Vaultitude
Intellectual Property Blockchain Platform

WHITEPAPER

Use, reproduction and distribution of contents of this whitepaper is restricted to non-commercial purposes and educational use and requires the citation of the original source and an applicable copyright notice.

© IPCORP Ltd. 2018
Vaultitude® is a registered trademark of IPCORP Ltd. All Rights Reserved.
DISCLAIMER

This white paper is intended for informational purposes only and provided “as is” without guarantee that the conclusions and statements herein are accurate or that its contents are free from error. All warranties are expressly disclaimed, including, but not limited to, warranties of merchantability, fitness for a particular purpose, title or non-infringement. IPCORP Ltd. or its affiliates will under no circumstances be liable for damages of any kind (including, but not limited to, direct, indirect, consequential, incidental, special or punitive damages, including loss of profits, revenues, lost business or loss of use of products) resulting from or linked to the use, the reference to, or the reliance on information contained herein. The general exclusion of liability extends to, but is not limited to, any token holder, user, person, entity, partners, a partner’s customers or end-users and remains unaffected by claims of breach of contract, negligence, strict liability in tort or other legal or equitable actions.

By taking part in the crowd sale of the Vaultitude token the user acknowledges the following:

• Vaultitude tokens are not an investment, a currency, stock, shares, rights, options or derivatives and do not represent units or holdings in a collective investment scheme including an investment fund, units in a business trust, derivatives of units in a business trust or any other security or type of security and they are not registered with any government entity as a security or have characteristics typically associated with securities. Vaultitude token holders do not receive profits, income, interests, rights, ownership, title, payments or other forms of returns or benefits from Vaultitude, IPCORP Ltd. or any associated property, for the acquisition, transfer, holding, management or disposal of Vaultitude tokens.

• This whitepaper does not represent or form an offer, solicitation, opinion or advice by the distributor and/or vendor of the Vaultitude tokens to buy, hold or sell Vaultitude tokens. This whitepaper or any part of it or its presentation shall not form the basis for any contract or investment decision.

• There is no guarantee that Vaultitude tokens will increase in value. Vaultitude tokens might at any point decrease in price, even significantly, as a result of unforeseen events beyond the control of the developers or due to force majeure circumstances. There is no private or public insurance on funds collected in the initial token sale. All persons and parties involved in the purchase of Vaultitude tokens do so at their own risk.

• While the developers intend to realize the Vaultitude project as described in this whitepaper, some or all of its aspects, objectives and plans stated in this document may need revisions due to unforeseen circumstances.

• The entirety of forward-looking statements, including but not limited to statements in regard to Vaultitude’s and the company’s plans, future developments, investments, revenues, profitability, industry trends and regulatory trends, are solely predictions involving various known and unknown risks, uncertainties and depend on complex factors. Therefore, future reality may significantly differ from the statements expressed or implied in this document.

• Blockchain technology’s legal status, regulation, control and supervision are subject to regulatory bodies and government agencies on a national level. The user acknowledges that regulatory changes and legal restrictions concerning the use, acquisition, sale or possession of digital tokens such as the Vaultitude token, could potentially affect, limit or prevent the functionality of Vaultitude and/or the use of Vaultitude tokens.

• As Vaultitude tokens will be issued on the Ethereum Blockchain, Ethereum protocol failure or malfunctioning could affect the trading of Vaultitude tokens.

• Citizens, residents or green card holders of the United States of America and China are excluded from purchasing Vaultitude tokens during Vaultitude’s initial token sale.

• The user hereby declares that he/she possesses the required level of understanding and knowledge of underlying mechanisms, characteristics, functionality, technology, storage and use of Blockchain technology, cryptocurrencies and smart contract technology.

• The user agrees and acknowledges that Vaultitude and IPCORP Ltd. have no liability whatsoever for any form of direct or indirect loss of, including but are not limited to, revenue, income, profits, investments, use or data occurred in context or as a result from his/her participation in the initial token sale or based on his/her actions after having read this whitepaper.
IPCHAIN Database becoming VAULTITUDE

In April 2018 IPCORP Ltd. announced that its Blockchain powered software for intellectual property (IP) management and protection will be rebranded from IPCHAIN Database to Vaultitude. The new brand will firmly establish the innovative platform as an indispensable tool in the arsenal of innovators looking to protect and manage their creations and serves as an opportunity to remain unique in the marketplace.

<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>02</td>
<td>EXECUTIVE SUMMARY</td>
</tr>
<tr>
<td>06</td>
<td>INTELLECTUAL PROPERTY</td>
</tr>
<tr>
<td>08</td>
<td>BENEFITS OF VAULTITUDE</td>
</tr>
<tr>
<td>14</td>
<td>USE CASE SCENARIOS</td>
</tr>
<tr>
<td>16</td>
<td>MARKET ANALYSIS</td>
</tr>
<tr>
<td>20</td>
<td>PLATFORM ARCHITECTURE</td>
</tr>
<tr>
<td>34</td>
<td>TOKEN SALE</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

“Vaultitude reduces the complexity of IP protection and management. It provides users with a clear overview of all their properties and solves issues such as proof of authorship, safe sharing, selling and licensing.”

Protecting intellectual property (IP) in all its forms can be highly complex and many innovators cannot help but feel overwhelmed with that challenge. It starts with a term that is not always clearly understood. Intellectual property includes everything ranging from inventions and scientific findings to all types of artistic work, including but not limited to code, text, photos, music, 3d work, designs and more. It further includes an abundance of trade secrets, confidential information, strategies, files and documents, which do not fall within any of the other categories but represent valuable assets. VAULTITUDE is a project started by and for scientists and innovators with the aim of using distributed ledger technology (also referred to as the Blockchain) for the protection of IP and to complement traditional intellectual property management strategies.

VAULTITUDE offers IP protection, provides users with a clear overview of their IP and allows solving previously complex issues such as proof of authorship, safe sharing, selling and licensing of IP.
Vaultitude helps to overcome problems faced by innovators around the world. It is the only holistic IP protection and management platform using Blockchain technology and has been developed with the support of leading stakeholders in the IP industry.

Due to its decentralized Blockchain technology, VAULTITUDE protects the interests of users and establishes authorship beyond all doubt. With proof of authorship being the central foundation of the practical application of existing copyrights as well as the successful application for patent rights, VAULTITUDE represents the fastest, easiest, safest and cheapest way of establishing ownership of intellectual property, including but not limited to inventions, original literary and artistic works, concepts and ideas. While personal notes, witness statements and information stored on webpages or traditional databases represents insufficient proof in most legal proceedings, the Blockchain, as an immutable ledger, is used as a smart registry that documents the creation and all subsequent changes to the IP.

Aside from providing users with proof of authorship, the platform’s architecture further protects the interests of innovators by providing tools to manage and safely share IP or document the transfer of IP rights, when they are sold or licensed. VAULTITUDE has been designed to allow for the safe storage and sharing of confidential information such as trade secrets, and thereby specifically addresses the needs of innovators of the academic, private and corporate sectors.

Vaultitude has formed partnerships with leading stakeholders in the field of intellectual property, among them supranational organisations, patent and trademark offices, international legal firms, universities, research institutes and associations to develop a revolutionary platform for holistic IP protection and management thanks to the use of Blockchain technology.

- Safe Storage of IPs
- Proof of Authorship
- Defensive Publication
- Sell / License / Transfer
- Sharing of Confidential Data
- Search & Analyse
- Networking
- Filing Patents & TMs
- Peer Review and Ratings

Vaultitude has a good view of all your intellectual properties from a high position.
MEETING ALL LEGAL REQUIREMENTS

Built according to WIPO standards and international classifications to meet the requirements of patent and trademark offices around the world.

**WIPO STANDARDS & INT. CLASSIFICATIONS**

Due to the inherent security of the platform and its formal requirements for the upload of intellectual property, which follow standards and international classification guidelines set forth by the World Intellectual Property Organisation (WIPO), VAULTITUDE publications fulfill all criteria of evidence of publication. Thus they can be used as definitive proof in various legal proceedings, in court and will be the basis of prior art search done by patent offices around the world. VAULTITUDE not only documents when IP is published but also provides proof of access by a third party.

**POWERFUL SEARCH ENGINE**

Intellectual property published in VAULTITUDE’s Blockchain database will be searchable by examiners, patent offices, inventors, researchers, librarians, attorneys, and R&D and university personnel using a powerful semantic search and analysis engine designed to meet court standards of proof. VAULTITUDE will also offer technical interfaces to give examiners of patent and trademark offices and attorneys the ability to use their own meta-search systems.

**PAYMENT WITH THE “IP” TOKEN**

“IP” tokens are utility tokens required for using the services of VAULTITUDE and will be sold in the initial token offering. The proceeds from that initial token offering will then be used to further develop the first version of VAULTITUDE available at the time of the token sale. Ultimately the platform will offer all services described in this white paper, VAULTITUDE’s fee structure will support private and academic innovators through moderate pricing.

SUITABLE FOR ALL TYPES OF IP

An indispensable tool for innovators, artists, inventors, scientists and companies and a new standard for IP management and protection, Vaultitude has been designed for all types of IP.

<table>
<thead>
<tr>
<th>IP TYPE</th>
<th>CREATED BY</th>
<th>MAIN NEEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventions</td>
<td>Private Inventors, Corporate R&amp;D</td>
<td>Safely store IP, share information with partners, sell/license IP and file patents</td>
</tr>
<tr>
<td>Artistic works</td>
<td>Artists, Coders, Musicians, Writers, Filmmakers, Designers, Photographers, etc.</td>
<td>Obtain proof of authorship, sell or license, safely store and share</td>
</tr>
<tr>
<td>Scientific Findings</td>
<td>Academic Researchers, Private Inventors, Corporate R&amp;D</td>
<td>Easy and fast defensive publication, safe storage, safe sharing with R&amp;D partners, sell/license IP</td>
</tr>
<tr>
<td>Trade Secrets</td>
<td>Companies, Entrepreneurs</td>
<td>Safe storage, safe sharing by storing NDAs on the Blockchain, trade/sell files</td>
</tr>
</tbody>
</table>
FEATURES TAILORED TO THE NEEDS OF USERS

As a holistic platform for intellectual property protection and management, Vaultitude has been tailored to the exact needs of all different types of future users.

SAFE STORAGE
Ideal for storing confidential information and IP. Users can work together on drafts and can share ownership rights with other users.

