joining the network. The vetting process will consist of a standard background check in order to establish identity of the user attempting to join the network. This is intended to eliminate any false accounts and vet any users with a history of mal-use or fraud (i.e. criminal background check).

Other aspects of the vetting process will include information provided by the potential user such as educational background (receipt of a transcript), professional credentials (verified via state occupational sites or other governing bodies), and list of achievements. This will essentially operate as a resume that will be submitted as part of an application process. As to not eliminate valuable members to the network that do not maintain objectively verifiable credentials, in certain circumstances, users will be required to include a "purpose" or original piece of work exemplifying their skills and interests. As noted in the *Aligning Incentives with Innovation* section, in such cases, a specified number of current users will have to approve the potential new user's purpose to be accepted into the network. Certain controls will be in place to ensure that there is no discrimination that occurs with user acceptance. As such the following procedures will be put in place;

- Verifying users will not have access to the applying user's identity, only the purpose and/or original work included in the application.
- Verifying users will require a status of Journeyman (refer to the *"A New Construct"* section for further details) or above, as users of this status would have already exemplified a good record of contribution to the site and maintain no reports of abuse.
- Verifying users will have a background in the expertise or industry of interest noted by the applicant's purpose.
- If an applicant claims abuse or discrimination a grievance may be filed by the applicant, in which case it will be reviewed by a member of the site's operations team. If such a case exists where the operations team finds that discrimination was present then the verifying user or users will be immediately removed from the network. Conversely, if no discrimination has occurred, the applicant will be denied entry to the network.

Peer Review: As noted in the *Aligning Incentives with Innovation* section, certain types of work will require a peer review prior to being publicly published on the network. All publicly published works will be designated as either an "opinion" piece or "factual / research / academic" work. All publishings not labeled as an opinion (i.e. research results, white paper, etc.), will require a peer review from an expert in the field of expertise. This will help users to better identify works that can be relied upon as a source of information (i.e. academia), while not eliminating opinion pieces that may help to stimulate idea development.

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Abuse Monitoring / Terms of Use / Status: Upon joining the network users will be required to sign a terms of use which will include a zero tolerance policy for abusive content that is discriminatory, non-factual, etc. in order to deter users from publishing content that will dilute the quality of the network. The zero tolerance policy will be enforced by other members of the network by reporting abusive content. Any content that is reported as abusive will be reviewed by other members of the network. Similar to the "purpose" peer review process a specified number of members (Journeyman or above) will review the abuse report. If the user that is reported for abuse has a grievance it will be reviewed by a member of the site's operations team.

As is typical with any network, it is expected that there will be varying degrees of abuse reported within the network. Minor reports of abuse will result in a demotion of a member's status (as described in the *A Decentralized Approach* section) and a permanent blemish on the member's record, therefore, hurting the user's stock among other user's in the network. Major reports of abuse (i.e. discrimination, fraudulent content, propaganda, etc.) will result in the user being immediately removed from the network. The terms of use agreement will also require users to agree to the intellectual property standards upheld by the network, thereby agreeing to the representations of the NDC1 and NDC2 tokens(intellectual property standards are further outlined in the "*AI and Machine Learning"* section).

Links and URLs: In order to maintain quality of the Commonplace network, the site will also monitor the links that are published to the network. The network will implement controls to prevent users from posting links to other webpages that do not maintain a certain quality standard of content. In order to prevent users from posting links to content that will dilute the quality of the network; the site will only allow links that meet certain criteria to be posted. Examples of potential criteria include;

- Domain names ending in ".edu" or ".gov"
- Domain names included on qualified list of academic and media sources (users may request to add new domains to the qualified list).
- URLs to partner sites (i.e. educational partners).
- URLs to verified corporate sites.

The true value of a social network is the users and the quality of content that they produce. Quality will be the Commonplace network's differentiator among a wide array of networks that struggle with misinformation, false accounts, trolls and other measures that impair a network's legitimacy.

3.5 Global Communication

In the current environment, there is no intellectual property standard that is recognized globally. Intellectual property standards often times will differ from one nation to another, with varying degrees of recognition between nations. Lack of universally recognized intellectual property standards has created a significant hindrance to international collaboration efforts within early stage ventures. In some cases this has resulted in conflict even amongst mature corporations. Take the example of American Superconductor (AMSC), an American based company, and Sinovel Wind Group, based in China. AMSC was the victim of cyber espionage and bribery, resulting in the Sinovel, under American intellectual property standards, illegally gaining possession of AMSC wind turbine source codes. The employee who engaged in bribery with the Chinese firm was tried and convicted of bribery in Austria, however, the Chinese government did not press charges related to Sinovel's means of acquiring the AMSC source code. As a result, AMSC filed a civil suit against Sinovel which was later dismissed by the

Hainan Higher People's Court. The Chinese government's failure to recognize American intellectual property standards has resulted in strained relations and lack of collaboration between nations in the clean energy industry.

The Commonplace network aims to create a set of basic universal intellectual property standards governed by smart contracts and automated controls, and supported by automated contractual agreements (observed by the user's country of origin) where available. As noted throughout this white paper, certain controls and smart contracts may be controlled by the user and negotiated to meet a particular transaction's needs. Highlighted by the network's underlying distributed ledger capabilities, the site will provide an irrefutable trail of interaction, use, etc., which regardless of legal standards, will provide permanent evidence of parties interacting with a particular user's intellectual property. This in combination with the site's user managed controls will help to significantly mitigate the risk of collaboration regardless of current national intellectual property standards.

By joining the network, all members of the site individually agree to the intellectual property standards and governance created by the site (refer to the "generally accepted intellectual property standards" outline in the "*Machine Learning"* section for further details. This common agreement between all users on the site will create a universal set of parameters to operate and transact under, including repercussions for mal-use. While it is inevitable that certain users will seek to abuse this common agreement, the network's multi-facetted approach to intellectual property protection will mitigate the inherent risk that comes with collaboration, and the pursuant sharing of intellectual property. The site's approach consists of the following elements;

Value – Once the network reaches a critical mass, the holistic value (overall value of being a member of the site) of the network will outweigh the value of infringing on a single user's intellectual property. Inversely, the repercussions of being removed from the network for abusive causes will create greater detriment to a user than the benefits of infringing on another user's intellectual property.

Incentives – As noted in the "*Aligning Incentives with Innovation*" section, users will be incentivized to help other users, and the network at large, for their own personal benefit.

Controls – As noted throughout the whitepaper, the site will implement a series of smart contracts and automated controls that will prevent abuse from occurring. Refer to the "*Infringement Analysis"* section for further details.

Agreements – Where available the Commonplace Network will institute a series of automatically populated agreements, enforceable in the country of origin for each user in order to create legally enforceable documents without impacting the real-time efficiencies of the governing smart contracts and automated controls. The terms will be populated via online agreements and signed using each user's individual unique digital identification assigned when joining the network.

Agreements will include, but are not limited to; i.) non-disclosures, ii.) operating agreements, iii.) formation / ownership agreements, etc.

Policing – Any reports of intentional intellectual property infringement or abuse will result in the abusing user losing access to the site and compensatory measures. Examples of compensatory measures include, but are not limited to the following;

- The abusing user's IDC being paid to the victim prior to being removed from the network or
- The victim receiving interest in the abusing user's content if the abusing user is not removed from the network (nonintentional infringement).

In addition to the limitations created by the lack of universally accepted intellectual property standards, is the inherent propensity for some to collaborate with individuals within their immediate geographic region. While there may be a real benefit to this, in a digital environment users are not restricted by physical geography, enabling users to connect and collaborate in a more effective means. The connection capabilities of the network will allow users to connect based a wider degree of variables, thereby providing more valuable resources to its users. Providing a proven record of accurate and valuable connections will enable users to place a higher emphasis on the skills and attributes held by another user (as verified by the network) rather than a particular user's geographic location, as the baseline for secure interaction will reduce users' propensity to default regionalism to provide said security. This in combination with the various collaborative tools and basic intellectual property standards provided by the site will further reduce the barriers created by geography as it relates to collaboration and innovation as a whole.

4. Future Implications

Two major factors will lead to a heightened importance of intellectual property in the economy of the future, a) automation of the manufacturing process (i.e. 3-D printing / additive manufacturing), and b.) increased product specialization as a result of data availability, IOT, and the interconnectivity of information.

As costs of production are driven downward by automation and future materials become cheaper and more attainable, the economy will become increasingly reliant on intellectual property. That is to say that the "product" that will be acquired in the future will not be a "product" in the traditional sense, rather the intellectual property required to manufacture the product (i.e. product schematics or blue print). Put simply, the value of the product will be the intellectual property required to create said product as the cost of manufacturing the product will be close to null (or more attune to an overhead cost rather than a product cost). As 3-D printers and the materials that enable such technology become closer to the pricing of a commodity it will be quicker for the end user to print the "products" themselves (or via onsite leased equipment) than it is to order, ship and store certain goods. By doing so both manufacturer (i.e. IP owner

with knowledge of how to manufacture) and customer will save considerable amounts of overhead by reducing the costs of shipping, storage, etc. Such a process will enable more industries to execute on "just in time" inventory techniques. As a result, end users will continually become closer and closer to the production of the "product" until only the intellectual property remains absent from the end users' possession. As it relates to value, transactions between parties will be wholly assigned to the intellectual property rather than allocated amongst manufacturing, shipping, materials, etc. under present day value chains.

Increasing availability of data will enable the hyper-specialization of products that are tailored to each individual end-user's needs. Such a phenomenon will result in the divergence or convergence between two components of the current manufacturing process, a.) R&D – data analysis, design, intellectual property development, etc. and b.) production / manufacturing - product creation. Given the hyper-specialization and complexities of the production process it may be in the industry's best interest to diverge in order to capitalize on lower overhead costs and dominating a single aspect of the process. The interconnectivity of data and ability to securely transfer information will enable businesses to effectively execute on such a divergence. As a result of the complexity and hyper-specialization of the process, ownership over IP and production knowledge of such products will become increasingly valuable.

The economy of the future will see the traditional B2B construct split into 3 categories, data collection & analysis (data is collected by interconnected sensors and sold to IP owners / manufactures), intellectual property owners/manufacturers (IP is exchanged to the end user) and the customer / end user (or "manufacturer" as the lines between "manufacturer" and "customer" become blurred and the product begins to resemble IP). In order to facilitate this new construct the economy will rely upon, secure interchange of data (exchange between data collection & analysis and intellectual property owners), secure and fluid markets for IP interchange (transaction between IP owners and end users), and real-time, affordable intellectual property protection / management process to regulate the economy. The Commonplace Network aims to provide a network based ecosystem that provides real-time, affordable intellectual property protection / management, and a fluid market for IP transactions that will allow its users to leverage the benefits of the emerging economy.

5. Commonplace Overview

The Commonplace network's mission is to disrupt the current innovation environment by i.) decentralizing knowledge, ii.) creating cross functional connections, iii.) changing systematic incentives, iv.) mitigating collaborative risks v.) stimulating new ideas, and vi.) providing required resources.. The site will aggregate the knowledge of the network by analyzing user developed content and utilize it to facilitate connections that will help to solve complex problems and achieve the goals of the site's users. User adoption will be driven by the value of these connections and the wide array of unique opportunities provided by the network. The Commonplace network will enable users to pursue their passions and bring their ideas to life.

5.1 Site structure

The user interface of the Commonplace network will be specifically designed to achieve the site's mission by creating a structure that will enable users to easily identify and collaborate with other users who possess the skills to further progress their ideas. The site will combine the underlying features described throughout the white paper with a user interface strategically designed to meet the needs of the wide array of potential members of the network. The site's user interface will be designed to provide tools geared towards the specific use cases of potential users. In order to achieve this, the site will have various "Areas", each which will provide specific tools designed to meet the needs of the users in the particular Area. The site will consist of the following areas;

General – The general area will consist of users who do not meet any specific criteria, and therefore do not require the specialized tools of the other areas. The user interface of the general area will be geared towards a more casual user with a less defined purpose or needs. This user interface will enable general users to search their interests and communicate and interact with other users in a less formalized manner. General users will have access to all of the basic tools and functionalities outlined below in the "*Communication and Collaboration Tools"* section.

Research – The research area will consist of users who perform different types of scientific research. The user interface of the research area will be tailored to provide tools to help users record and summarize the results of their research. The site will also aim to provide research users a set of basic analytic tools in order to help users analyze the results of their research. The research area will allow users to connect based on the contents of their research, which in return, will help lead to breakthroughs by connecting related research in a wide-array of fields (Refer to the "Research Institutions" use case in the "*Use Cases"* section below). Potential research users may be associated with a particular research institution, in which case the research institution will have the option of sharing the contents of research with members of that particular research institution only. In order for a user to obtain access to the private stream of content they will require approval by an admin/verified representative of the institution. Connection with users outside of the institution will operate similar to that of a user who publishes content privately, for further discussion regarding inter-institutional collaboration see "Institutional / Enterprise developed content" of the *A Decentralized Approach* section (note this holds true for any group in any of the designated areas).

Academia – The academic area will consist of students, professors, or any other individual performing academic-like research or creating academic based content such as whitepapers, theory, etc. Central to academic research is the practice of accurately referencing the sources used throughout conducted research. As a result of the blockchain IP tracking system outlined in the "*A Decentralized Approach"* section, the Commonplace network is uniquely positioned to track and permanently reference the work of other users within a particular piece of academic research. The site will develop a referencing system that will present the identifying information

from the blockchain in a user friendly presentation. In addition, the blockchain publishing system will verify the likeness in published works which will help to identify any forged work (refer to the *"Infringement Analysis"* section for further details). The network will provide a user friendly searchable database of the academic works curated by its users enabling users to easily interact with a wide array of academic works.

Enterprise – The enterprise area will consist of entrepreneurs, existing businesses and not-for-profit entities. The enterprise section will include tools to help users to create a business plan, incorporate, promote their products/services, receive feedback and keep track of their business records (i.e. investors, % stake based on NDC1 held, etc.). The enterprise area will enable users to identify and interact with entrepreneurs, start-ups and existing businesses in order to create useful business connections, reference the "*Use Cases"* section for further details.

Commented [L13]: Potentially partner with legal zoom, etc.

The purpose of separating the site's user interface into different areas is to create a user experience that is tailored to meet the specific needs of its users. For example, a general user does not have any need for access to the research recording tools, and as such, including this as part of a general user's user interface would lead to a cluttered user experience and could be detrimental to user retention. Acquiring a wide-array of users is crucial to the networks core value, and as such must meet the needs of a wide range of users. While the network aims to connect users over common interest, this does not correlate to a need for a common user experience. A general user will likely require a less structured interface designed to enable them to search various topics of interest and consume content, as compared to the research user who will require a more structured environment that will enable to them to accurately record results. While the desired user experience is completely different these two types of users are connected by their pursuit in a common interest.

The Commonplace marketplace will be separated into similar areas in order to better signify what the NDC1/2 will represent and identify the required forms and potential legal documentation required prior to the issuance of the NDC token.

General – In the general area NDC1 and NDC2 will represent % contribution/ownership and right to use respectively. However, in order for NDC1 to represent an actual share of a Company or interest in a patent, users will be required to use the enterprise marketplace as there are additional legal and potential tax issues that need to be addressed in an enterprise setting.

Research/Academia – Similar to the general area NDC1 will represent % contribution/ownership, however, issuing NDC2 in the research and academia areas will help to facilitate the referencing functionality. For example, when a user in the academia area transacts an NDC2 token with another user (i.e. right to use the published work) it will signify that the user or project accessed the exact piece of work produced by another user, and hence will be permanently included in the list of works accessed by the user. By limiting the referencing

function to these areas the site will not be using processing power unnecessarily by performing this operation on transactions that do not require it.

Enterprise – In an enterprise setting there are additional legal and potential tax implications that make an ownership or "right to use" transaction much more complex. As such enterprise transactions will be segregated from the rest of the marketplace. In the case of NDC1 (ownership transaction), there are agreements that are required to be in place in order for the NDC1 to represent an actual ownership share in a Company. First, the project or group on the network must be incorporated as a US (or other nation) Company. While users will not be able to incorporate directly on the site, the site will provide links (potentially a partnership) that will help users incorporate. Under a law that was recently passed by the state of Delaware companies can record corporate documents and information on a blockchain. This will enable the site to allow users to issue NDC1 tokens that represent actual shares of a Company. Users who choose to trade their "shares" in the form of NDC1 may have tax implications, as this would represent the private sale of an interest in a company to another individual (this will not necessarily represent a public security, it will operate no different to a private individual gaining stake in a private company, the only difference is the share will be represented by a token and the investor would be identified on a digital network). In addition, if a user decides to liquidate their NDC1 for the IDC held in escrow this would represent a corporate buy-back of the private shares. There is already a pre-launched use case of this type of method, applied in the EU called Neufund (refer to the *Appendix* for the Neufund whitepaper). In a similar manner there are additional implications related to an NDC1 that represents ownership of legally identified intellectual property. Enterprise grade NDC2 transactions (right of use) will operate in a similar manner to license agreement, in which case a series of basic agreements will be required to be issued in relation to the transaction. While the site will provide basic agreements that will be automatically populated based on a set of criteria chosen by the participants, segregating these transactions into a separate area will not only create efficiencies by not requiring this for all transactions, but help in facilitating potential fees charged by the site for the required services (Refer to the *Revenue and Cost Structure* section for further details). There is a current derivative use case of this method Ascribe, which is outlined in the *Appendix* as part of the "How Blockchains can Support, Complement, or Supplement Intellectual Property" whitepaper by the Coalition of Automated Legal Applications (COALA).

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The site will further segment content (for user presentation purposes), into different industries in order to assist users searching for content related to their field of interest. Potential industries will include but is not limited to the following;

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- Technology
- Healthcare/Medical
- Science
- Economics
- Politics

- Green/Energy
- Social environment
- Financial markets/general business

Content may also be segmented based on expertise. Some examples of expertise include the following (note this is not an all-inclusive list);

- Accounting/Finance
- Artificial intelligence
- Autonomous cars
- Legal
- Python / C++
- Policy
- Medicine
- Etc.

The purpose of segmenting content by industry and expertise is to allow users to filter content based on their interests in order to find connections that are useful to their needs. The more classifying data that can be collected on published content , the more granular the information that can be used to facilitate connections, therefore making the suggested connections more accurate and useful to users.

5.2 User interface

Similar to most social networks the Commonplace network will include a number of different views, each designed to present a different form of content in order to provide a single organized and cohesive user interface. The site will include the following;

Profile – Each user will have a personal profile which will showcase various characteristics of each user to the rest of the network. Each users profile may include;

- Areas that the user is associated with
- Industry interests
- User expertise
- User classification
- User status
- Purpose
- Personalized tags
- Credentials and certifications
- Education background
- Resume
- User developed content (i.e. published works)
- User activity and posts

- Collaboration requests
- Contacts
- Groups
- Weighted preferences
- Various personal information
- Location
- Picture
- Etc.

The purpose of the user profile is to provide various data points and background that will attract other users to connect and collaborate with. This is the opportunity for users to display their interests, skills, ideas and potential to the rest of the network.

Dashboard – Users will have the option of creating a customizable dashboard. This dashboard will open in a separate window and allow users to have their customized dashboard opened on the screen regardless of which other view they have open. The user dashboard will enable users to inventory important items and track their progress. The dashboard will include the following features;

- IDC balance
- Various holdings (NDC1 / NDC2)
- Current projects
- Collaboration groups
- Main contacts and frequent communications
- Education tracker
- To-do list
- Open chats
- Calendar
- Key documents
- Various other widgets

The dashboard will operate much like the home screens of a smart phone where the user will be able to choose from various widgets to include. Users will have the ability to adjust the placement, size, etc. of the various items that they choose to include in their dashboard. The ultimate goal of the site is to make the dashboard a type of open source platform where users can develop various widgets and tools that can be acquired from other users in the marketplace and used as part of their dashboard.

Content Stream – Users will have the ability to filter content produced by other users in a variety of different ways, based on both the type of content and the background of the publishing user. Users will be able to filter content based on the definable characteristics of the content (i.e. area,

industry, expertise, etc.) and the publishing user (i.e. expertise, education, status, classification, etc.). The site will offer various "content type" streams including;

- *News Stream* – The news stream will contain news articles from verifiable news sources accepted by the site. It is the goal of the site to eventually allow users to subscribe to various news sources through the Commonplace network. This will enable users to view the various news sources that they follow in one place. The news stream will also include all news articles posted by users. Some examples of verified news sources include;
    - Technology – MIT Tech Review, Tech Crunch
    - Finance/business – WSJ, Reuters
    - Economics – The Economist
- *Education Programs* – The site will include links to various education programs (potentially have some partner programs accessed through the site eventually) based on various industries and expertise. Each course/program will be tracked in the users dashboard and completed courses may be included in the users profile. Some examples of education programs include;
    - Institutional open course-ware
    - Boot camps
    - Short specialized programs (e.g. Udacity and Lynda.com)
    - Educational institutions (e.g. universities/colleges)

  Education programs will help to further establish the site as a source of reliable information and an intellectual alternative to current social media sites. In addition, this may help to create strategic partnerships with other entities as our site will help to feed users to their sites and give users a forum to display their completion of these programs and receive direct benefit for completing these courses (e.g. increased status within the network and further credentials to attract potential collaborators). Once a partnership is created with education programs the site will attempt to create a contract where users will be able to pay for programs using IDC.

  Note: Once the site reaches critical mass the site may develop a platform where users who have reached expert status may create education programs where users may pay the expert to attend their program. The site will implement additional quality controls over an education program including multiple peer reviews and reviews by site employees or partner institutions (i.e. university professors, etc.).

- *Private stream* – The private stream will include posts made by a user's connections, affiliated groups and all other private posts that the user has access to. All users will have the option of making posts private within certain groups or individual users. Refer to the "*Communication and Collaboration Tools"* section for details regarding the various types of posts that a user can make.

- *Public stream* – The public stream includes all posts that have been designated by the user to be "public" or available to all users of the network. All public posts will be classified as either "factual / research" or "opinion". All posts that are classified as "factual / research" will require a peer review prior to posting. If a post is classified as "factual / research" and does not pass a peer review, the posting user may be subject to the abuse monitoring described in the "*Ensuring Quality of Information"* section.