DEFENSIVE PUBLICATION
Safer and faster than traditional defensive publication. Protects existing patent families and the freedom to operate.

SELLING AND LICENSING IP
A secure marketplace for IP due to the documentation of transfers of ownership and contractual agreements on the Blockchain.

SAFE SHARING
Safe and easy sharing of confidential information with partners thanks to e-signing NDAs on the Blockchain.

PROOF OF AUTHORSHIP
Proof of ownership of copyrights and intellectual property rights in the context of legal proceedings, trials or patent applications.

FILING PATENTS & TRADEMARKS
Get expert help by leading IP professionals for the filing of patent or trademark applications.

INVENTORS
Most inventors will require safe storage for their creations and subsequently might use VAULTITUDE to share these with third parties, maybe with an intent to sell, which can also be done via the platform. They could also be interested in filing patents or, in some cases, to publish their work.

ARTISTS
Artists differ from inventors by already owning the copyright to their creation, they however need clear proof of authorship to enforce their rights. VAULTITUDE can provide just that. By storing and sharing their work via the platform they can make use of its secure marketplace features.

SCIENTISTS
Scientists have to protect their study results and findings and can use VAULTITUDE to share such information with other researchers. The platform further provides them with a superior form of defensive publication to ensure their freedom to operate.
“Vaultitude has been designed together with leading authorities, legal professionals, universities and research organizations to ensure that the platform addresses the needs of all stakeholders in the IP industry.”

**ADVANTAGES OF IP RIGHTS**

- They give control over commercial production, use, distribution or sale.
- They ensure that a superior product or process cannot be copied by competitors.
- They can be sold or licensed and thus generate revenue.
- They are proof of a pioneering role in science.
- They can be an essential part of marketing.
- They are assets of economic value and can be used as collateral.
Globalization and digitalization created a world in which economic growth depends less on natural resources or workforce than on great ideas.

Intellectual property (IP) is a term used to describe a plethora of creations of the mind, such as inventions of all kinds, artistic and literary works as well as symbols, names and images. While some kinds of intellectual property are automatically safeguarded by copyrights and thereby belong to their creator, other types of intellectual property require legal protection that must be applied for.

This legal protection comes in the form of intellectual property rights such as patents, trademarks and copyrights, which are essential for monetizing or protecting innovation. The importance of intellectual property was officially recognized in two treaties, namely the Paris Convention for the Protection of Industrial Property (1883) and the Berne Convention for the Protection of Literary and Artistic Works (1886). Today they are administered by the World Intellectual Property Organization (WIPO), a UN agency. These conventions recognized several reasons why intellectual property rights are vital to progress, and in today’s world of quickly evolving technologies, they are of increasing importance. Further progress of humanity requires the capacity to create and invent new works in the areas of technology and culture. Only legal protection, through its options for recognition or financial benefit, can sufficiently encourage the pursuit of innovation - which in turn spurs economic growth, creates new jobs and industries, enriches our cultural lives, enables us to lead healthier lives with increased life expectancy and enhances the general quality of our existance.

Intellectual property falls into three groups. First, all types of IP which are under automatic protection and for which the author automatically owns the copyright. This category consists of original literary and artistic works including photography, film and music as well as design rights to three-dimensional products.

Then there is the second group of intellectual property, which does not come with automatic legal protection. This group consists of inventions, novel products or innovative processes for which patent rights must first be obtained. Patents are intellectual property rights enforceable in court, which give a patent owner the right to decide on the use of the patented invention. Most countries follow a first-to-file system, in which the right to the grant of a patent for a given invention lies with the first person to file a patent application for protection of that invention.

The third group of IP represents any confidential information that cannot be patent or copyright protected but can have serious value. Examples for such trade secrets include non-patentable inventions, strategic plans, data, pricing policies, etc.

Intellectual property laws have laid the foundation for our society’s continuous further development in regard to science and art. They work due to the protection they award to inventors and authors and, in general, work amazingly well.

The reader might however wrongly conclude at this point that, if intellectual property is either automatically safeguarded or legal protection can be obtained by applying for a patent (or trademark), the current system is perfectly equipped to solve all problems associated with the protection of creations of the mind. But things are not as straightforward as they seem and a number of challenges must be overcome. The underlying process for IP protection can be complex, time-consuming and also very costly. A more in-depth analysis shows that the generally well-equipped system of intellectual property rights has a series of distinct disadvantages and challenges to be overcome by the innovator, which VAULTITUDE addresses and successfully solves.
03 BENEFITS OF VAULTITUDE

“We need to be aware that with Blockchain technology the private sector will become an ancillary record keeper.”

FRANCIS GURRY
WIPO DIRECTOR GENERAL

“The EUIPO is determined to explore the potential of Blockchain to ensure security and immutability of data in order to add trust to our legitimate ecosystem for the benefits of citizens, enforcers and companies alike.”

ANTONIO CAMPINOS
EUIPO EXECUTIVE DIRECTOR
SUPPORTING THE PRACTICAL APPLICATION OF COPYRIGHTS

Vaultitude offers creators of artistic works undeniable proof of their authorship.

With copyrights being automatic worldwide rights in theory, the practical application of such rights, which should protect against plagiarism and piracy, requires proper evidence of the innovator’s status as first creator of his work. He or she might face a situation in which legal proceedings or a trial will be required to prove authorship and subsequently the right to control the use of the intellectual property. Witness statements would be of little help (as the other party may easily produce similar statements) and records in the possession of the innovator, such as written documents, correspondence, personal homepages, etc. cannot be proven not to have been tampered with.

The lack of definitive proof for an author’s claim to copyright is therefore a major problem in the practical application of copyrights. More so, the legal protection of copyrights requires not only definitive proof that the author created the work in question, but also that he/she did so prior to any other party challenging his or her copyright. With witness statements and personal records being highly unreliable types of proof in court, the creator must document his or her status as the author and the time at which he/she created his/her work in a way that leaves no doubt as to his or her rights. Publication of his/her work is the most secure way to achieve such proof, but only if it can be proven. Publication on his/her homepage or social media account are tempting options because of their convenience, but most often fail to be sufficient in the eyes of the court as later tampering is technically possible. Publication in the form of exhibitions, fairs, and/or meetings might also fail to establish definitive proof. This short analysis shows how important independently verifiable records of a literary or artistic work (= creations of the mind under automatic copyright protection) are for proving it existed at a certain point in time. For others (courts, tribunals, investors, solicitors and other decision makers) to regard such records as accurate proof of authorship, records are usually required to exist in a form that ensures that the alleged author has had no way to change either their content or date of original publication.

Indisputable proof of authorship and the greatest convenience with regard to publication is consequently being offered through the use of VAULTITUDE. It is based on decentralized Blockchain technology, which, as an incorruptible digital ledger, is ideal for the digital publication of intellectual property. Information held on a Blockchain exists as a shared database hosted by potentially thousands or millions of computers, with all its information being publicly accessible and easily verifiable with no centralized version of this information that could be hacked or otherwise corrupted. Blockchain technology thus offers the easiest and most secure way of establishing proof of authorship via online publication.

VAULTITUDE is designed as the future of online publication and thereby represents the optimal way to ensure the practical application of copyrights. Due to the inherent security of Blockchain technology, VAULTITUDE publication can be used as definitive proof in the context of legal proceedings and also as proof of an eventual transfer of rights to another party.

- Significantly reduces the risk of infringement by deterrence.
- Reduces and/or quickly resolves disputes and thereby avoids legal costs.
- Proof of copyright improves the speed of removal of infringing content.
- Evidence of a transfer of ownership.
- International protection due to a publicly accessible Blockchain database.
- Copies of the registered work are available indefinitely and on demand.
- Blockchain technology is the best protection against data corruption, fire or theft.
VAULTITUDE IN THE CONTEXT OF PATENTS AND THE PROTECTION OF INVENTIONS

Thanks to Blockchain technology, Vaultitude is superior to existing forms of technical disclosure.

Scientific research typically aims at finding solutions to complex problems in the form of innovative inventions or significant improvements to the status quo. Once the inventor has come up with a successful and unique solution, however, his or her decisions in the context of establishing proof of authorship and the publication of his/her invention will have severe implications for the future. Depending on the intentions and means of the inventor, he or she must decide between different options. Inventions, including incremental inventions, first require for the innovator to acquire the intellectual property rights to his or her creation. Many countries follow the legal concept called first-to-file (FTF), which means that the right to the grant of a patent for a given invention lies with the first person to file a patent application for protection of that invention, regardless of the date of actual invention. Given that trends exist not only in corporate but also in the context of scientific research, not only is there competition between different scientists to come up with a suitable solution to the same problem, this race further extends to the subsequent filing of a patent, which is necessary to secure the rights of the inventor. This means that the ultimate financial benefit will be with that party which ultimately manages to file the patent first, not necessarily with the one having come up with the solution first. This clearly shows that the current system poses a certain risk in fields of research where the same goal is shared by different inventors and that players in this field would greatly benefit from a tool that can be used to achieve a time advantage.

Filing a patent typically further tends to be very expensive - primarily due the complexity of inventions and the abundance of prior art in the respective field of science resulting in complex application documents. These usually must be prepared by an experienced lawyer to ensure that a patent has a greater chance of being successfully granted. As a result, attorney fees can easily cost several tens of thousands of dollars in addition to the patent office filing fees. Considering that a patent will need to be filed for every single country in which the innovator wishes to possess IP rights to his invention, big companies have a major advantage over private innovators, who often lack the necessary funds to secure the rights to potential high-revenue products with long-term marketability. The high costs of pursuing national or international patent rights may prevent private innovators from going this route altogether, while commercial inventors usually have the necessary experience and funds to do so. In some cases, however, the benefits afforded from patent monopoly rights are not sufficient to justify the cost of obtaining a patent. Either because the products lack long-term marketability or, and this happens frequently in the corporate environment, because the patent holder already has rights to another product which he only seeks to protect against the possibility of others patenting a technology that may make the product redundant. In other cases, the high costs of patenting may outweigh the benefits afforded by patent rights, irrelevant of the innovator’s financial background.