Information database – The information database will consist of works that have been published through the blockchain registry including whitepapers, research, business plans, open source patents and other significant pieces of work developed by users. All content included in the information database (excluding business plans, and certain other non-verifiable works) will be required to complete a peer review. Essentially, the information database will consist of the content used to connect users based on the AI driven connection analysis further described in the "*AI & Machine Learning"* section. In short the information database will contain the "knowledge" of the network's users and create a searchable resource of information for the users of the site. Similar to the content streams noted above, the information database may be filtered based on a variety of criteria. This will operate similar to that of a LexisNexis, for content created by the networks users.

Collaboration effort / Content Developer – Users will have the option of developing content on the site using the sites suite of tools (i.e. word processor, etc. see the *Communication and Collaboration* section for further details) or can import content in various file types such as Microsoft Office products, PDF, .txt, etc. However, users will be encouraged to develop content on the site in order for the site to more accurately track user contribution. Whether content is developed on site or imported, users will be able to store files on their own drive (not unlike Dropbox or Google Drive). When a user decides to start a collaboration effort with another member of the network, the user will have the option of choosing which documents to share. Once a collaboration effort is started both users will have the ability to make changes to the content that is shared between the parties. The site will track the contributions made by each member within the document itself (similar to a track changes in a word document or a Google doc.). In addition, prior to starting a collaboration effort users will be required to agree to a "collaboration agreement" which will outline certain terms and further protect IP. Refer to the "*A Decentralized Approach"* section for further details regarding the formation of a collaboration effort.

5.3 Communication and Collaboration Tools

The site will offer users various methods to interact and collaborate with other users of the network. The goal of the site is to provide both formal and informal channels of communication to best meet the needs of the network's users. Less formal lines of communication will enable users to freely share ideas and experiences that may lead to new thoughts and ideas. If all channels of communication were formal in nature it would restrict

freedom of thought and prevent lateral lines of logic. However, the site will also provide more formal means of collaborating, transacting or otherwise communicating in order to provide users with the proper resources once they decide to start pursuing an idea. Providing a structured environment will better prepare users to take their ideas to the next level, whether it be recording their thoughts or presenting them to a larger population of people.

Posts – Similar to most social networks, users can post various forms of content that will be viewable to other members of the site. Posts may receive comments, requests for more detail, and likes from other members of the site. In addition posts may be made both public and private (available to certain users, types of users, or any other means of classifying information noted above). Each post that is made will be required to include "tags" that will help classify the post based on the different areas (if the user is a member of multiple areas), industry, expertise, and type of post. The site will automatically tag it with user identifiable information such as status, classification and other characteristics identified within the user's profile. Some common post types include;

- *User Developed Content (original content)* – Users may post their original content to the various feeds within the site. Users will have the option of posting all or a subset/selection of their published work to the network feed. Users may choose to post their published content for a number of reasons including;
    - Receive comment or feedback;
    - Attract users to collaborate with;
    - Promote personal skills, etc.

  Note users are not required to post their published content to a feed; they may publish their content privately through the blockchain registry and include it in the content database without sharing it with other parties. If a user chooses to publish content privately it will only be used to suggest connections. If the content meets the search criteria of another user than the searching user will have the option to request access or start a conversation with the author, however, will not gain access to the content unless approved by the publishing user (the searching user will only have access to the contact information of the author and the knowledge that the content met the user's search criteria).

- *Request for comment / feedback* – Users may post requesting for feedback or comment on a wide array of content including, research, position papers, whitepapers, products, etc. Users may post a request for comment / feedback on anything as long as it is within the lines of the content quality standards held by the site.
- *Solicit collaboration* – Users may post solicitations for collaboration. This may entail a user posting the abstract of the idea they are working on, along with the expertise the user is need of. Users may solicit collaboration both privately and publicly. It is

up to the user to include materials in the post that will help to attract potential collaborators.

- *Topic of the day* – Users may post a "topic of the day", or discussion topic which may be posted publicly or privately to a select group of individuals. The purpose of the "topic of the day" is to spark discussion amongst the network relating to current events or topics of interest. A "topic of the day" may take the form of a news article, comment/discussion topic, research paper, etc. In addition, to user posted "topics of the day" the site will propose various topics on a weekly (or daily) basis for each industry / expertise group within the network. This will encourage users to use the site on a more daily basis and also help to develop connections and spark new ideas. Partner entities such as schools, institutions, enterprise users, and news sources may sponsor "topics of the day" in order to gain information or feedback regarding a particular topic. An example of a sponsored "topic of the day" would be CNN posting for comment on a new US tax policy. By doing so CNN would gain access to comment and debate from tax professionals, economic theorists and university professors to name a few.
- *General post* – In general users may post anything within the lines of the quality of information standards held by the site. Posts may range anywhere from a string of code to a piece of literature.

Debates and Challenges – Users will be able to challenge other users to a debate or challenge and wager their opponents an amount of IDC and/or NDC. Debates and challenges may be on any topic that is agreed upon by both users. An example of a debate topic could be "capitalism vs. socialism", whoever makes a better argument would win the debate. The debate will be judged by an objective third party who has expertise in the topic area and has reached a certain status level (note users will be randomly assigned based on a pool of users who opt into performing as a judge and meet the specified requirements). Judges will receive a portion of the wagered IDC regardless of the outcome. Examples of a challenge may be to "build the most efficient algorithm to solve a particular problem", "stock predictions", etc. Some challenges may be settled objectively without a judge (due to the design of the challenge), while others may require a judge. If a challenge requires a judge it will operate in a similar manner as a debate. Debates and challenges may be between two individuals or a group of individuals. Users will have option of conducting the debate or challenge in real-time or it may take place over a period of time with certain parameters set regarding timing of response. Within a debate or challenge room members of the same team will be able to communicate directly via user chat and collaborate using the typical collaboration tools outlined below. Only upon acceptance by the leader of the team will the opposing team be able to see the team's response. Once the debate or challenge end time (as outlined in the parameters) has been reached a winner will be chosen by the judge and the wager distributed to the user/users on the winning team in addition to the judge. Winning a debate or challenge will be factored into a user's status level.

On a weekly basis the site will post public debates and challenges based on industry and expertise. Public debates and challenges may be joined by any user. In the case of a public debate or challenge each user will post their argument or challenge product to the overall pool of contestants. Users will be able to adjust their argument to rebut other posts until the deadline for the debate or challenge. Once the deadline is reached a winner will be selected from the pool at large. In a large debate or challenge there may be a cap on the number of public contestants and will be judged by a panel, rather than a single user. Similar to a "topic of the day" a partner entity may post a sponsored debate or challenge. In which case members of the sponsoring entity will judge and set the parameters of the debate or challenge.

Direct messaging / Chatrooms and In-Mail – Similar to most social networks the site will offer users direct or group messaging and in-mail. Users will be able to edit there settings to allow messages and in-mail from all users or only users that they are connected with. However, it will be encouraged that users do not block contact from other users in order to help bolster a collaborative community. In addition, the site will provide public chatrooms where users can comment on particular topics with the entire network.

Public Projects – A public project may be created by a user or the site itself. The site will periodically create public projects with an assigned administrator to lead the project. The goal of a public project is gain the insights and contribution from the wide range of users within the network. A public project will operate similar to a collaboration effort, however, any member of the site (note some public projects will have certain requirements of expertise and number of individuals who can participate) may participate within the parameters of the project. Certain public projects will include a voting mechanism to where users will cast a vote to approve changes. In certain circumstances where the direction of the project is to be decided (major decisions), users (not just contributors to the project, but any user of the network, as all users of the network have a stake in a public project) may be required to stake IDC. Due the nature of the IDC incentive token, requiring users to stake IDC will ensure that users who have the most interest (i.e. willing to stake IDC to decide the direction of the project) in the project, and who have provided the most value to the network (users receive IDC for adding value to the network and can be assumed that those users who have acquired the most IDC have added the most value to the network or have otherwise provided capital (both human and monetary) to the network in order to obtain the IDC they hold) will decide the direction of the project. Public projects may cover any topic, however, rather than being designed for a particular industry or expertise (as with the case of a "topic of the day"), public projects will be included in a list of all public projects without segmenting based on any criteria. The purpose of this is to not deter any users from taking part in the project. Public projects are aimed to include any user and will generally be geared towards having a network-wide interest/impact.

Standard Collaboration Tools – The site will provide users with a basic set of collaborative tools aimed towards developing content including a word processor, spreadsheet and presentation developer. Embedded in these tools will be a "track changes" function that will enable the site to

track the contributions made by each user within the actual document (when the document is published to the blockchain user contribution will be included in the data recorded). In addition, users will not be able to print a version of the document that does not include user ids unless all contributors actively agree to do so; otherwise it will be printed in a protected view that includes user ids in front of each user's contributed content. Various collaboration tools specific to certain areas, industries, and use cases will be built out as the site grows.

In addition to the direct messaging and in-mail described above, the site will offer some additional communication tools that will be developed as the site grows. Additional communication tools may include messaging language translator, video chat/video chatrooms with language translator, and screen sharing. The goal of the site is to develop a suite of communication tools that will allow users to effectively communicate their message with other users, as communication is a crucial component to the innovation process.

Custom / industry specific tools – Commonplace will also offer industry / vertical specific tools & analytics in order to become more embedded into a user's normal course of operations and amplify user benefit. For example, a research tool to help document / analyze experiment results. The data collected from this tool will then help to connect the user with other users and resources. Conversely, the network may provide integrations with existing softwares and tools in order to limit development costs, eliminate user adoption limitations and prevent work process disruption for users.

Templates – The site will offer users various templates and examples to help users to develop quality content. Some examples of templates include business plans, experiment summaries, whitepapers, etc. While the site will provide some basic templates, as the site reaches critical mass a number of new templates and best practices will be developed and shared with the users of the site. Note that only users that have reached a certain status will be able to issues templates to the network. Templates may vary by area, industry, expertise, etc. The main purpose of including templates is to provide additional resources to the network's users that will enable them to effectively document and communicate their ideas and findings to other users.

While the site will provide basic tools and dashboard widgets to its users, the site will be designed with an open construct that will enable users to build off of the platform that has been provided. The goal of this is to not only enable the site to scale in an economic manner (refer to the "*Revenue and Cost Structure"* section for further details), but in a manner that meets the goals and needs of the network's user base by giving users of the network control over the direction in which it scales. For example, in an open construct if the site's users decide that they need additional tools to provide research analytics, a public project may be created to do so. Once the project is completed and approved by the site's administrators (to ensure there are no security issues) the new analytics tool will be made available to users of the site. If a new tool is developed privately the completed product (which must also be approved by site administrators) will be made available for sale, lease, or license within in the marketplace (using NDC2 for lease

or license). In a sense, this will operate in a manner similar to an app on a smart phone. An open construct approach to scaling will enable the site to scale both vertically and horizontally which is necessary in any structure designed to bolster innovation. Empowering the network's users to control the direction in which the site scales will help to ensure that the site provides tools on pace with innovations being developed by its users.

5.4. Use Cases

The site aims to attract a wide range of users with varying expertise and purposes by providing a core value to all of the network's potential users. The networks value proposition will be focused around providing a consistent standard of quality content, connections and collaborative opportunities. Highlighted by the site's "trustless trust" approach to intellectual property protection, the network will create a database of information curated by the site's users that will provide a growing resource to its users and stimulate useful connections that are not present in any other social network. Key to the network's approach is mitigating the risk of IP loss that comes with collaboration. While there is a certain level of inherent risk present any time two parties collaborate, as described throughout this whitepaper, the network will mitigate additional risks that prevent collaboration, and innovation (Refer to the "*A Decentralized Approach"* section for further details). This combined with the opportunity to monetize an individual's thoughts, or otherwise intellectual property, will attract a large group ambitious users who desire membership to the network. The added quality of exclusivity that will result from the vetting process and status levels within the network will further increase the desire of potential users to join the network. Potential users of the network include, but are not limited to the following;

Students – Students are expected to be one of the first large bodies of users to join the network. Students are generally savvier when it comes to new technologies in addition to having more time to explore their personal interests than a potential user in the workforce. Students are expected to utilize the site in the following ways;

- Connect with other students with different educational backgrounds in order to create a more diversified network of students.
- Acquire resources and make connections with other users that will help students to pursue their ideas and create potential start-ups.
- Allow students to collaborate with other students around the globe,
- Promote their skills and abilities by creating original content and displaying to a network that consists of potential employers and collaborators.
- Create a "real life" project experience where students interact with individuals who have a different field of expertise and communicate using digital tools common to the current workplace.
- Automatic referencing of sources and trail of research.
- Find a mentor

- Research potential career paths and opportunities.
- Meet other students with similar interests and goals.
- Create a central storage of all original content and ideas that enable students to make valuable connections with other users.
- Compete in various debates, challenges and competitions.

Education Institutions – Collegiate and other education institutions will be drawn to the network as a means to encouraging students to pursue their ideas / interests and collaborate with other students both within and outside of the institution. Education institutions may utilize the private stream feature of the network to create a unique course experience to their students. In addition institutions may require tenured professors to publish their research on the network. Education institutions may further utilize the network in the following ways;

- Offer unique group project opportunities by using real world collaboration tools to interact with students from other majors/departments or even entirely different institutions.
- Share insights with other institutions and market your institution through content generated by its students and professors.
- Publish student / institution research.
- Accept donations from alumni and other users.
- Prepare students for a mobile work environment.
- Increase collaboration among different schools/departments.
- Increase student and professor access to resources.
- Motivate students to pursue their interests.
- Incentivize students to improve performance with the allure of potential compensation (IDC, potential investors, etc.).
- Recruit potential students based content that they have produced on the network (an additional data point outside of a college essay or SAT score.).
- Sponsor debates, challenges & competitions.
- Increase traffic to open courseware and higher education courses.
- Increase alumni network.

Research Institutions – Both for-profit and non-profit research institutions will have a great deal of interest the Commonplace network. The site will allow users to document the results of their research in a single, searchable location, helping users to index their results and further analyze their work. As a result, the site will develop a database of research results that may be searched utilizing the AI enabled search feature described throughout this whitepaper to help connect users with other qualified individuals who may provide further insight into a user's research. The site will help to connect research across a wide variety of fields and locations, creating an opportunity unique to the network. Research institutions may utilize the site in the following ways;

- Find similar research in a wide range of fields
- Collaborate and build off the research of others.
- Maintain control of your intellectual property using the site's automatic referencing and IP tracking solutions while furthering the research of others.
- Acquire funding and resources to further research efforts.
- Publish/publicize research
- Accept donations from users.
- Connect with other users to contribute to your research (i.e. peer-reviews etc.)
- Identify verified users to volunteer in research surveys / experiments.
- Store research for others to use and generate potential connections.
- Receive feedback and insights from other qualified users.
- Sponsor debates, challenges & competitions.

Non-Profit Institutions – Non-profit institutions are notoriously under staffed, limited by donor funds as to the number individuals who they can employ. As a result, such institutions generally hire administrative employees required operate the institution rather than highly skilled individuals that can have a large impact on the non-profit's mission. Additionally, volunteers who often fill this gap generally provide services during specific events leaving the "skilled" duties to the board of directors who often times are extremely busy with their day-to-day careers. However, there are a number of individuals willing to offer their skills in order to provide operational efficiencies, and enable the institution to further its mission. There are a number of networks available to connect non-profits with volunteers; however, the Commonplace network will connect non-profit institutions with a large number of highly skilled individuals who can provide the much needed technical experience that other networks lack.

- Locate highly skilled individuals willing to contribute to the non-profit institution's mission.
- Connect with other non-profit institutions with similar missions in order to maximize impact.
- Connect with for-profit businesses, collegiate institutions, research institutions, etc. who can help to further the non-profit's mission.
- Raise funds from a large number network of professionals.
- Publish finding, white papers, and other related documents in order to publicize the non-profits mission.

Entrepreneurs – Whether a user is an aspiring entrepreneur executing a business plan or someone who casually documents their ideas, the network will provide the resources for users to pursue their business ideas. Entrepreneurs who already have a business plan will use the network to connect with potential business partners who have the skills and capital that they need to execute their idea, whereas the casual thinker may record their daily ideas in hopes that it will catch the eye of another user that may take particular interest in pursuing their idea. With a network of

entrepreneurial thinkers, there is no limit to the opportunities that a single idea may present. Entrepreneurs may also use the network to;

- Find qualified people to collaborate with and develop new ideas.
- Gain access to a large diversified network.
- Connect with other users who are working on similar areas, topics and ideas to collaborate with.
- Identify opportunities with in various industries.
- Find investors, resources, and other individuals to further business development.
    - Acquire the skills, tools, mentoring and resources needed to execute a business plan.
- Collaborate and develop a business plan in an environment that mitigates the risk of losing IP.
- One consolidated location to inventory ideas, connections and industry information.
- Receive feedback from other qualified users.

Start-ups – Both established start-ups and those that were created via the network will desire a presence on the site in order to attract new talent and further progress the growth of their business. Some of the ways that start-ups may choose to use the site include the following;

- Recruit talent based on the content that they publish in addition to their educational background and professional experience. Gain access to additional data points to use in the recruiting process.
- Search for potential partnerships, joint ventures, mergers, etc.
- Reach potential investors or accelerators to obtain funding, exit opportunities or growth through acquisition.
- Promote your business.
- License content using NDC2.
- Search for industry opportunities.
- Stay current in the market.
- Create connections with mentors and other valuable resources.
- Receive feedback on products and services.
- Identify potential sales leads.
- Sponsor debates, challenges & competitions.

Established Enterprise – Similar to start-ups, long established companies will also want to have a presence on the site in order to further establish themselves as an industry leader and driver of innovation. Established enterprise will use the site in the following ways;

- Recruit talent based on the content that they publish in addition to their educational background and professional experience. Gain access to additional data points to use in the recruiting process.

- Find potential acquisitions and targets for corporate accelerators.
- Search for potential partnerships, joint ventures, mergers, etc.
- Promote your business.
- License content using NDC2.
- Search for industry opportunities.
- Stay current in the market.
- Create connections with mentors and other valuable resources.
- Receive feedback on products and services.
- Gain insights and feedback from employees.
- Sponsor debates, challenges & competitions.

Professionals – Professionals from various fields will be attracted to the site not only to grow their network, but to receive compensation for utilizing their skills to better the network. Professionals will provide varying degrees of services based on expertise in return for IDC that can be utilized in various ways on the network; including the potential investment in others' ideas. For example, an expert in physics may receive IDC compensation for peer reviewing a research paper. Furthermore, professionals may utilize the network in the following way;

- Promote their skills to potential employers and collaborators.
- Expand their network and find other users to collaborate with.
- Track their ideas and opportunities.
- Stay current within a wide range of industries and fields of expertise.
- Find potential mentors and join professional groups.
- Learn new skills and identify new opportunities.
- Participate in debates, challenges & competitions.
- Join a community of entrepreneurial minded individuals and a social network that can benefit their careers by making connections outside of their current network.

Resources – Skilled users who do not have a defined purpose for joining the network ("resources") will be crucial to the success of the site. Such users will help other users develop their ideas using their skills and expertise. The network will attract resources with the opportunity to monetize their skills and contribute to the ideas of other users. In addition the site will serve as an outlet for resources to share and further develop their skills and knowledge. Resources may utilize the site to;

- Display their skills and abilities to potential collaborators and employers.
- Help other users develop their ideas utilizing their expertise, knowledge, and experience.
- Stay current in a wide range of industries and fields.
- Find networking and collaboration opportunities.
- Use their skills and expertise to give feedback to other users.

- Help to stimulate ideas by participating in thought development conversations using their knowledge of a particular area.
- Participate in debates, challenges and competitions.
- Learn new skills and find new opportunities within their field of interest.
- Pursue their interests.

Activists – The site will operate as a platform for users to have their voice heard regarding a wide range of issues and enable them to connect with other users who can help to drive change. In addition to creating a safe, productive environment for users to express their opinions the site will enable users to;

- Organize events and promote their cause.
- Connect with likeminded individuals in which to collaborate and organize.
- Publish position papers on particular issues.
- Conduct intellectual conversations/debates regarding particular issues in a safe, productive environment.
- Reach a larger network of people who can help to inspire change (i.e. industry leaders, politicians, etc.).
- Stay current and spark conversation regarding events around the world.

Catalysts – The plethora of early stage businesses and ideas will attract venture capitalists, accelerators and corporate investors to the site. Catalysts will utilize the site to identify early stage ideas that align with their investment theses and interests among the following;

- Identify potential ideas to invest in at a very early stage.
- Provide mentoring and leadership to users developing an idea.
- Function as a pipeline to feed accelerators and venture capital firms.
- Identify potential acquisition targets.
- Stay current on a wide range of industries and gain an understanding for the future of an industry.
- Identify risks and opportunities regarding their current investment portfolio.
- Connect with potential Target's and gain a pulse on the market.
- Demonstrate to potential acquisitions the value they can add to the business by publishing content on the network.

Government Institutions – The site will allow government institutions to gain a stronger understanding of current issues from professionals who are considered experts on the issue. By opening communication channels between the government and experts in society the site will allow government institutions to better understand the communities that they serve and the issues that they face. In addition the network will act as a resource for government institutions searching for private partnerships.

- Gain insights on economic policy and become more knowledgeable in a range of industries through interaction with professors, economists, and other users of the site.
- Provide a platform for third party candidates to debate and campaign.
- Connect with industry leaders.
- Gain a stronger understanding of complex issues that require a more technical background that many politicians lack.
- Acquire an understanding of the current social environment and reach voters.
- Gain an understanding of industry issues and the impact that policies have on them.
- Help politicians to develop more informed policies to facilitate growth in a range of industries.
- Connect with qualified individuals who want to make a difference.
- Receive feedback and insights on policies from professionals and the community that it will impact.
- Gain international insights.
- Sponsor debates.
- Challenge users to develop answers to current issues in society and gain a pulse on the current environment.
- Further democracy by opening communication between politicians who develop policies and the people that they impact.

Journalists/Members of the Media – As a result of the wide array of activity occurring on the site, members of the media will want to become members to gain the inside scoop on new occurrences. Journalists and other members of the media will be attracted to the sight in order to gain insights from professionals regarding current events. Journalists and news stations will be able to sponsor debates or public chats, receiving live feedback on their reports. Journalists and other members of the media may want to join the network to;

- Find and connect with professional sources to reference in their articles.
- Sponsor debates and public chats regarding current events.
- Gain an understanding of current issues from professionals in the field of interest.
- Publish articles and connect with industry leaders.
- Report on new innovations, deals, business ventures, etc.