Occasionally, e.g. in the case of academic research, when commercialization is not a priority or its potential not even recognized, obtaining intellectual property rights may not even be desired. However, the innovator might still be interested in retaining his or her freedom to operate by preventing others from filing a patent. This regularly happens in academic settings, where continued freedom to operate and to further refine a technology might be of more interest than financial benefits. Instead the innovator may simply wish to secure the right to continue using and enhancing a product or technology to further research in his respective field. He or she might also pursue altruistic goals, as seen in open source projects, by wishing to put his or her invention into the public domain in order to make it freely available and prevent others from filing a patent.

Patents may be essential for incentivizing continuous scientific effort through their importance for eventual monetization, but these examples show two things. First, that the costs associated with obtaining patent rights often prevent innovators from pursuing them and second, that some scenarios profit from a different course of action than patent application. This alternative comes in the form of defensive publication, which is the intentional and purposeful publication of an innovation. As a cost-effective intellectual property strategy it consists of disclosing aspects of an invention in a way that ensures that the invention gets the status of prior art, thus precluding others from obtaining a patent on the innovator’s idea. Since the novelty of an idea is an essential precondition for obtaining a patent, the publication of an idea can be strategically used as an IP strategy, if the previous publication date can be proven in court and a patent office can readily obtain knowledge of existing prior art.

Current venues for publishing defensive publications range from traditional peer-reviewed journals to online publications. Publication in peer-reviewed journals, as desirable as it may be from a scientific point of view due to the additional validation by the journal, cannot be easily or quickly obtained. Submitted articles frequently take months to get published and the editors’ criteria for the selection of content are associated with the possibility of eventual rejection by the journal. While academics learned to live with these disadvantages, they tend to render this option too time consuming and not suitable for most private innovators or corporate researchers, as journals also typically avoid any content that could be interpreted as marketing. Similar to the arguments brought up in the context of copyrights, other forms of publication such as web sites, social networks, fairs, public demonstrations or trade-shows represent insufficient proof in the eyes of courts and
are therefore not suitable for defensive publication. Neither would such methods of publication offer a guarantee that the published invention would be successfully found, identified and considered by patent examiners and patent offices, as they are not listed in readily searchable databases.

VAULTITUDE, alternatively, is based on decentralized Blockchain technology and as an incorruptible digital ledger, it is ideal for defensive publication and a solution superior to existing alternatives for technical disclosure. Through VAULTITUDE publication the inventor can effectively protect his or her work and prevent others from obtaining a patent on his or her invention. VAULTITUDE as a tool for defensive publication revolutionizes complementary intellectual property (IP) strategies used to defend existing patents against plagiarism and piggyback driving and to retain public access to such innovations, which do not warrant the high costs incurred in patent applications and are therefore put into the public domain. VAULTITUDE publication can further support the innovator as an effective tool in pre-seed financing, having secured his or her status as author to promote his or her ideas and raise the funds necessary for filing a patent and/or commercializing his or her idea. It should be noted that in some countries the inventor might lose the right to file a patent following VAULTITUDE publication, as it turns an invention into prior art. The European Patent Office (EPO) for instance regards early disclosure as an absolute bar to an EPO patent. However, other important markets such as the United States, Russia, Japan, Canada, South Korea, Australia, Brazil, Argentina, Malaysia, Mexico and several others use the so-called first-inventor-to-file system (FITF). Following this system, the United States Patent and Trademark Office (USPTO) and other patent offices afford early disclosers a “grace” period until they need to file a patent. This grace period starts at the time of publication and typically lasts 6 to 12 months during which the inventor can still file a patent. This makes VAULTITUDE publication even more interesting for commercial inventors and private innovators. Due to the security of VAULTITUDE publication, the inventors can use the grace period to acquire the necessary funding for patent application and patent rights protection and can still file a patent at a later time. VAULTITUDE publications can therefore be used to both establish authorship of inventions (which can still be filed as patents during the grace period in markets with a first-inventor-to-file system) and for defensive publication.

VAULTITUDE publications, on their own or used in conjunction with patents and publications in scientific journals, therefore represent a new and valuable IP management tool, which offers a number of easily identifiable benefits for innovators in the academic, private or corporate domains.

- Protect freedom to operate by preventing others from patenting the published innovation.
- Protect non-core, non-commercial, and operational innovations as prior art to strengthen his/her patent portfolio or preclude others from engineering around his or her existing patents.
- Defend against assertion of overly broad patents.
- Reduce prosecution and filing expenses.
- Putting knowledge into the public domain.
- The fastest way of secure publication so that innovations are protected from third parties in longer lasting projects, appraisal or approval procedures.
- Publication that fulfils all the legal requirements set forth by major courts.
- Protect the innovator’s freedom to operate by preventing others from patenting.
- A commercial inventor can disclose and protect non-core, non-commercial, and operational innovations as prior art to strengthen his/her patent portfolio.
- Defend against assertion of overly broad patents.
VAULTITUDE IN THE CONTEXT OF TRADE SECRETS AND OTHER CONFIDENTIAL INFORMATION

Vaultitude can help companies and research organisations to protect valuable assets.

Most companies possess valuable pieces of information that can provide a competitive advantage, and which are kept strictly confidential. Such information is called a trade secret and can be developed through research, experience or a burst of creativity. Trade secrets are pieces of information that provide companies with a competitive edge and help them to perform better, faster, or at lower cost. They can come in many different forms, such as new manufacturing processes, improved recipes, or information on new market opportunities, and this variety makes them extremely difficult to protect. Some may be kept secret for decades, with one famous example being the Coca-Cola recipe, while others will eventually be divulged, such as the results of a study, the name of a new product, or the price offered in a bidding process. In today’s highly competitive and globalized world, information is the building stone for commercial success and, as such, trade secrets represent some of the most valuable assets of companies. Trade secrets are the innovative ideas that help companies to grow and provide jobs.

Unfortunately, companies are often exposed to misappropriation (the intentional and illegal use) of their trade secrets. While large companies possess greater resources to protect their intellectual property, including costly patents and funds for legally enforcing their rights, smaller companies, in comparison, do not have such financial means. Consequently, smaller companies rely on trade secrets to an even greater extent than large companies. The problem of misappropriation has increased so much that political institutions are now seeking new ways to prevent misappropriation. The European Commission has urged the European Parliament to standardize the existing divergent national laws against the unlawful acquisition, disclosure and use of trade secrets. Such harmonization will give victims of trade secret misappropriation more protection and the means to stop unlawful use and further disclosure of misappropriated trade secrets, as well as the right to compensation for any damages caused. Thus the EU Directive on the Protection of Trade Secrets will provide a legal framework to discourage unfair competition, and facilitate collaborative innovation and the sharing of valuable know-how. EU countries must bring into force the laws and administrative provisions necessary to comply with the Directive by June 2018. New and improved legislation to better protect trade secrets is not, however, limited to the EU. In fact, The Defend Trade Secrets Act of 2016 (DTSA) is a United States federal law that allows an owner of a trade secret to sue in federal court when its trade secrets have been misappropriated. International efforts by the World Trade Organization to address this problem led to the conclusion of the Agreement on Trade-related Aspects of Intellectual Property Rights (the TRIPS Agreement).

How does this relate to VAULTITUDE? What all of these regulatory efforts have in common is the vital condition that companies must prove that a piece of information, the trade secret, has deliberately been kept secret for them to be able claim protection under trade secret laws. Through the use of Blockchain technology and its decentralized digital vault, VAULTITUDE represents a highly secure platform for the storage of intellectual property, and allows companies to easily and quickly deposit secret information, that can be safely shared with third parties. The platform also provides the opportunity to document the eventual transfer of these rights. VAULTITUDE is thus a powerful tool for the protection of trade secrets and specifically caters to the needs of large and small companies.

Protect a company’s trade secrets and confidential informations, plans and documents.

Safely share specific information by putting NDAs on the Blockchain.

Prove that specific information has been kept secret for the purpose of claiming protection under trade secret laws in the event of misappropriation.

Document the transfer of intellectual property.

Facilitate the licensing of trade secrets with smart contracts (subsequent to granting permission).
MAJOR ADVANTAGES OF VAULTITUDE
PROTECTING THE INTERESTS OF INVENTORS, SCIENTISTS, ARTISTS & COMPANIES

SECURELY STORE YOUR IP
Offers a digital vault in which all types of IP can be securely stored. Corporate accounts are ideal for teams working together with different user rights and a log documenting all actions of the users. Optimal protection against data corruption, fire or theft.

CLEAR PROOF OF COPYRIGHT
Gives secure proof of first authorship accepted in legal proceedings, trials or patent applications and reduces the risk of infringement by deterrence. Quickly resolves disputes, improves the speed of removal of infringing content and thus avoids costs.

SUPERIOR DEFENSIVE PUBLICATION
Faster and safer than publication in scientific journals, which requires third parties to become privy to the invention before actual publishing. Safer than server-based services as the data will be on the Blockchain. Documents publication and actual access. Ensures freedom of use, prevents others from filing a patent.

SAFE SHARING OF INFORMATION
Supports the easy sharing of confidential information by sending out a simple link to a third party, that gets access to the data only after signing a non-disclosure agreement (NDA) which is also saved to the blockchain. This proves that access happened only after the acceptance of the legal terms and conditions.

A VERSATILE MARKETPLACE
Allows users to assign multiple owners to each IP. Each IP can then be sold or licensed and the proceeds from that are automatically distributed among the owners according to their share of the rights. All transactions and the associated contracts are documented on the Blockchain.

PROTECT EXISTING PATENTS
Publishing incremental changes to existing patent protected technology is ideal for defending patent portfolios. By making new concepts publicly available, third parties are prevented from filing patents for improved products and the original patents retain their value.

FINANCE YOUR IDEAS
In countries in which a grace period after publication of a new invention exists, the author retains his right to file a patent. The platform can thus be an effective tool in pre-seed financing by helping inventors to raise the funds for filing a patent and/or commercializing it - thanks to better protection and higher visibility of a published IP.

BUILD A NETWORK & PEER REVIEW
Built for optimising the daily work of scientific communities and within a corporate environment, the platform helps connect and collaborate with colleagues and external partners through network and messaging features and peer review capabilities, which allow giving feedback on published IP.

FIND EXPERT HELP
Inventors and researchers are usually leading experts in their respective field of technology. However, the drafting and filing of patent and trademark applications requires the help of experienced IP professionals. VAULTITUDE helps users to find such experts and allows for the secure transfer of confidential information.
USE CASE SCENARIOS

COMPLEMENTING A TRADITIONAL DEFENSIVE PUBLICATION

A group of research fellows at the department of pharmacy at a German university, as part of their work on an industrial research contract, have developed a new method for the fully automated, and thus much faster, detection and quantification of drugs in blood samples of athletes. They are interested in publishing a research article about this method but cannot reference the ongoing project, as details of their work may not be published without the consent of the company. To draft an all new submission on this new method with data from a similar but non-confidential project, that would have a high likelihood of getting accepted by a respected journal with a high impact factor, would require months without guarantee of success. This means that it could conceivably take half a year or longer until the new method gets published. In the meantime, other researchers might come up with a similar idea or a commercial manufacturer might even patent this new method. By using VAULTITUDE, the researchers can quickly and easily file a publication and thus complement the peer-reviewed publication in a scientific journal.

PROTECTING A TRADE SECRET

A small producer of soft drinks has created a new soft drink based on a special recipe with an authentic Gin & Tonic flavour that contains no alcohol and no sugar. Feedback by testers and customers has been great and the producer is expecting the new drink to become a phenomenal success, but he is also aware of the market leaders keeping an eye out for potential competitors with a market advantage. These big companies have bigger marketing budgets, but the producer is sure that they will not be able to reproduce the same great taste. Because he wants to protect the formula, he uploads this trade secret to VAULTITUDE and then uses the option of safely sharing this piece of information with his producers. Eventually the drink becomes a big success and other companies fail to recreate the same taste. Years later however one of the big competitors suddenly releases a product with an identical taste and there are clear indications that this was only made possibly by stealing the original formula. The small producers successfully files and wins a lawsuit against the much bigger competitor because his use of VAULTITUDE proves that he deliberately held the formula secret, thus making it a trade secret protected under the trade secret laws.

OBTAINING THE FUNDS NEEDED FOR A PATENT

A US private inventor has come up with a new type of biodegradable packaging material but lacks the fund for filing a patent. He wants to use crowd-financing to pool enough funds to hire a well-known patent lawyer with the experience required to draft a suitable patent text and file the patent. By making a VAULTITUDE publication first the inventor can safely tell his network about his idea. He can use the grace period of 12 months after the time of publication to obtain the funds and files a patent via a lawyer he contacted through VAULTITUDE.

SUPPORTING THE PRACTICAL APPLICATION OF COPYRIGHTS

A young author writes short poems and cleverly uses amusing references to everyday products. One day she is invited to read some of them at a local art event where one poem in particular is heard by the head of marketing of a company producing one of these products. He likes one of her poems and decides that he could use one line as their new slogan. Months later the young author reads her slogan in an advertisement and decides to approach the company and meets with the head of marketing and the company’s lawyer. Initially the company claims that the slogan was their creation and says that several employees attended that art event and could testify that the poem did not include that exact line. The author however shows her VAULTITUDE publication, filed two days before the event. Thanks to Blockchain architecture, the author could not technically have faked this proof and as a result the company’s lawyer convinces the head of marketing to settle with the author as a court would accept VAULTITUDE publication as proof.
Please note that the following fictional examples are meant to illustrate only some of the many potential uses of Vaultitude and for the sake of brevity intentionally simplify various aspects.

PROTECTING FOUNDATIONAL PATENTS

A family-run Italian company has been in the market for kitchen devices for two generations. They have successfully developed and patented a new type of coffee machine that filters overly bitter aromas from the coffee and successfully sell the machine in many different countries worldwide. Having to file and pay for patents in 30 countries outside of Europe has been expensive for the company, but worth the investment. Now the company’s development department has found out that their coffee machine’s mechanism can be further improved in two different ways. It seems unlikely that this innovation could increase the company’s existing market share and thus help to cover the cost of patenting this incremental innovation. The company however still wants to ensure that no one else would be able to file a patent on a similar idea and preclude others from “picket-fencing” around their foundational patents. By using VAULTITUDE publication to disclose these trivial variations, they become unpatentable due to the non-obviousness requirement. This helps to secure the market position of the company.

CONFIDENTIAL DISCLOSURE MADE EASY

A Belgian student has invented a new type of chargeable battery in his spare time but does not consider filing a patent. Instead he tries to get in touch with investors who could buy the invention from him. Using VAULTITUDE he uploads the information privately, his invention is saved on the Blockchain but not visible to anyone except the student. Using the NDA option he can easily adapt a professional non-disclosure agreement to his needs which is then automatically linked to his invention and conveniently sends this link to potential investors. The NDA must be digitally signed to gain access to the data and is saved on the Blockchain. Thus the receiving party cannot legally use or disclose the data.

DOCUMENTING THE TRANSFER OR LICENSING OF COPYRIGHTS

To continue the example with the poem, let us assume the company wants to avoid any media backlash and decides to pay a generous fee for the slogan. To ensure that no one will ever think that they used the slogan without the author’s consent, the company decides to request that VAULTITUDE will be used to document the transfer or licensing of the rights to the poem. Thus an additional Blockchain entry related to the original publication documents that the rights to the poem now belong to the company.

SUPPORTING RESEARCH EFFORTS ON PRIOR ART

VAULTITUDE comes with a powerful and easy to use web-based search engine that can: use Boolean operators to search for combinations of keywords in abstracts, use the hashtags provided at the time of publication to browse different scientific fields and categories of intellectual property and create and export lists and pdf documents. Patent offices will also have access to a technical interface to use their own meta search tools.

ALTRUISTIC PUBLICATION OF NEW TECHNOLOGY

Researchers and artists might decide that their creations should be available to the public without anyone being able to monopolize the rights to their creation. VAULTITUDE publication is fast, more secure than uploading to a webpage thanks to Blockchain technology, easily accessible by anyone and can be shared with only a link. Because VAULTITUDE fulfills the standards set forth by the World Intellectual Organisation (WIPO) and the documentation requirements of patent offices, these institutions will be more likely to use it for their research on prior art.
8.4 million full-time equivalent researchers

Global R&D expenditure exceeds 1.78 trillion USD

150 million people are self identified artists

“Using Blockchain technology, Vaultitude has been designed to meet the needs of inventors, scientists, artists and companies. Millions of innovators around the world face challenges in the context of safeguarding and managing intellectual property.”
IP PROTECTION REQUIRED BY MILLIONS

Vaultitude as a holistic tool for IP protection and management addresses the needs of millions of innovators and offers a convincing USP to a quickly growing market.

The concept of VAULTITUDE has been developed by patent holders and analysing this group of potential users gives a first indication as to future demand for the platform. The Patent Cooperation Treaty (PCT) is an international patent law treaty, concluded in 1970. It provides a unified procedure for filing patent applications to protect inventions in each of its contracting states, which number 152. As official statistics of the World Intellectual Property Organisation show, the number of patent applications (both national patents and PCT route) have almost doubled in the last 15 years. This trend in our opinion underlines the growing importance of intellectual property rights and their protection in the face of increasing globalization.

While numbers in the diagram below show a significant rise in patent applications in recent years, patent application numbers alone do not suffice to predict the number of future VAULTITUDE users, as other forms of IP such as artistic works and non patentable confidential information far exceed these numbers. The sharp increase in patent applications however gives a clear indication as to the rising relevance of IP protection, which becomes increasingly important in a world that sees strong growth of all forms of intellectual property. VAULTITUDE as a tool for intellectual property management and protection will see a steady inflow of new users interested in secure publication, obtaining proof of authorship and the platform’s other features.
COMPETITOR ANALYSIS

Vaultitude is unique in its scope and represents the optimal solution for all aspects of IP protection and management thanks to its use of Blockchain technology.

Unlike any existing solution, VAULTITUDE is a holistic tool for IP protection that clearly focuses on complementing the legal system by providing proof of authorship, defensive publication, safe sharing, and the documentation of transfers of IP rights using Blockchain technology. Furthermore, VAULTITUDE has been conceptualized with the support of leading IP advisors, patent offices, and the scientific community while following best practices suggested by WIPO. It is unparalleled in its flexibility and suitability for a wide range of intellectual property categories, as well as for its offering of peer review and research features. While some of VAULTITUDE’s competitors either offer defensive publication through less secure server-based solutions or proof of authorship, none share the same goal of providing a one-stop shop for IP protection and management. Further, if they use Blockchain technology at all, they focus only on one type of IP or have a different focus altogether (such as commercial publishing). None use WIPO standards or classifications or work with patent offices and offer them direct access to the data. While some of these competitors may potentially add similar features in the future, none shares VAULTITUDE’s scope and goal to become an industry standard for protection of the legal rights of innovators from the private, academic and corporate sector.

“The new technology that Vaultitude offers is the basis for a tool that sensibly complements existing options and ensures greater comfort and security for the protection of IP.”

GLOBAL HEAD OF LEGAL OF DENNEMEYER GROUP,
THE WORLD’S LEADING IP LAW FIRM

- BLOCKCHAIN
- ONLY AUTHORSHIP

STAMPERY, POEX, BLOCKNOTARY

Some projects offer the possibility to host specific files on a Blockchain in order to acquire proof of authorship. While a useful service, these solutions are not designed according to WIPO regulations and international classifications and as such might not be sufficient proof for all legal proceedings. Unlike VAULTITUDE they do not offer defensive publication, safe sharing or transfer of data, peer review and networking features.

- BLOCKCHAIN
- DIFFERENT FOCUS

STEEMIT, PO.ET, IPSTOCK, IPWE

Many Blockchain based projects that are associated with intellectual property actually do not focus on IP protection and management but instead use distributed ledger technology to innovate different industries. Some focus on providing alternatives options to commercialize, or distribute IP or on analysing existing patents to identify potential for further research. As such they have a completely different aim than VAULTITUDE.