6. Token and AI Mechanics

Many of the Commonplace network's functionalities which address the collaborative barriers present in today's innovative environment are reliant on the distributed ledger (DL) technology and smart contracts built into the various ERC-20 tokens available within the network. While Ethereum is the obvious first choice, certain concerns such as transaction fees may not make Ethereum a viable option to build the network's infrastructure on. Other ERC-20 token compatible DLs such as EOS may provide a more viable option. Reducing transaction fees will be crucial to the network because, as noted in the "*A Decentralized* Approach" section, user

interactions will be regularly recorded onto the DL at potentially high volumes. If transaction costs are too high the network will become costly to operate. The usage of a private blockchain may help to reduce transaction fees, however, may also impair the network's vision of providing universally identified / recognized intellectual property standards by privatizing the record of contribution and content. Further research will be conducted in order to select the most viable DL infrastructure to build the network on; however, the most crucial components include, i) ERC-20 (or other smart contract capable token) compatibility, ii) transaction costs, iii) volume and transaction speed, iv) accessibility and v) security.

The solutions provided by the DL infrastructure noted above will be complemented by the artificial intelligence developed by the site using the machine learning techniques described in the section "*AI and Machine Learning*". The network's AI will be crucial in effectively connecting users based on an elevated level of criteria and policing intellectual property protections provided by the network.

6.1 Smart Contracts

The network will consist of a number of different user types, each with their own unique id which will begin with the user type acronym noted below. Certain smart contracts will be triggered by the user type receiving the token as noted in the subsequent sections. The network will consist of the following user types;

- Individual users (IU)
- Collaboration effort / Project (P)
  - Project approval fund (PA) – *this is a sub-type included within the project and NDC1 escrow. Note this functionality will only be accessed if there has been NDC1 issued in relation to a specific project.
  - Project decline fund (PD) – *this is a sub-type included within the project and NDC1 escrow.
- Blockchain registry (BR) – this is the user type that receives IDC for "publishing" content to the blockchain. Note there is only one Blockchain registry.
- NDC1 escrow account (NE) – this is where IDC funds are held in escrow for the issuance of NDC1. NDC1 escrow is responsible for the issuance and liquidation of NDC1 tokens.
- Project Account (PA) – this represents the IDC and NDC1 held by a project that i) the team decides not to hold in escrow or ii) has not issued NDC1 related to the project and therefore no escrow account exists.
- NDC2 issuer (NI) – this represents the user type responsible for issuing NDC2. Note that there is only one NDC2 issuer and content must first be published through the Blockchain registry before NDC2 can be issued.

Commented [L17]: At inception of the site will not require IDC payment to publish to blockchain.

Idea Coin (IDC):

Idea Coin (IDC) is the native incentive and utility token within the Commonplace network. IDC will interact with all user types and function as the network's currency. The only smart contracts (if any) included within the IDC token will be those associated with the parameters of issuance outlined in the "*Initial Coin Offering*" section of this whitepaper.

NDC1:

As noted in the in the "*Site Structure*" section of this whitepaper, NDC1, will represent different characteristics depending on the "Area" of the network, however, in general NDC1 will represent a user's interest in a project. The NDC1 token will primarily interact with three different user types i) NDC1 escrow account, ii) Collaboration effort / project and iii) Individual users. The NDC1 token will interact with each user type differently as described below.

Prior to issuance of NDC1 a specified amount of IDC will be transferred to the NDC1 escrow account. Subsequently, users will be issued a set amount of NDC1 whose value will be tied to a fixed ratio of IDC tokens held in escrow. The purpose of this is to ensure liquidity value of each NDC1 token equal to the corresponding ratio of IDC in escrow. As such, each individual NDC1 token will represent a % interest in the project and a fixed amount of IDC held in escrow which will be governed by a liquidity smart contract. The liquidity smart contract will ensure that if/when a user decides to liquidate/destroy the NDC1 token held, they will in return receive the corresponding amount of IDC held in escrow. Similarly it will ensure that distributions of IDC (or NDC1 from other projects) made from the Project Account to its members (i.e. NDC1 holders), will be based on the ratio of NDC1 held (note users will be able to hold fractions of a whole token).

In addition, to representing an interest in a project, NDC1 will be used to vote on various decisions that will impact the direction of a project. Voting will take place using the project approval and project decline funds embedded in the collaboration effort and NDC escrow account. In both circumstances holders of NDC1 will temporarily send their NDC1 held to either the project approval fund noting their agreement with the vote or the project decline fund noting their dissent. At the end of the vote NDC1 will be returned to the rightful owners (except in an example where users are voting to reissue NDC1). During votes transacting of NDC1 and project content alterations will be frozen until the vote has been completed.

Within the network's user interface users will have the option to select from a drop down list of common items to vote on. The drop down list will consist of basic items that can impact the direction of the project and the manner in which funds are handled. Some examples of collaboration effort votes include;

- Accept changes to content associated with the project.

- Print a clean document version that does not include the names of the contributing users as described in the "*Commonplace Overview*" section.
- Vote whether IDC or NDC1 should be received into the project account or the NDC1 escrow account.
- Vote if or when to make distributions from the project account to NDC1 holders.

Users will vote using the approval and decline funds embedded in the NDC1 escrow account to verify the parameters of NDC1 issuance, dilution or reissuance. Any particular vote will require a majority (or other agreed upon consensus) to pass. Any dissenting parties will be able to liquidate their NDC1 held prior to dilution or reissuance if they choose to do so.

NDC2:

As described throughout this whitepaper, the NDC2 token represents the right to use or otherwise gain access to another user's content. In order for a user to issue NDC2 related to a particular piece of content the content must first be published to the blockchain through the blockchain registry. After publishing the content through the registry, the content will be assigned a unique cryptographic hash that will be associated with the NDC2 issued related to the content. By holding NDC2, users will be able to access the particular content (or version of it) with the same cryptographic hash held in another user's file space (unless the original publisher allows the user to actually take possession of the document. Note if a user allows another user to take possession of the content they will not be able to revoke rights using a smart contract). In this manner, it will allow the original publisher to maintain control/possession over their works while at the same time allowing other users to utilize their works (note that users will not be able to delete versions of work that there are outstanding NDC2 for).

During the NDC2 issuance process, users will have the option to select various terms that will signify the smart contracts to be included in the NDC2 that is issued. Some examples of terms / smart contracts that users will have the option of selecting include;

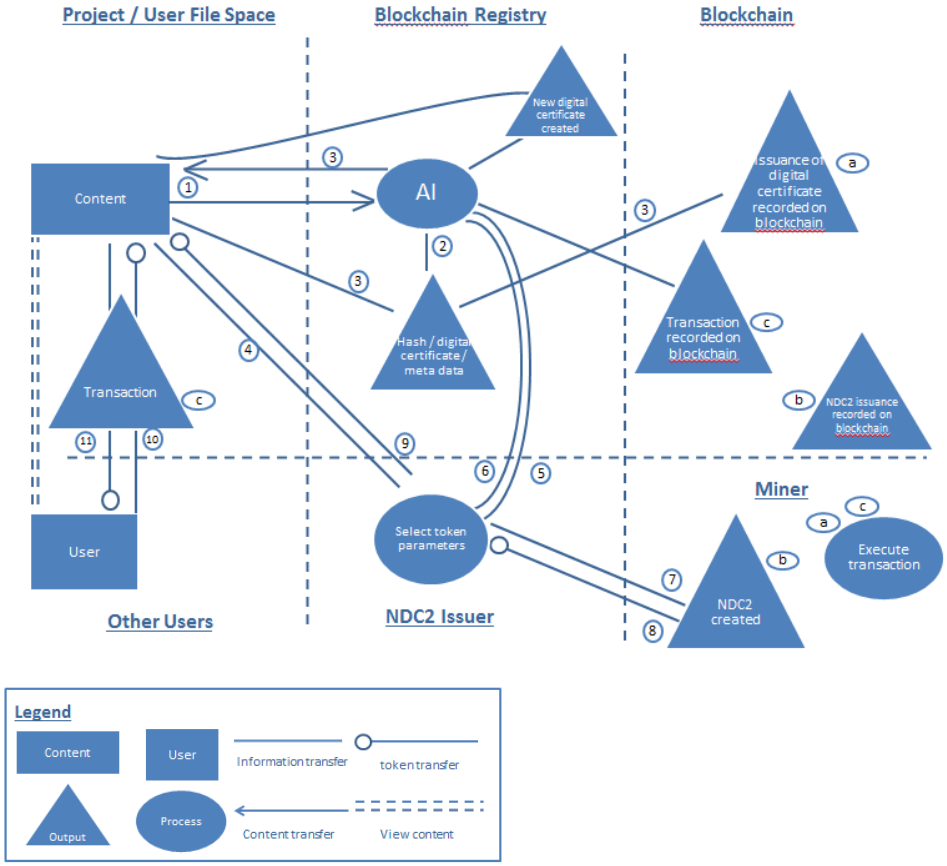
- The term of access – users will be able to select a termination date for access to published content associated with the NDC2 issued. Once the end date is reached the NDC2 token will be destroyed (unless the token holds other smart contracts that require survivorship such as the auto-reference smart contract), therefore eliminating a user's access to the registered content.
- Transferability – users will have the option to make NDC2 tokens non-transferable meaning that only the original receiving user may access the associated content. This will enable users to maintain a greater level of control over their content.
- Auto reference – users will have the ability to include an "auto reference" smart contract that will further enforce proper use of content and allow users to maintain recognition for contribution. When a user that holds NDC2 with an auto reference smart contract attempts to publish content via the blockchain registry it will

automatically check the content being published against the content associated with the NDC2 held by the user via the AI Infringement Analysis. If the content has a certain degree of similarity to the content associated with the NDC2 it will automatically be referenced (or by other means associated) with the content being published. The reference will be made using the cryptographic hash associated with the NDC2 that was made when the content was published to the blockchain registry. If the publishing user disagrees it will go through the appeals process described in the "*AI Infringement Analysis*" section.

- Limited use – users will be able to limit the manner in which other users may use their content by including certain smart contracts in the NDC2 issued. For example, users may issue NDC2 that is considered "view only", where users will not be able to print the content or otherwise use it in their own works. This will be enforced in a similar manner as the auto reference smart contract where the AI infringement analysis will prevent a user from publishing content that includes certain similarities with the content associated with the NDC2 held. However, rather than requiring a reference the user will be unable to publish the content, and in some cases may result in the content being destroyed (i.e. erased from the network) and the user removed from the network. All disputes will be subject to the review process described in the *"AI Infringement Analysis"* section. If a user chooses to pursue legal action against the infringing user the site will provide all necessary records enabling the user to do so.

Commented [L18]: To further research if it will only check published content against NDC2 held in order to incentivize users to issue NDC2 and therefore increase IDC payments to the Company from users. In addition, this will limit the amount of processing power and complexity of the algorithm when building out the AI Infringement Analysis.

Similar use cases of distributed ledger technology have already been developed by ascribe (refer to the *Appendix* for a description included in the COALA whitepaper). See below for a flow chart depicting the NDC2 issuance process.