- NO BLOCKCHAIN
- ONLY PUBLICATION

IP.COM, RESEARCHDISCLOSURE

Corporate inventors do not have the option of making a defensive publication in scientific journals. While this may be slow and possibly risky, it is also only available to academic researchers. The alternative are service providers that only focus on defensive publications. Aside from those not offering any additional services, server based publication can result in data loss if the server goes offline, which is impossible when using a Blockchain architecture.
<table>
<thead>
<tr>
<th><strong>CORE FOCUS</strong></th>
<th><strong>Vaultitude</strong></th>
<th><strong>IP.com</strong></th>
<th><strong>IPwe</strong></th>
<th><strong>Po.et</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Blockchain platform for holistic IP protection</td>
<td>Only defensive publication services</td>
<td>Blockchain-enabled patent registry</td>
<td>Tracking media assets</td>
<td></td>
</tr>
<tr>
<td>Store, protect, share, transfer, file</td>
<td>Establish inventions as prior art</td>
<td>Patent analytics platform</td>
<td>Store digital assets and track them</td>
<td></td>
</tr>
<tr>
<td>Developed with IP authorities and stakeholders</td>
<td>Only developed for companies</td>
<td>Smart contracts for patent transactions</td>
<td>Could become a marketplace at some point</td>
<td></td>
</tr>
<tr>
<td><strong>OBJECTIVE</strong></td>
<td><strong>EMPHASIS</strong></td>
<td><strong>FOCUS ON IP PROTECTION</strong></td>
<td><strong>USES BLOCKCHAIN TECHNOLOGY</strong></td>
<td><strong>PROOF OF AUTHORSHIP OF CREATIVE ASSETS</strong></td>
</tr>
<tr>
<td><strong>PROOF OF ACCESS</strong></td>
<td><strong>SAFE STORAGE VAULT</strong></td>
<td><strong>SAFE SHARING</strong></td>
<td><strong>LICENSING AND SELLING OF IP</strong></td>
<td><strong>PATENT &amp; TM APPLICATIONS VIA PARTNERS</strong></td>
</tr>
<tr>
<td><strong>NETWORK FEATURES</strong></td>
<td><strong>FOLLOWS WIPO STANDARDS</strong></td>
<td><strong>FOLLOWS INT. CLASSIFICATIONS</strong></td>
<td><strong>MULTI SIG. ACCOUNT FOR CORPORATES</strong></td>
<td><strong>SUPPORTED BY KEY INDUSTRY PLAYERS</strong></td>
</tr>
<tr>
<td><strong>USED FOR PRIOR ART SEARCH BY PO</strong></td>
<td><strong>API FOR PATENT &amp; TM OFFICES</strong></td>
<td><strong>ONLY DEVELOPED FOR COMPANIES</strong></td>
<td><strong>SMART CONTRACTS FOR PATENT TRANSACTIONS</strong></td>
<td><strong>COULD BECOME A MARKETPLACE AT SOME POINT</strong></td>
</tr>
</tbody>
</table>
“By combining the experience of experts in the fields of intellectual property, Blockchain development, enterprise systems, project delivery and solution architecture, Vaultitude will become the new standard for IP protection and management.”
A COMPREHENSIVE TOOL WITH MANY FEATURES

Vaultitude has been designed to reduce complexity and offer fast protection, but a basic understanding of IP law will be required to tap into the full potential of the platform.

VAULTITUDE has been designed to be a useful and comprehensive tool for innovators facing the challenges related to gaining, proving and defending intellectual property rights. Given the complexities set forth in this document and the many additional challenges, legal or practical in nature, inadequately portrayed but known to anyone with previous experience in this field, it stands to reason that VAULTITUDE will need to offer an abundance of features. It should be noted that the user will therefore not only need to become familiar with VAULTITUDE’s features, but also must have a basic understanding of intellectual property law to ensure that he/she is able to use VAULTITUDE to its fullest effect.

When reading this chapter on VAULTITUDE’s architecture and features, the reader is advised to take note of the fact that, at the time of writing, the team has no indication as to the level of success of the token sale. At the beginning of this project the team set out by defining which resources would be required to create the best possible version of VAULTITUDE platform, which features such a version would offer and how the long-term attractiveness and success of the platform can be ensured by supporting the community and establishing a strong network of stakeholders. At the same time a minimum amount of required capital has been defined, which would offer a fully functional but comparably basic version of VAULTITUDE. Between these two amounts remains a continuum of technical possibilities and additional features, which, in the eye of experienced inventors and legal experts as well as our board of advisors, would allow VAULTITUDE to fulfil its intended use, which is to complement already existing IP management strategies, in the most effective way possible. Therefore, the reader can rest assured that there will be a fully functional version of VAULTITUDE realized if the minimum goal of the initial token sale will be met and that any additional resources will be used to the ultimate benefit of the users.

In order to give readers a better understanding of basic and additional features this white paper highlights different modules that are to be essential parts of VAULTITUDE on the condition of the availability of the necessary resources.

MEETING ALL LEGAL AND TECHNICAL STANDARDS

In order to become the de-facto standard in IP protection, Vaultitude has been designed according to WIPO regulations and international classifications and will meet the highest technical standards.

Patent Cooperation Treaty Rule 34 and its associated list of non-patent literature establish a uniform high standard for international search across the International Searching Authorities. The PCT Committee for Technical Cooperation further regularly initiates and conducts studies of the composition of the PCT minimum documentation and proposes further additions to the list of non-patent literature. The VAULTITUDE platform is designed to comply with the selection criteria (such as access to search abstracts, titles, and authors) used in the recent selection process of the PCT committee and will therefore be equipped to fully comply with PCT minimum documentation status. Furthermore, its publications will correlate with international classifications (such as IPC classifications) and the data will follow the standards established by the World Intellectual Property organization (WIPO), which are used by the majority of patent and trademark offices worldwide.

By adhering to the higher international standards, international search authorities, patent examiners, patent lawyers and patent offices will be able to capitalize on the use of VAULTITUDE Database as a tool for their evaluation of the novelty of patent filings in the context of prior art research. In order to provide patent offices with the optional use of proprietary meta search tools, VAULTITUDE will offer the possibility for an automated process to pick up and load IP data in-house through secure APIs. This data includes a specified folder structure, XML documents with metadata and full text, reference to a Document Type Definition (DTD), as well as PDF files of each document for image databases. To ensure the avoidance of copyright issues VAULTITUDE users will agree to give patent authorities access to this information and use that data accordingly, which includes providing access to third parties.

Due to the security of the platform and the formal requirements for filings, which ensure a suitable high quality format, publications on VAULTITUDE will be globally accepted by the courts as an independent source of evidence of publication. VAULTITUDE’s Blockchain database will be full-text searchable by examiners, inventors, researchers, librarians, attorneys, R&D and university personnel using a powerful semantic search and analysis module designed to meet court standards of proof and provide technical disclosures to patent offices around the world.
A SYSTEM OF AUTONOMOUS PARTS

Vaultitude’s architecture is made out of several autonomous parts to fulfil the needs for safe, confidential storage and sharing as well as immutable publication of IP.

VAULTITUDE will securely store intellectual property in a decentralized method by using the InterPlanetary File System (IPFS) and a Blockchain. While for the moment smart contracts based on Ethereum will be used, the architecture of the VAULTITUDE database is designed in a way that allows for the potential future migration to any other suitable Blockchain. This option will allow for flexibility and ensures that transactions costs will remain low. IPFS provides the best solution for distributed data storage together with a hash-based content address, which serves as a reference to the uploaded file. This reference or address will be stored in our smart contract on the Ethereum Blockchain. To retrieve the latest data, the address will be fetched from the Blockchain and IPFS will be queried for the associated file.

Ipfs Node: An IPFS Node used for storing and retrieving the data. IPFS provides a high-throughput, content-addressed block storage model with content-addressed hyperlinks. This forms a generalized Merkle directed acyclic graph (DAG). IPFS combines a distributed hash table, an incentivized block exchange, and a self-certifying namespace.

Smart Contract System: A system consisting of smart contracts that serves the purpose to record the connections between the user and his intellectual property data. These smart contracts serve as a single source of verifiable truth for the date and data that has been recorded. Additionally, two more smart contracts will be created that are used for payments in connection with the VAULTITUDE token.

IPFS Storage: An IPFS Node used for storing and retrieving the data. IPFS provides a high-throughput, content-addressed block storage model with content-addressed hyperlinks. This forms a generalized Merkle directed acyclic graph (DAG). IPFS combines a distributed hash table, an incentivized block exchange, and a self-certifying namespace.

Smart Contract System: A system consisting of smart contracts that serves the purpose to record the connections between the user and his intellectual property data. These smart contracts serve as a single source of verifiable truth for the date and data that has been recorded. Additionally, two more smart contracts will be created that are used for payments in connection with the VAULTITUDE token.

Blockchain Wrapper Server: This is a server that aims to abstract actions regarding IPFS and the Blockchain. It will allow the finding, retrieving and storing of data on the IPFS system and will enable the consequent Blockchain transactions.

Application Server: This is an application server that provides a convenient way for the client applications to communicate. It will serve two main purposes: Authenticating the users in the system and storing indexing data about the user as well as the records themselves. This indexing will allow a better user experience together with a more convenient search in the database.

Client Application: This is any software system that interacts with the VAULTITUDE Application Server. This can be a website, mobile app or any other suitable software to interact with the VAULTITUDE system. In the following examples a website is being used to represent the client application, as VAULTITUDE is primarily designed as a web-based solution.
SIMPLE STEPS FOR BETTER IP PROTECTION

The diagram describes the relationships between the different components of the software architecture of Vaultitude.

1. End User Interaction with the Vaultitude Client Application
2. Client Application to Application Server Communication
3. Vaultitude Internal Server to Server Communication
4a. Blockchain Interaction via the Smart Contract System
4b. Interaction with IPFS for Data Storage
THE INNER WORKINGS OF VAULTITUDE

Combining Blockchain technology with IPFS storage makes Vaultitude secure, flexible and scalable.

A. SEARCHING

In order to ensure a high quality user experience and fast working and sophisticated search features, the VAULTITUDE system will store index attributes of the stored data (the intellectual property) in the application server database. This is required because the IPFS storage is not a database and there is currently no way to query for data based on specific search criteria. The stored attributes will however render quick access to the data in the IPFS system. Index parameters stored by the VAULTITUDE system will be selected with a view to the needs of innovators, professional users and the needs of patent and trademark offices. They will take into account international classifications and standards established by the World Intellectual Property organization (WIPO).

Some examples for the index parameters are:
- Registration Number
- Title
- Date of Upload
- Date of Publication
- Name of Applicant/Author
- Name of Owner
- Classification (following international classification guidelines)
- Keywords

B. STORING DATA

The following paragraphs describe an exemplary use case of the VAULTITUDE system.

1. An authenticated user uploads IP data via the VAULTITUDE web-based frontend to the VAULTITUDE application server. In addition to the data the user must provide his wallet password (in an encrypted manner) and must have enough VAULTITUDE tokens to cover the transfer and system costs.
2. The data is received by the application server and is forwarded to the Blockchain wrapper server. Additionally, the application server is sending the JSON Wallet file of the user to the Blockchain wrapper server.
3. The Blockchain wrapper checks the user balance and determines whether it is sufficient to make this transaction.
4. The Blockchain wrapper server stores the data on the IPFS node and retrieves the data hash.
5. The data hash is then recorded in the smart contract stored on the Blockchain.