1. Content is sent by a user to the Blockchain Registry to be "published".
2. The Blockchain Registry issues a digital certificate and unique hash associated with the content including certain meta data defining the content. If a new edition is posted then a superseding digital certificate will be published.
3. Issuance of the digital certificate is "published" or recorded to the blockchain and the content is sent back to the user who developed it, with the only information stored on the

blockchain / database that sits on top of the blockchain being the meta data used to define the content. In addition the Blockchain registry (AI) will have the ability to access the content in the case that the meta data recorded is triggered by the infringement or connection analysis outlined below.

4. When a user decides that they want to issue NDC2 related to their content, the hash from the digital certificate will be sent to the NDC2 Issuer.
5. When the NDC2 Issuer receives the hash from the digital certificate it will use the hash to query the Blockchain Registry. The underlying AI of the Blockchain Registry will then perform the infringement analysis noted below.
6. The Blockchain Registry will then either send an approval or denial to the NDC2 Issuer based on the analysis.
7. If the issuance is approved the user will choose the parameters of the issuance as described above and transfer the information to be mined into a NDC2 token. Creation of the NDC2 token and the underlying hash, meta data, etc. will be recorded to the blockchain.
8. The mined token will then be returned to the NDC2 issuer to be verified.
9. Once verified the token will be transferred to the publishing user to be shared with other users. As previously described the token will grant various terms of access based on the unique hash issued to the content at the time it was registered.
10. In some transactions users will require compensation in exchange for access to their content (i.e. to receive the NDC2 token), in which case IDC will be sent to the publishing user.
11. In exchange for the IDC the publishing user will provide the NDC2 token that will grant the acquiring user access to the content within the parameters set during the issuance process. The transaction will be recorded to the blockchain.

Note: A collaboration effort or project may operate in the same capacity as a "user" noted above.

In some circumstances users will want to document an interaction between users, but not require the smart contracts associated with the issuance of NDC2. In such cases users may perform a 1-to-1 transaction using IDC which will record the users' interaction onto the blockchain, however, will not include the specifics required by an NDC2 transaction.

6.2 AI & Machine Learning

Core to the network's value is its ability to identify connections and content that violates another user's right to their intellectual property. In order to achieve this goal the site will implement multiple operations that consist of collecting specifically identified characteristics of a particular work which will be tailored for the use of the sites AI / machine learning algorithms.

The network will be built on several information repositories which will provide the data inputs for the various analyses performed by the site. The blockchain will operate as the bottom layer of the process, only recording the information required to permanently document the interaction between parties (i.e. interacting parties' unique IDs, date, unique hash associated with the document accessed, etc.). The second layer will consist of two databases built on-top of the blockchain which will be utilized by the Blockchain Registry and the NDC2 issuer. The two databases will include more detailed information required for the network to perform the connection and infringement analyses outlined below. In addition the site will maintain a file storage system, which upon further research, may be viable use case for a distributed file storage system such as the InterPlanetary File System (IPFS).

Registration:

The first stage requires a user to register or "publish" their work through the Blockchain Registry (note: only works that have been registered will be included in connection and infringement analyses described below). The purpose of registering a user's work is to document the existence of the work and to collect identifying characteristics to be used in the connection and infringement analyses. In order for content to complete the registration process it must pass the infringement analysis outlined below.

When a user registers a published work (either for the first time or in the form of a new edition) the Blockchain registry will issue to the user a unique hash identifier which will operate as the work's unique ID. The unique hash will be included as a unique identifier in any transaction that occurs related to the document and will be used to query any necessary information related to the particular document (i.e. infringement analysis, etc.). In addition, the Blockchain Registry will issue to the user a digital certificate outlining the provenance of the work. The digital certificate will include;

- The publishing user or users unique IDs;
- The unique hash associated with the work;
- Contributing users or referenced works (i.e. auto reference);
- The date published;
- Ownership history if any; and
- Users who have previously accessed the work (if it has been documented on the blockchain via an IDC exchange or NDC1 or NDC2 issuance).

The Blockchain Registry will record the information (or unique identifiers associated with the information) included in the digital certificate to the blockchain (note certain information included in the digital certificate, such as users who have previously accessed the content, will have already been recorded and thus will not require duplication) and the Blockchain Registry database.

In addition to the information that will be recorded onto the blockchain, the Blockchain Registry will maintain a database of more detailed characteristics of the published work in order to index content into particular categories, and further define the work that will enable the site to better connect users. Information recorded in the Blockchain Registry database (note when a user issues a NDC2 token related to a particular work the information recorded in the Blockchain Registry database will be transferred to the database housed by the NDC2 Issuer), but not on the blockchain will consist of identifying information regarding the publishing user/users and the content itself, including;

- Sector/industry;
- Expertise;
- Classification;
- Education;
- Location;
- Status;
- Topic tags;
- Other personalized tags;
- Keywords identified by network's AI / machine learning algorithm.

During the registration process the network's AI / machine learning algorithm, (machine learning technique outlined below) will identify certain unique identifiers about the work being published which will be recorded in the registries database and indexed with other information collected during the registration process. Similar to that of a keyword search performed by typical search engines or an information repository such as LexisNexis, the "keywords" identified by the Registry will be used to establish similarities between registered works. However, rather than a user searching for content that includes particular keywords, a user will publish their own content in which the site's AI will use keywords that it identifies about the work being published to flag works with similar keywords associated with it. The "keywords" identified during the registration process will be the basis for which the infringement and connection analyses will be performed.

After content is registered, the blockchain registry will gain access to the content in order to perform the infringement and connection analyses described below. Although, the site's AI will have the ability to access the registered content, it will only be stored on the user's file space (or via a distributed file storage system such as IPFS) in order to prevent duplication of storage requirements and maintain security over the content. When content is flagged by one of the analyses based on the information stored in the Blockchain Registry or NDC2 Issuer database, the site will query the actual content based on the unique hash associated with the content that is recorded in the database. The site will then utilize the full content in order to perform the necessary analysis.

Infringement Analysis:

In order to further protect users from loss of intellectual property, the network will perform an infringement analysis prior to the registration and issuance of NDC2 related to a particular piece of content. The infringement analysis will be performed using machine learning which is further described in the "*Machine Learning*" section below. Both the Blockchain Registry and NDC2 Issuer will maintain a database built on top of the blockchain that will be utilized in the infringement analysis in order to identify potential works that the newly registered or issued work may infringe upon.

Blockchain Registry:

The infringement analysis performed by the Blockchain registry will be conducted in order to ensure that no user publishes work that falsely claims to be "original" or otherwise created by that user when in actuality it was taken from another user of the network. While the network's primary goal is to prevent intellectual property from being stolen, we do not aim to create an environment that prevents similar ideas from being developed by different people at different times. Rather than limiting users from publishing similar works we aim to connect such users with each other and allow users to interact with other users that may result in ideas that, although similar at their inception, may result in completely different end products. In order to maintain a balance between protecting intellectual property and bolstering innovation the blockchain registry will only perform the infringement analysis on works previously accessed by the particular user (and users that the publishing user is affiliated with). Note that the network has a rigorous onboarding process that will prevent users from creating fake accounts and circumventing the process by creating a dummy account to access the work of others and subsequently publishing infringing works using a different account.

Commented [L19]: Look into linking to the patent database in order to ensure that it does not infringe upon existing patents that live outside of the network. Note that this would require indexing particular information regarding such information in order to include it in the Blockchain Registry and NDC2 database. However, this may lie outside of the realm of what the network is trying to create. This may be a far sighted goal to be implemented not only after reaching a critical mass, but once it becomes more of a viable means for regulating industry (i.e. Lease tech to governments after using the network as a means of developing the AI).

The infringement analysis performed by the Blockchain registry will be performed using a multi-step process designed to narrow the dataset to be analyzed.

- *Step 1* – As outlined in the "Blockchain Registry" section above, the registry will first scan the uploaded work for key identifiers or "keywords".
- *Step 2* – a query will be performed to the blockchain in order identify all works that have previously been accessed by the user (note as a result of the registry process, only documents that have been registered will receive protection resulting from the infringement process, i.e. only works that have a unique hash I.D. associated with them). The query will be performed using the users unique I.D. issued upon joining the site which will be included in all transactions recorded on the blockchain associated with that user.
- *Step 3* – Using the Blockchain Registry database works that have similar "keywords" or identifiers as the work being published that have previously been accessed by the user

will be identified. This will represent the population of works that are subject to the infringement analysis and those works that will be accessed by the registry.

- *Step 4* – Similar to that of the current use cases "Proof-of-Existence" and "Ascribe", the registry will first verify that the work that is attempting to be published is not the exact same as a document that has already been published. Note there are already "non-blockchain" use cases for such technology utilized by academic institutions to prevent plagiarism.
- *Step 5* – The registry will then compare the two files searching for unique words, strings of content, or other unique identifiers. This step will essentially operate as another level of plagiarism testing in order to ensure that certain portions of the document were not copied verbatim from another document included in the population being analyzed (note properly referenced content will not cause a work to fail). This will essentially operate like a two way search engine where a particular phrase or string of content will result in a match being triggered. According to a formula based on matches and quality of matches, an overall % match will be calculated. A threshold of matching will be set for a work to pass or fail.
- *Step 6* – The registry will perform the final analysis by comparing the remaining works (if any) based on certain patentable, licensable, or otherwise protected criteria according to US patent / copyright law or an otherwise agreed upon set of principles. The AI will be trained using criteria from various court cases (or another set of rules / principles as determined by the network) and will be able to identify paraphrased wording, shapes, patterns, etc. The dataset used to train the AI is further outlined in the "*Machine Learning*" section.

<u>NDC2 Issuer:</u>

A similar process will be performed when a user attempts to issue NDC2 related to a work. However, rather than querying the blockchain for any works that the user has previously accessed, the infringement analysis will compare the work to all works that have previously issued NDC2. As such, all works with a unique I.D. in the NDC2 Issuer database will serve as the starting population of works to be analyzed. As all works must first be registered through the Blockchain Registry in order to issue an NDC2 token, the network will first establish that any work that issues a NDC2 token was not developed through illegitimate means. After establishing that the content is original in nature the NDC2 Issuer will ensure that the content issuing NDC2 does not infringe upon any other content that has previously issued NDC2, by doing so, the site will be establishing a "first to file" standard which is in-line with the current US precedent.

**Note in certain circumstances where a user holds a NDC2 with the appropriate rights, a user will be able to register or issue NDC2 related to a work even if it fails the infringement test. For example, if the infringement test identifies an infringed upon work that the user holds an NDC2 token for granting them "right of use", then the work will pass the analysis, but will require proper reference.

Conflict Resolution:

If a published work is identified as infringing on another work it will trigger the conflict resolution process which consists of the following;

- *Step 1* – The original publisher of the content will be notified that there is a potential infringing party upon their content.
- *Step 2* – If the attempted publisher approves it, the original publisher will review the new work and either approve or disapprove of the work being published (note this could result in the 2 parties collaborating).
- *Step 3* – In the case where the new publisher a.) does not want the original publisher to view the content or b.) the original publisher does not want the content to be published, an objective third party (or parties) will be assigned to review the content (incentivized using IDC which will constitute a transaction therefore recording that the reviewing user had accessed the content and therefore will result in the reviewed content being included in the blockchain registry infringement analysis if the reviewing party decides to then publish new content). The objective third party review will be conducted by either a.) one or multiple users who have reached a certain status level and have legal expertise or b.) an in-house attorney employed by the site (note if performed by an in-house attorney there will be a disclaimer that "this decision does not necessarily constitute a legal ruling" rather it is for the purpose of creating fair and safe ecosystem that bolsters innovation).
- *Step 4* – In either case the losing party (if the original publisher is allowed to view the content and decides to disapprove) will be required to pay a fee in IDC to the reviewing party (note in the situation where the new publisher does not want the original publisher to view the content they will be required to pay the reviewing party regardless of the outcome).
- *Step 5* – If the new publisher does not agree with the outcome (note if it goes directly to the in-house council then this step will be skipped) of the objective user's decision, they may appeal to the in-house attorney and make an argument. If the appeal is won they will recover the IDC fee paid from the original publisher, however, the decision of the in-house attorney will be final.

Commented [L20]: Further research must be performed regarding throughput times and the acceptable backlog size related to such circumstances.

Connection analysis:

The Blockchain registry will perform the connection analysis simultaneously with the infringement analysis when a user publishes new content. The connection analysis will be performed utilizing the same underlying database as the infringement analysis, however, the connection analysis will include all registered works included in the database rather than limiting the population to works that were published by users that the publishing user has previously interacted with. As previously noted in the infringement analysis section, the Blockchain Registry's AI will identify certain unique identifiers or "keywords" related to each published

work. These "keywords" will be crucial to the connection analysis as they will be used to connect users in differing fields of expertise. Identifying key components of each published work will help to achieve the network's goal of connecting users pursuing interests in different fields that could impact each other's work. For example, one user on the network may be publishing their research on the inner workings of the human brain, while another user is developing general AI. Although the users operate in two different industries the medical research being performed may have a large impact on the user developing general AI.

The connection analysis will be performed in several steps;

- *Step 1* – A population of similar works will be created using the "keywords" described above and topic tags associated with documents that have previously been published through the registry.
- *Step 2* – The publishing users weighted preferences and needs (i.e. type of user they are seeking to collaborate with, etc.) will be matched with the attributes of the users who have published the works identified in *Step 1*. In order to match user attributes, the Blockchain Registry will utilize the information recorded in the database at the time the work was previously published. Note this may result in cases where a user has updated their information subsequent to publishing a work. Further research will be performed to determine if a live query of the user's current information included in their profile using the user I.D. associated with the published work will make the process inefficient, or if it is a viable solution to such cases.
- *Step 3* – The publishing user as well as the users who were identified as matches will be notified of the potential connections. Note that users will have the option to exclude themselves from the process if they do not wish to connect with users in such a manner. In addition, only users who have published content will be included in the connection analysis. However, the normal connection search provided by the site will allow users to search for connections manually using the same criteria.

Commented [L21]: Note there may already be algorithms in existence that would achieve this process including those used by the likes of Facebook, LinkedIn, and Google.

Machine learning:

In order for the underlying AI to operate appropriately it will need to be trained utilizing a carefully selected dataset. Key functionalities of the AI include the following;

- Identify unique features of a particular work;
- Identify key similarities between two works;
- Identify aspects of works that may be deemed to be patentable, licensable or otherwise protected under a set of "generally accepted intellectual property standards" (GAIPS) as created by the network. Note that GAIPS will be constructed in a way that will attempt to make the site compliant with most intellectual property laws across the globe including the US. However, GAIPS will develop a construct that is most efficient and effective in achieving the purpose of protecting intellectual property while

simultaneously enabling collaboration. In certain circumstances GAIPS may deviate from current policies deemed to be inefficient or ineffective. The goal is to balance the protection of intellectual property outside of the network (i.e. make network policies compliant with current statutes) while at the same time leveraging new technologies to make the process more efficient and effective.

- Discern paraphrased wording, shapes, patterns and other criteria deemed to be "protectable" under GAIPS

To achieve the above noted functionalities the dataset chosen to train the underlying AI will be geared towards creating the following;

- *Base line of "normal" content* – In order for the Registry to identify components of a published work that are considered to be unique or "protectable" a base line of "normal" content must first be set. Note that "normal" may not be consistent across different industries. For example, a novel which is considered to be "protectable" under a copyright may include a significant amount of content that would be considered "normal" in any other industry or type of work. For this reason it will be crucial to identify the types of users that will be attracted to the network in order to develop a base line of "normal" that will mirror the content being published to the site. Note that in order to achieve a relevant base line of "normal" for all works and areas of interest included on the network a different course of action or "base line" may be set for different i) classifications of works (i.e. research, literary works, inventions, etc.) or ii) different classifications of protections (e.g. patents, copy rights, etc.). Examples of content to be included in the "normal" base line dataset are newspaper articles, encyclopedia passages and textbook excerpts.
- *Items deemed to be unique or "abnormal"* – After establishing a base line of "normal" content the Registry must be able to identify content considered to be unique or "abnormal" in order to effectively perform the connection and infringement analyses noted above. As previously noted such content will be identified by "keywords" associated with the content. Keywords will consist of items selected from the population of content deemed to be "abnormal" which is determined to be useful in describing, summarizing, or otherwise uniquely identifying the content. Creating a process to establish "keywords" may include;
    - Training the AI based on a particular dataset which will be based on the content expected to be published by potential users (this may vary by industry), examples of such content include research documentation, business plans, etc. After establishing the population of "normal" content, the above noted "keywords" will be extracted from the population of "abnormal" content based on criteria such as i) the uniqueness of a word, string of code, etc. compared to the content around it (i.e. a word is surrounded by content that is considered to be "normal", and said word is not), ii) the placement in the greater set of content (i.e. included in the

abstract of a business plan, observation of research documentation, materials used section of experiment documentation, etc.), iii) the number of times the particular word or otherwise identifying piece of content is used, etc. During the AI training process keywords may be identified by humans and fed to the algorithm with the above criteria in mind.

- The process of identifying "keywords" is essentially reverse engineering how typical search engines operate. Rather than using keywords to identify content that the user is interested in, the process will identify keywords associated with the published content. Note that a typical search engine requires human intervention to select the keywords that identify the content that they are searching for. In the same sense this process may require human intervention (at least at the onset), where the system will generate a list of potential "keywords" for the publisher to choose from, in addition to the publishing user self-identifying keywords to be associated with the content which they are publishing.

- *Items deemed to be protected* – After establishing the unique elements of the published content, the established process must identify whether or not the content being published infringes upon other content deemed "protected" that was previously published by another user. As noted above, the network will establish set a standards or "GAIPS" to identify content that is deemed to be "protectable". In order for the AI to identify potential infringements, it will in part utilize the "keywords" noted above. Therefore the dataset utilized to train the AI must also be based on content similar to that included in land mark IP cases that have molded current intellectual property standards. The content included in the dataset will need to be specifically designed to i) include content that includes "protectable" content based on GAIPS and current standards, ii) content that infringes upon "protected" content, and iii) content that will establish common standards across multiple industries or types of content (unless it otherwise established that different processes or "base lines" will be utilized for different types of content as noted above).

Note ascribe has developed the means to identify shapes and pictures on websites that have duplicated "registered works" and was in the process of working on a way to identify words and other content prior to project leaders moving onto a new venture. Refer to "*How Blockchains can support, complement, or supplement intellectual property"* by COALA *for further details.*

6.3 Token Economics

Initial Coin Offering:

Traditionally, initial coin offerings (ICOs) are conducted in order to raise funds for projects involving "cryptocurrencies". While ICOs vary, most involve the distribution of a token

or tokens to individuals who contribute funds to the project. This transaction generally occurs with an "understanding" that the funds will be utilized to develop the project in which the distributed token will have future utility within the platform, network, etc. being developed by the project. Traditional ICOs are essentially conducted to bootstrap or otherwise develop the associated project. While funds are important to the development of a project, the most crucial commodity to a new network is usership, or reaching a critical mass. Although it can be assumed that distributing tokens to a group of individuals develops a future user base for the project (as they have a vested interest in the project succeeding), this is not always the case. Simply distributing a token does not necessarily create a "sticky" product, for example, an individual who contributes funds to receive tokens that they intend to use for financial gain are considered "passive" members of the network and not necessarily primary contributors to the project (although it can be argued that becoming an active user would increase their investment, this is not the psyche of a passive investor), and therefore does not further the project's goal of creating a viable product or network that provides value to its future users. As a result, traditional ICOs do not provide a means of raising the most crucial "capital" to a network, active users and content.

In order to more accurately align the ICO distribution of the network's IDC token with the requirements of a successful network, the token distribution will deviate from traditional offerings. Rather than distributing tokens in return for monetary contribution, the Commonplace ICO will distribute the IDC token in exchange for user developed content. The content obtained by the network during the ICO will be utilized to i) build available network content, ii) train the AI, and iii) test site functionalities. In addition, to providing data to further develop the network, requiring potential future users to contribute content will assist in creating "active" users, as future users would have already contributed content that aligns with their future usage of the network. This contribution method will also help to attract the type of users that the network is targeting (i.e. users that have an interest in sharing their content, collaborating with other users, and making new connections based on their curated content, rather than passive financial investors). In order to ensure that contributed content is useful, the network may also set conditions on contribution such as i) type of content, ii) subject of content (i.e. industry), and iii) qualifications of content based on the criteria outlined in the *Ensuring Quality of Information* section.

It is important that there is an element of future "value" associated with the IDC tokens issued during the ICO, otherwise potential users will have no incentive to contribute. However, unlike the case of the financial investor noted above, the "value" provided by the IDC token is the potential future connections and collaborative opportunities provided by the network. While the projects developed by users of the network have potential to create financial gains, such monetary gains are not directly associated with IDC token distributed during the ICO. Although financial investors will be a crucial component to the network they are not "crucial" users until the network has reached a critical mass of content. Financial investors will be attracted to the

network for the potential profit that it may provide to them. However, the "profit" will be a result of the content curated by the network's users and not the actual IDC token distributed during the ICO. Financial investors will become active users of the site once there is enough quality content to warrant their usage.

Additional decisions that must be made regarding the ICO and token distribution include;

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- How many tokens will be distributed (i.e. will there be a limited supply, an algorithm that maintains a particular ratio of tokens in circulation, etc.)?
- Who will mine the tokens (i.e. will the tokens be mined by the network, the site, anyone with the hash power, members of the site only, a combination, etc.)?
- How will the tokens be mined (i.e. will they be pre-mined and released into circulation per the above criteria or will they be mined live)?

Token Economics:

As noted throughout this whitepaper the network will feature three types of tokens, i) Idea Coin (IDC) – the network incentive token , ii) NDC1 – the stake or equity token and iii) NDC2 – token designed to protect intellectual property and limit use of the associated content (signifies the right of use). While all tokens are crucial to the operation structure of the network, the manner in which such tokens will be distributed is quite different.