C. RETRIEVING USER DATA

The following paragraphs describes an exemplary use case of the VAULTITUDE system.

1. An authenticated user uses the VAULTITUDE website to request the data that was saved to the VAULTITUDE network from the application server.
2. The application server requests the data from the wrapper server.
3. The wrapper server asks the Blockchain smart contract for the related IPFS hash. The wrapper returns the IPFS hash to the application server which then returns the data to the client application.
4. The client application visualises the data.
**VAULTITUDE STORING DATA ON IPFS**

In order to optimally store the data in both a decentralized and secure way, VAULTITUDE will make use of the InterPlanetary File System (IPFS) storage system. IPFS is a protocol that was designed to create a permanent and decentralized way of storing and sharing data in the form of files. It is a content-addressable, peer-to-peer hypermedia distribution protocol where the nodes in the network form a distributed file system. IPFS is an open-source project developed since 2014 by Protocol Labs with the help of the open-source community.

The IPFS system does not store data in a single location or database and thus ensures there is no single point of failure. Each file which is stored with IPFS has its own and unique address called an IPFS hash. This hash makes IPFS ideal for storing large amounts of sensitive data off-chain while storing the hash on-chain as a means of verification and data linkage. This string is a valid connection for the system to reach the data. By not storing the data on the Blockchain the costs remain minimal.

Here is an example of an IPFS hash:

QmTeW79w7QG6INpa3b1d5IAmreCDxF2iDaAPSdVw6KtLmfiB

The reason for the VAULTITUDE system not storing data in a centralized database lies in the risk of such a database becoming a potential point of failure due to hacker attacks. The system, including the application database, will basically hold no valuable information for an attacker and therefore renders itself meaningless to attack. In addition, the IPFS system guarantees constant uptime due to the distribution of the data between different nodes.

---

**EFFECTIVELY PROTECTING CONFIDENTIAL DATA**

The sensitive nature of IP requires special protection. Since anyone with the correct hash can retrieve files from IPFS, confidential data stored in the user’s vault of VAULTITUDE will be fully encrypted before being uploaded to IPFS. That way only the user with his private key can access the data. To enable the safe sharing of confidential information VAULTITUDE will use asymmetric encryption that allows encrypting a file with the public key of the intended recipient so that only he or she can decrypt it when they retrieve it from IPFS. A malicious party who retrieves the file from IPFS can’t do anything with it since they can’t decrypt it.

1. A user wants to safely share confidential information from his vault encrypted with his private key.
2. The user sends an invitation to his business partner, who has to e-sign an NDA via VAULTITUDE.
3. The business partner signs the NDA, which is stored on IPFS/Blockchain and automatically sends his public key.
4. VAULTITUDE automatically generates a copy of the original file on IPFS, now encrypted with the public key of the partner.
5. The partner gets the hash of the file, retrieves and decrypts it as he owns the associated private key of his public key.
6. A malicious party cannot decrypt the file because they lack the partner’s key.
While the use of Blockchain technology for the better protection of intellectual property has many irresistible advantages, it unfortunately comes with its own set of disadvantages as well. One disadvantage is the inherent effect on DApp's (decentralized applications) user experience for the end-user due to the usage of unfamiliar concepts such as public/private key pairs, encryption, etc. VAULTITUDE will solve this problem by allowing the end user to use a password to sign the request and the Blockchain-bound data. To make this possible, the system will generate a wallet in form of a file for the user. This file will be encrypted and can only be accessed via a password. The password will be set up by the user upon generating the wallet. In order to enrich the user experience, the application server will keep this encrypted wallet and will be able to retrieve it during the signing process. The file is useless without the user’s password and the password is not stored in any way. The wallet is nothing more than a normal Ethereum wallet. If the user chooses to do so, he will be able to use this wallet with any other Ethereum DApp. Using this approach, no private key of the wallet is transferred through the “wilderness” of the Internet. However, the user’s password needs to be passed to the application server in order to sign any needed transactions. To keep the password secure, Vaultitude devised a workflow to block any attacker from discovering a user’s password. This workflow is based on RSA cryptography – one of the most secure methods of encryption available today.

1. The client side application queries the application server for the RSA public key. This public key is generated by the application server and gets returned to the client side application.
2. The user provides his password and the client side application encrypts the password using the RSA public key.
3. The client application sends the now unreadable password ciphertext to the application server.
4. The application server uses the RSA private key to decrypt the password in a safe and secure manner.
5. This approach will allow any user to sign the intended transaction by just typing a single password.

---

D. SECURE AUTHORIZED USER BLOCKCHAIN TRANSACTIONS

<table>
<thead>
<tr>
<th>User</th>
<th>Client Side Application</th>
<th>Application Server</th>
<th>Application Database</th>
<th>Blockchain Wrapper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type in wallet password</td>
<td>Requests RSA public key</td>
<td>Generates and returns RSA public key. Keeps the private key</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Encrypts the wallet password with the RSA public key</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sends the transaction data and the password ciphertext</td>
<td>Receives the data and encrypts the ciphertext to the password</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Requests the encrypted wallet file</td>
<td></td>
<td>Returns the encrypted wallet file</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sends the data, wallet file and password to execute the transaction</td>
<td></td>
<td></td>
<td>Executes the transaction</td>
</tr>
</tbody>
</table>
E. TRANSACTION COSTS AND THE VAULTITUDE TOKEN

One of the specifics of the Ethereum Blockchain network is that it requires transaction costs to be covered by the sender in Ether (ETH). This essentially means that the user needs to have an ETH balance in addition to their VAULTITUDE token balance. VAULTITUDE has identified this as a major inconvenience and addresses it in the following way:

The approach that will be used is based on two smart contracts:

a) Oracle Smart Contract – The oracle smart contract serves only one purpose as it will be providing the exchange rate between Ether and the VAULTITUDE token that will then be used by the Exchange Smart Contract.

b) Exchange Smart Contract – This contract will serve as an exchange between VAULTITUDE Token and ETH based on the given rate.

Using these two smart contracts the VAULTITUDE system will virtually achieve the payment of the transaction fee with VAULTITUDE tokens.

The process follows these steps:

1. The application server will calculate the transaction costs for the user in ETH. These transaction costs are abbreviated as TXCE (Transaction Costs in Ether).
2. Using the Oracle Smart Contact rate (RATE) the application server calculates the required amount of VAULTITUDE token, abbreviated as TXCIP (Transaction Costs in VAULTITUDE Tokens). TXCIP = TXCE x RATE
3. The application server is going to exchange TXCIP token for TXCE Ether and will use the TXCE ETH to pay for the transaction cost.

<table>
<thead>
<tr>
<th>User</th>
<th>Application Server</th>
<th>Oracle</th>
<th>Exchange Smart Contract</th>
<th>Blockchain Wrapper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click to send a transaction</td>
<td>Receives the parameters and estimates the ETH cost</td>
<td>Requests the exchange rate</td>
<td>Returns the exchange rate</td>
<td>Receives VAULTITUDE tokens and sends back ETH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Calculates the VAULTITUDE token cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Requests an exchange</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Receives the ETH and sends the transaction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A MODULAR SETUP

Vaultitude’s modules each offer a distinctive feature to users and together form a holistic platform that ensures improved IP management and protection.

A first version of VAULTITUDE will be available at the time of the initial token offering. A number of additional features, represented by different modules, that will become available in the future, after the required development. Grouping the features into different modules allows us to describe each set of features in a clear and understandable fashion and to also later show a detailed roadmap regarding the implementation of each feature. While these features represent the complete range of services of the VAULTITUDE platform at the time of writing it may very well be that user requests and experience gained after launch of the platform will lead to the creation of additional modules.
VAULTITUDE MODULES

1. Dashboard and User Profile

VAULTITUDE will not require client software. It is completely web based with only a standard browser and access to the internet as technical requirements. The user interface will be easy to understand and allow instant access to all features of VAULTITUDE. More a base for other modules than a module itself, the user interface will be designed in a way that new features can be quickly made available to the public once they have been developed and tested. VAULTITUDE registration will take into account the different types of users. Depending on their status as private individuals (inventors), academic personnel (researchers, librarians), corporate account holders (commercial inventors) and legal specialists (international search authorities, patent offices, patent examiners, patent lawyers) different modules will be available (legal specialists will have free access to extended search capabilities but cannot place publications, corporate account holders will not be able to rate publications, etc.). The user profile will require such data as name, contact information, address and date of birth. VAULTITUDE will not disclose personal information. VAULTITUDE's primary language is English but with the language module, the filing of VAULTITUDE publications in other languages will be possible and the entire user interface and texts of VAULTITUDE will be made available in other languages as well. VAULTITUDE filings will be required to include an English abstract, title and English keywords to ensure that the search engine retains its full functionality.

2. My Vault

The reason for using Blockchain technology is its setup as a continuously growing list of records, called blocks, which are linked to previous blocks and which are secured using cryptography, a timestamp and transaction data. That way data, once recorded, cannot be altered retroactively without the alteration of all subsequent blocks, which needs a collusion of the network majority of tens of thousands of users. VAULTITUDE’s Blockchain can therefore be thought of as an automatically notarized ledger and therefore is the ideal platform for filing publications suitable as proof in legal affairs. By using this option, instead of filing an VAULTITUDE publication, the user uploads his information to the database in fully encrypted and private form which has a timestamp attached. This feature may be useful if the actual possession of information at a certain time needs to be proven and is especially suitable for trade secrets or research that should remain private or only be shared with a select number of other users (co-workers for instance) or via the NDA module. VAULTITUDE thereby provides companies with a convenient and safe option to easily and quickly prove that a piece of information has deliberately been held secret, which allows the companies to claim protection under trade secret laws. The vault is suitable for storing all types of IP.

3. Publish IP

This module will give users an opportunity to file publications by choosing different templates for the respective types of intellectual property to allow for the publication of e.g. works of art as well as technical disclosures. Publications follow formal requirements to ensure that all information is provided in suitable form and quality required for legal proceedings and/or patent application and/or patent research. The publication module will guide the user through all necessary steps. Publications can be saved and finalized at a later point at which time they will be uploaded to the Blockchain. Additionally, users will be able to use a timer to trigger publication at a specified date and time. Once searched and found with the search engine all VAULTITUDE publications will be available in their entirety to the user. The user will be able to download a copy of the publication as a PDF document with a time stamp that indicates the date of original filing.

For the effect of defensive publications, proof of disclosure is a necessary requirement of courts and patent offices. VAULTITUDE will address this requirement by the open architecture of its database, which will allow third parties to access all publications using export functions, a powerful web-based search engine and direct access through technical interfaces used by patent offices and universities. VAULTITUDE will further document this access. Having a timestamp for both initial publication and first access by a third party will act together as the best possible proof of publication. The intelligent newsletter module will interact with the proof of disclosure module’s documentation of first access by making users aware of new publications and eventually documenting their access. Users will be able to showcase examples of products that incorporate their published innovation and add this information to their publication. Patent offices such as the USPTO require that in case of patent filings the names of products or services incorporating the claimed invention must be listed. There may be cases in which such products are not easily verifiable by the patent office or discontinued by the manufacturer. Therefore, the user will be able to add product examples that incorporate his innovation to his original publication.
4. Share IP / NDA Module

The NDA module will be immensely helpful to inventors who do not wish to make their idea publicly available through open VAULTITUDE publication but instead choose to save it privately on the Blockchain and give access to individuals in the context of research or business discussions. Confidential Disclosure Agreements (alternatively called non-disclosure agreements) are legal contracts between different parties which outline the information the parties wish to share with one another but want to restrict from wider use and dissemination. They serve as proof of the parties’ agreement to not disclose the non-public information covered by the agreement and they are commonly used when a collaboration is considered and there is the need to understand the other’s processes, methods, or technology or when evaluating the potential of a future business relationship. While important to secure the rights of the inventor and prevent abuse, the actual results of such precautions may suffer from the inexperience of the one of the two parties. Universities therefore help their students

5. Sell / License / Transfer IP

VAULTITUDE with its ability to document defensive publications through Blockchain technology and its design as an incorruptible digital ledger, offers the ideal setup for a marketplace for intellectual property. As ownership rights (copyrights) can be successfully proven through VAULTITUDE publication, it only makes sense to make full use of this ledger-like architecture to document transactions involving the same intellectual property. The marketplace module will offer a simple and fast method of enabling transactions between owner of IP rights and interested buyers and will document such transactions using Blockchain technology. There will be both prefabricated contracts available for standard transactions and the possibility to use customized contracts and upload those to the Blockchain and link them to the respective IP, with an additional option of having the (documented) transfer of ownership dependent upon the actual payment of the stipulated price. The marketplace module is designed to be flexible enough for use in more complex transactions as well as offering straightforward options that can make the sale of IP rights quick and easy. VAULTITUDE will thus document IP rights transfers (e.g. transfers of copyrights) linked to the relevant VAULTITUDE publication. When a transfer of rights occurs, the author and the new owner of the copyright can be identified and a new entry in the Blockchain is then created to act as definitive proof of the transfer. By introducing this feature VAULTITUDE will provide an easy solution for the documented transfer of existing IP rights following a sale or licensing agreement. Additionally, users will also be able to use VAULTITUDE to document the transfer of patentability rights, which in this context are understood as the rights of inventors to file a patent after publication within a certain grace period and only in certain markets. This means that an inventor can publish his invention and if that allows him to file a patent can transfer this right to another party, in which case such a transfer would be added to the original database entry with a timestamp. The use of this module does not replace the need for an underlying contractual agreement, which however can also be uploaded to the Blockchain either as a private document only visible to the involved parties or as an openly visible document.

6. File Trademark / Patent

VAULTITUDE has an extensive network of IP law firms that can help innovators with filing patent and trademark applications for all major jurisdictions. Even the best invention usually requires careful drafting of the application to avoid infringing upon prior art or existing patents and to ensure that later patent applications by third parties cannot circumvent the inventor’s rights. VAULTITUDE offers this service of connecting users with suitable experts free of charge and does not hold any responsibilities as to the further outcome of their talks or the successful filing of a patent. in line with the platform’s aim to improve the protection of IP, all information sent to potential advisors of the user will be done using the aforementioned NDA module.
7. Search IP

In order to achieve its status as the premiere tool for offering proof of authorship via secure digital publication, VAULTITUDE will offer a powerful search platform to easily navigate all public entries in its database. The manifold search features will be tailored to the needs of legal specialists, but will also cater to users interested in keeping up with new concepts and ideas. Searching for author, keywords (using logical operators AND, OR, NOT, ALL and ANY), classification, date, title, publication number, etc. will help to identify the required publication while search results can also be filtered using time of publication, rating, views and others. The listing of findings can show abstracts or only titles and can be exported. Users will further be able save search results and add individual publications to their favourites. If the user chooses to upload and save information as a private upload, then no information will be found using the research tool. To allow for a deeper understanding of trends within the VAULTITUDE database user community, a statistics module will be available to interpret results from the web-based search engine module as charts.

8. Rate IP

VAULTITUDE has been designed to feature a rating option with which the community can rate several aspects of the publication, among them its relevancy, form, and content. The applicant can freely choose whether or not his publication can get rated by the community. This tool allows for the highly interesting option of peer review. The exact workings of this module will need to be tested to decide whether all users or just published authors in the respective field, as proven experts, can rate a publication. Peer review can improve scientific research efforts and help to secure funding.

9. Network and Messenger

VAULTITUDE is also about networking in the scientific community and the user interaction module will together with the rating module give innovators the opportunity to get in touch, coordinate research projects and create discussion groups for special topics. This module will add a private messaging and forum service to VAULTITUDE.

10. Help Center

To ensure that users will have no trouble filing and researching publications, VAULTITUDE will use a clear and easy to understand user interface and additionally feature an extensive support section, that will provide clear instructions on how to use VAULTITUDE and point out where to learn more about certain topics. While the support module should under no circumstances replace legal advice, it will give users a basic understanding of the uses, implications and benefits of VAULTITUDE publication, as well as an introduction to intellectual property right laws and strategies in IP management.

11. Direct Interfaces (Patent Offices /Universities)

In order to increase acceptance and practical use of VAULTITUDE in state-of-the-art research, which is a legally compulsory part of the patent’s office evaluation of any new patent application, direct technical interfaces (APIs) will be available so that the examiners can use their in-house meta search system (one example would be EPOQUE, the meta search system of the European Patent office) and VAULTITUDE data is integrated accordingly. Patent authorities thereby can improve their efficiency in using VAULTITUDE in their prior art search. VAULTITUDE will cooperate closely with the bodies responsible for patent and trademark issues that are members of the Patent Cooperation Treaty (PCT), an international patent law treaty that provides a unified procedure for filing patent applications. Currently 152 countries are PCT members, including all major industrialised economies. This module has been designed to further allow the easy integration of VAULTITUDE into virtual learning environments of universities with an ongoing VAULTITUDE partnership. A part of the proceeds of VAULTITUDE are dedicated to fund the free use of VAULTITUDE services for students and academic personnel and thereby support young innovators.
DESIGNED FOR ALL TYPES OF IP AND USERS

Vaultitude’s ambitious goal is to become an indispensable tool for innovators, artists, inventors, scientists and companies around the world and a new standard for IP management and protection. Depending on the type of intellectual property, the user will likely use different core features of the platform. It all starts with storing the IP in your secure vault, which gives the software its name. Then users will be able to quickly establish proof of their authorship, decide to make a defensive publication, share confidential information with partners, transfer their IP rights in a sale or licensing deal or get in touch with an IP lawyer to file a new patent or trademark.

INVENTIONS

An invention basically refers to a solution to a specific technological problem via a product or a process. Inventions that might benefit from protection via VAULTITUDE encompass but are not restricted to:

- New products
- Software, applications, machines and hardware
- Improvements to core technologies
- New systems and methods
- New uses for existing systems and methods
- Potential technical standards

Inventions uploaded to VAULTITUDE will have to meet basic patentability requirements, such as novelty, usefulness, and non-obviousness and will have to follow formal requirements. In order to assess whether an innovation is suitable for VAULTITUDE, users are encouraged to answer the following questions with in the affirmative before filing an application:

- Does the innovation offer a new solution to an existing problem or does it improve a current solution in a major way not previously known?
- Is the solution not obvious to an expert in the relevant field and not previously published?
- Is it possible to manufacture this solution with current technology and do you have a clear description of how it would be made?

All publications on VAULTITUDE must adhere to strict formal and quality standards to ensure that the information reflects a true and complete picture of the idea. VAULTITUDE maintains the right to reject uploads that do not meet these criteria or are obviously plagiarized.

VERSATILE AND SAFE

Vaultitude has been designed according to the needs of researchers, inventors, artists, companies and IP specialists and thus can be used for all types of intellectual property.
SCIENTIFIC ARTICLES AND FINDINGS

Academic researchers as well as scientists from the corporate or private field can benefit from Vaultitude in multiple ways. The platform sets a new standard in defensive publication, allows for the safe storage of important data, findings and scientific concepts and ensures the highest security in research collaboration by making the exchange of information secure and easy thanks to storing the NDAs on the Blockchain.

ARTISTIC WORK

The creator of original literary and artistic work including photography, film, music and three-dimensional products has automatic intellectual property rights such as copyrights and/or design rights to his creations. Under U.S. copyright law, as well in most other jurisdictions, a work is automatically protected by copyright once it is created. Specifically, “A work is created when it is “fixed” in a copy or phonorecord for the first time.” For this automatic protection a work needs not to be registered with the U.S. Copyright Office. There must, however, be some form of tangible proof of when the author made his creation. The work does not necessarily have to show an actual copyright symbol, although it is in the best interest of the author to declare his rights to and his ownership of a particular work when making it available to others. Also in the event of copyright infringement and subsequent legal proceedings it would be beneficial if it can be shown that the person who used a work without permission was aware of not having the right to do so. VAULTITUDE offers tangible proof that the author actually created the work in question as well as proof of the date of creation.

TRADE SECRETS

Forbes has estimated that non-tangible assets form over 80% of the value of an average business. Customer lists, licensing agreements, contracts as well as trade-secrets in all their forms, such as formulas, patterns, compilations, programs, devices, methods, techniques, plans, strategies or processes, can be securely stored, exchanged and traded using Vaultitude.