The native network token IDC will be utilized by both the site (in order to incentivize users) and the users themselves (in order to transact with other users of the network). However, the site (or an algorithm created by the site) will be in control of the number IDC in circulation in order to create a stable ecosystem, as IDC will serve as the basis for value on the network. The underlying algorithm will be structured in a way that will control the number of IDC in circulation based the quantity of IDC offered to users as incentive to perform the operational services described throughout this whitepaper, and the cost of publishing content. By increasing the quantity of IDC tokens paid to users for performing services the site will be able to increase the supply of IDC tokens in circulation, and by increasing the cost (in IDC) of publishing content, the site will be able to decrease the quantity of IDC in circulation (assuming a constant volume of activity), and vice versa. Controlling the supply of IDC during fluctuating times of demand (or volume of activity) will help to maintain a balance of value. Creating a stable IDC value is particularly important within the network, given its relationship to the value of user issued NDC1, as described below. In addition to maintaining a supply and demand balance, users will receive a larger quantity of IDC incentive i) prior to the network reaching a critical mass in order to incentivize early adoption and ii) during times of high activity with a limited number of users offering their services (similar to "surge" pricing utilized by Uber).

NDC1 and NDC2 tokens will be issued based on the user requests. The site will not manage the quantity of NDC1 or NDC2 in circulation. However, the price (subsequent to reaching critical mass) of issuance will be managed by the site, which may indirectly impact the

quantity requested by users. Although the site will not set a value to the NDC tokens issued, the relationship between IDC and NDC1 in particular may impact the value of NDC1. As previously noted, all NDC1 tokens issued will require a certain amount of IDC to be held in escrow. As such, the value of NDC1 will be indirectly related to the value of IDC. This relationship is designed to create a common incentive for users to collaborate and succeed as a network rather than an individual. However, the impact of this relationship will fluctuate based on the ratio of quantity of IDC held in escrow and quantity of NDC1 issued in relation. This relationship also implies that the success of projects associated with various NDC1 tokens will have an indirect impact on the value of IDC. The value of NDC1 may fluctuate based on i) the demand for the content or services provided by the project associated with the NDC1, ii) the desire for users to join or hold equity in the associated project, iii) the quantity of IDC held in escrow, and iv) the general success of the associated project, etc.

7. Revenue and Cost Structure

The architecture of the network provides the opportunity for a unique revenue and cost structure. Utilizing the IDC token as an incentive and means of compensating users for performing site operations enables the site to pay operational costs in a currency that has a limited (depending on the manner in which tokens are mined and the quantity to be mined the cost may be a sunk cost at the inception of the network) cash cost to the site. Furthermore, as the site (or algorithm developed by the site) may control the quantity of IDC in circulation as well as the cost to users and the site for typical site operations, the site will have a unique opportunity to manage earnings / costs (excluding certain costs such as utilities and rent) based on the number of users of the site. The algorithm that is developed to control the quantity of IDC in circulation may be developed in a certain way that will produce a certain profitability margin given a particular number of users and volume of activity. As a result scalability may be achieved in a more “controlled” environment than a traditional start-up that does not have the ability to impact the “economy” in which it operates. Creating such an ecosystem as described throughout this whitepaper will enable the site to have similar control over the market that it is operating in (i.e. the costs of operating the network) that a more established company may have (i.e. similar to a Proctor and Gamble or major oil company who can significantly swing a market based on certain pricing, therefore giving it larger negotiating power in various theaters). This control is achieved by i) controlling the quantity of currency utilized by the network in circulation, ii) controlling the operational revenues and costs of the ecosystem, therefore maintaining a scalability / profit margin (subsequent to reaching the mass of users required to reach breakeven) previously determined by the algorithm created at the inception of the site. As previously noted the variables that may impact the profitability of the site are (i) the number of active users and (ii) volume of content developed by said users. While the algorithm created by the site will not have direct control of these two variables other aspects of the network do. For example, the number and types (i.e. the expertise, skills, industry, etc.) of new users allowed to join the site is controlled by the initial vetting process as described in the *Ensuring Quality of Information* section. In

addition, the site may increase the volume of content flowing through the network by creating challenges, posting topics of interest, and other methods described throughout this whitepaper geared towards fostering collaboration and content development. However, the site does not necessarily have the capability to decrease the number of users or content volume flowing through the network. Therefore it will be crucial that the algorithm, user acceptance process, etc, place a greater emphasis on creating a proper onboarding flow. Synchronization across the noted operational segments will ensure a specified level of profitability (after reaching the initial breakeven point) as the network scales.

The site will provide for various revenue streams and structures including (note that the revenue structure's noted below represent post critical mass, as the actual revenue structure may differ during the user adoption phase);

- *Equity* – The issuance of NDC1 and NDC2 (or otherwise publishing of content in a protected manner) will provide a unique opportunity for the site to operate with a revenue structure similar to that of a venture capital firm or accelerator. Current accelerator programs such as Y Combinator, will receive a small amount of equity (generally 7%), in exchange for seed funding and other resources. Similarly, the site will charge its users a "fee" if they choose to issue NDC1 or NDC2 (or otherwise publish content via the Blockchain Registry) tokens. This "fee" may be paid in the form of i) IDC, ii) % equity or stake in the project (i.e. a portion of NDC1 issued will be distributed to the site), or iii) minor royalty or right of use in the content related to the issuance of NDC2. This fee will be paid in exchange for the resources, capabilities, and protection (described throughout this whitepaper) that the network provides to its users.
- *Finder's fees* – In addition to gaining equity in potential projects, the network's idea marketplace will create a platform for traditional financial investors, such as venture capital firms, to identify potential partnerships or investments at an earlier stage. As such, the site will charge financial investors a "finder's fee" for its assistance in facilitating any potential transactions. *Note: controls to ensure that financial firms cannot circumvent the site by contacting potential investments outside of the network will need to be developed. If this cannot be developed then potential for a subscription payment to gain access to the site may be required for such entities.*
- *Intellectual property API* – As described throughout this whitepaper the site will develop an AI that is capable of identifying potential infringements on intellectual property, which may have value beyond the designed usage for the network. Therefore there may be the opportunity for an additional revenue stream by creating an API for the AI developed by the network, in which the site will charge for its usage.
- *Traditional revenue models* – Other potential revenue models align with more traditional website and software organizations including;
    - Ad revenue

- Subscriptions – Another potential revenue model is to offer user and entity-wide (i.e. an education institution that wants all of its students granted access to the network) subscription packages ("premium membership") for services provided by the site. The monthly, quarterly or annual subscription fee would include usage of the blockchain publishing and AI connection services (and all of the functionalities associated with said services throughout this work paper, such as auto-referencing, etc.). In addition the subscription may provide a specified amount of NDC1 and NDC2 issuances, additional storage space for user developed content, access to various tools, etc. Once the network has reached a critical mass the site may charge a "membership" fee to maintain a presence on the network. Note that fees may be paid using the networks incentive token (IDC).
- Partnerships – The network will pursue partnerships with various other publications, education/research institutions, accelerators, etc. that may result in the site diverting site traffic or users to the services, etc. provided by partners. Such partnerships may result in the site receiving an agreed upon share of revenues resulting from this relationship.
- Transaction fee – Similar to many crypto exchanges, the site may charge a transaction fee anytime IDC, NDC1 or NDC2 is exchanged between users. Additionally, the network will enable users such as collegiate, non-profit, and research institutions to accept donations within their profile which the network will receive residuals on the processing volume.
- Legal / accounting fees – a fee may be charged for assistance with incorporation documents and other legal filings.
- Per use – Another potential revenue model is to charge users who do not maintain a subscription package a "per use" fee for various site functionalities such as,
    - Publishing content to the blockchain;
    - Utilizing the AI connection;
    - Joining the network or certain aspects of the network;
    - Storage limitations; and
    - Various tools and services provided by the site.

The cost structure of the network is different than traditional companies as it will incentivize users (or its customers) to perform necessary processes to operate the business through the unique incentive system. This incentive system will create an environment where it is in the users best interest to perform said operational services as it will provide additional value to the specific user themselves. Performing the operational services to the network will help to bolster activity on the network which indirectly will help to increase the value of any IDC held by the users. Any actions that help to i) increase interest (i.e. successful projects), ii) functionality, or iii) through-put / efficiency of operations (i.e. a greater number of users

performing services in order to decrease any back-log in review for publishing etc.) will result in an increase in value of the monetary units (i.e. IDC, NDC, etc.) held by the users.

Unlike a traditional operating structure the network will not be required to hire additional employees to scale the business, rather the operational structure will scale in line with the user base (as operational services are provided by the users themselves). Utilizing a micro-payment incentive structure where users are compensated at the time that services are performed for services that directly add value to the network will remove the impact of unutilized time that occurs in a traditional business structure. Rather than paying an employee an hourly rate or annual salary, in the incentive structure utilized by the network an individual is only remitted payment upon completion of the service that is directly associated with the operation of the network. Utilizing such an incentive structure effectively removes the impact of certain operational personnel costs, allowing the network to only incur costs associated with providing the product, or margin generating costs. In addition, by disaggregating the work amongst various users the cost of performing the service will likely be decreased as services will be performed periodically by different users rather than on a constant basis by the same individual that would require a larger fee to perform he services in such an arrangement. The incentive structure will essentially lower the fair value (or cost to the network) of the services being performed because the service is for a particular instance rather than recurring in nature. However, the network will need to maintain a number of users who (i) have the skills required to perform the operational services and (ii) are willing to perform the services proportional to the total population of users on the network. The network will achieve this through its vetting process during the on-boarding of new users and leverage the incentive system to ensure users are capable and willing to perform such services.

In addition the means of incentivizing users to complete these tasks will be in the form of non-monetary compensation (although there is value exchanged it is not in the form of actual cash or fiat currency) and therefore, not impacting the cash flow of the overall business. In a traditional environment the business would be required to hire employees to perform such services. While it can be argued that there is the transaction of monetary value due to the perceived value of IDC on the open market or exchange, the actual IDC transaction was not derived by a direct cash payment as it is with an employee, rather IDC is created by mathematical code that comes with no direct cost but a previous investment of time (the opportunity cost of the time of the developer or the actual payment of the developer). The monetary backing of the unit of transacting is the perceived or believed value of IDC and the underlying network, which by performing the services in which the user is being compensated for will increase the value of the unit of transacting. In such an environment real value is received by the user performing services, however at no direct operating cost to the business, effectively increasing the actual cash flow to the business, and overall value (and bottom line) of the business. Users are essentially compensated by receiving a portion of the "growth" experienced by the network. By creating such a structure the site will be able to increase the ROI

of any potential investor. The original investment made by seed funding to hire a developer will therefore have recurring ROI as the work performed by the developer (to create IDC) will reduce future costs to the business by not requiring the Company to hire employees. As the network scales, this ROI will increase as compared to a traditional environment that would require additional employees to be hired to continue operations without deteriorating the overall quality of the network.

8. Appendix

Refer to the following whitepapers for technologies and current ventures that may impact the structuring of the Commonplace network:

- "HOW BLOCKCHAINS CAN SUPPORT COMPLEMENT, OR SUPPLEMENT INTELLECTUAL PROPERTY" Version 1.0; by the Coalition of Automated Legal Applications (COALA) – intellectual property tracking
- https://github.com/COALAIP/specs
- https://github.com/ascribe
- Bancor – liquidity and escrow operations
- Basic Attention Token (BAT) – incentive structure
- EOS – potential blockchain base
- FileCoin – potential distributed file storage

9. Other Sources

"Where Good Ideas Come From" by Steven Johnson

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