TRADEMARKS & PATENTS

Inventions can be filed as patents and trademarks can be registered with national trademark offices. Vaultitude offers direct access to the best IP lawyers to facilitate this process.
At the time of writing the smart contract, the hard cap of 36,000 ETH corresponded to a total of 20 million USD used for the development, sales, marketing and running of the platform and included the funds for team members and partners.
THE ETHEREUM NETWORK AND VAULTITUDE TOKENS

Choosing a trustworthy, highly flexible Blockchain network and using ERC 20 tokens as vouchers.

Ethereum is a popular and highly trusted, decentralized Blockchain network offering smart contracts and thus the functionality for both adding and storing data as well as performing a number of more complex requests. Through the use of smart contracts VAULTITUDE can not only be used to store intellectual property securely, but also makes full use of the Blockchain’s ledger system to offer a range of additional benefits to its users and holders of intellectual property. By having smart contracts trigger commands that cannot be modified after their initialization, the stored intellectual property can be effectuated in terms of its storage, representation or handling in a way that is both secure and transparent. In this manner contracts, such as non-disclosure agreements (NDAs), or the transfer of IP rights can be documented.

VAULTITUDE tokens will be created and implemented as an ERC20 token, the most widely adopted type of tokens on the Ethereum Blockchain. This decision was based on Ethereum being the de-facto industry standard for issuing custom digital assets, the additional functionality offered by smart contracts and the high level of trust placed in the robustness of the Ethereum network.

THE TOKEN SALE

A true utility token that allows countless innovators to better protect their interests.

With their contribution participants in the VAULTITUDE token sale will ensure that VAULTITUDE will offer a revolutionary way to establish proof of authorship for novel inventions, works of art and concepts. The funds generated in the initial token sale will be used to create the extensive list of publication and research features described in the white paper and will enable the team to offer interfaces for patent offices, academic institutions, courts and legal professionals all over the world and ensure minimum documentation rules, that in turn will mandate international search authorities, patent examiners, patent lawyers and patent offices to use the VAULTITUDE database as a tool for their evaluation of the novelty of patent filings. This will establish the platform as the leading service for secure online publication and IP management. VAULTITUDE tokens are utility tokens and will be required to use VAULTITUDE services. The VAULTITUDE token sale involves the issuance of digital tokens. Within existing legal and regulatory frameworks its functionality will determine the legal status of the token in the eyes of regulatory authorities and, more specifically, determine whether it must be considered as a security. Despite existing differences between various jurisdictions, it is likely that a token’s classification as security cannot be avoided if it represents ownership in a company, the right of partaking of a company’s proceeds, or if it is a unit in a collective investment scheme or a collective investment scheme arrangement. As these characteristics explicitly do NOT apply to the VAULTITUDE token it has the status of a true utility token, and as such solely represents a voucher used by customers to access the services of VAULTITUDE with a basic version of VAULTITUDE ready for use at the time of the token sale. The VAULTITUDE tokens will be distributed as soon as ETH is received by the VAULTITUDE crowdsale smart contract. For maximum security the crowd sale smart contract mints VAULTITUDE tokens exactly at the moment that ETH is received and the minted tokens are then immediately sent to the participant’s address. This allows participants to send smaller initial amounts to verify that they will correctly receive VAULTITUDE tokens. Instant distribution of tokens furthermore is fair as participants in the initial token sale will not need to wait for weeks to access their tokens.

<table>
<thead>
<tr>
<th>PHASE</th>
<th>BONUS</th>
<th>AVAILABLE TOKENS</th>
<th>% OF BASE FUND</th>
<th>BONUS TOKENS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Sale (closed)</td>
<td>35%</td>
<td>637,500</td>
<td>7.5%</td>
<td>223,125</td>
</tr>
<tr>
<td>Public ICO</td>
<td>25%</td>
<td>850,000</td>
<td>10.0%</td>
<td>212,500</td>
</tr>
<tr>
<td>Public ICO</td>
<td>15%</td>
<td>1,700,000</td>
<td>20.0%</td>
<td>255,000</td>
</tr>
<tr>
<td>Public ICO</td>
<td>10%</td>
<td>2,125,000</td>
<td>25.0%</td>
<td>212,500</td>
</tr>
<tr>
<td>Public ICO</td>
<td>5%</td>
<td>2,550,000</td>
<td>30.0%</td>
<td>127,500</td>
</tr>
<tr>
<td>Public ICO</td>
<td>0%</td>
<td>637,500</td>
<td>7.5%</td>
<td>0</td>
</tr>
</tbody>
</table>

8,500,000 100% 1,030,625
GIBRALTAR AS A TOKEN SALE JURISDICTION

Gibraltar has been chosen for its qualities as a highly reputable regulatory environment with a sound legal framework that protects the interests of issuers and contributors.

VAULTITUDE aims to revolutionize the protection of intellectual property by addressing the needs of innovators. To make that possible, it works together with leading stakeholders in IP, which include national regulators, supranational organizations, patent offices and leading law firms as well as universities and associations representing user interests. This network of highly reputable partners and business associates has nothing but the highest expectations as to the integrity, technical ability and stability of VAULTITUDE. To meet these requirements, Gibraltar has been chosen for the incorporation of IPCORP Ltd. and as the jurisdiction for the VAULTITUDE token sale. Internationally renowned as having a highly reputable regulatory environment, the small country welcomes innovation and has thus attracted a large number of fintech businesses. The Gibraltar Financial Services Commission issued a statement on Initial Coin Offerings in September 2017 and thus joined a growing number of jurisdictions that have provided token sale guidance. Officials have made clear that Gibraltar is committed to being a sound and safe place in which to do business and for the promotion and sale of tokens. The country commits itself to ensure a legal framework that will be useful to consumers, token sale issuers and other related parties.

VAULTITUDE believes in the importance of having a modern regulatory environment for the protection of its users. To obtain the best possible support in fully complying with all applicable legal requirements VAULTITUDE cooperates with a leading local law firm. As a leader in this field, our partner has a track record of successfully advising ICOs and close ties to the Government of Gibraltar and the Gibraltar Financial Services Commission. This advisor has co-chaired the Cryptocurrency working group that released the ‘Virtual Currency: Outline Regulatory Framework’ paper, which has been the basis for the DLT regulatory framework issued by the Government of Gibraltar which came into effect in January 2018 and addresses financial services providers that use Blockchain technology. This new regulatory environment balances the needs of investors with the promotion and development of businesses in this space and has met with enthusiastic approval by legal experts.

It should be noted that the new principles-based DLT regulatory framework is only applicable to companies that use DLT to store or transmit value belonging to others’, or fintechs, which as such must strictly follow principles which constitute key aspects of prudent business practice. While VAULTITUDE clearly is not such a provider, additionally to following all legal requirements we voluntarily commit ourselves to adhering to these principles, which we believe provide both regulatory certainty for operators in the DLT space and strongly protects consumers, and have the support of our legal advisor, which intimately knows and has helped develop this new framework, to ensure that we do so in an exemplary manner. The VAULTITUDE token sale itself is not regulated by the DLT framework. Our opinion on this is, however, that following the principles set forth in the DLT guideline ensures the highest possible transparency and security for investor. This fully resonates with the view of the Gibraltar Financial Services Commission. The GFSC released a statement on token sale guidance in September 2017, which underlines Gibraltar’s commitment to becoming a token launch center of excellence. To ensure this excellence, GFSC is working on a legal and regulatory framework for the sale, promotion or distribution of tokens, that is aligned with the existing DLT framework and the principles set forth under these guidelines. While there is currently no exact time frame for any such framework to go into effect, VAULTITUDE with the help of its legal advisors, who are also involved in developing said framework, voluntarily commits itself to a strict self-regulatory regime following the future plans of the regulating body by adhering to best practices set forth the DLT regulatory framework to ensure customer protection.
In February 2018, HM Government of Gibraltar was the first authority to release a policy on token sales. Vaultitude welcomes this regulatory clarity and the thus improved protection of its customers.

Since the release of the Distributed Ledger Technology Providers (DLT) regulatory framework in May 2017, Gibraltar has seen a strong increase in the number of new ICOs and HM Government of Gibraltar (HMGoG) and the Gibraltar Financial Services Commission (GFSC), with the intent to provide regulatory clarity and improved protection for consumers, have released a policy document on a suitable token regulation system for Gibraltar. It specifically applies to tokens that, similar to the VAULTITUDE token, are not structured as a security (e.g. with an equity interest or right to distributions of, say, profits or in the event of winding up) or as a debt instrument. These so called utility tokens represent commercial products and are equivalent to the advance sale of products that entitle holders to access future networks or consume future services. The new legislation is relevant for VAULTITUDE as it will regulate the promotion, sale and distribution of VAULTITUDE tokens conducted in or from Gibraltar.

The proposed regulations on the promotion, sale and distribution of tokens will require adequate, accurate and balanced disclosure of information to enable anyone considering purchasing tokens in the primary market to make an informed decision. Further, proceeds in any form from the sale of VAULTITUDE tokens will be brought into scope of the Proceeds of Crimes Act 2015 (POCA) and will need to comply with its AML and CFT provisions. GFSC will be the AML/CFT supervisor.

The new regulations set up a regime for the authorisation and supervision of token sale sponsors. These authorised sponsors possess appropriate relevant knowledge and experience and will be responsible for compliance with this limb of the regulations and will be required to have mind and management in Gibraltar. Authorised sponsors are considered to be in the best position to determine best practice for the offerings they sponsor and the submission of codes of practice will form part of an authorised sponsor’s licence application to GFSC.

VAULTITUDE will fully comply with the new regulatory regime and with the anti-money laundering (AML) and countering financing of terrorism (CFT) legislation of the supervisory authority GFSC and will fully and accurately disclose all necessary information. VAULTITUDE will appoint an authorised sponsor in respect of its public token offering and a suitable code of practice will also be incorporated into the authorised sponsor’s agreement with VAULTITUDE to ensure compliance with the policy.

Vaultitude will also follow strict self-regulatory principles reflecting the principles set forth in the DLT framework of the Gibraltar Financial Services Commission:

1. VAULTITUDE will conduct its business with honesty and integrity and its management has the sufficient skill, competence, care and experience to deliver on the expectation of users and stakeholders. We further have the support of a global network of leading players in the field of intellectual property as both official partners and advisors, which will help to ensure that VAULTITUDE will understand and correctly address the requirements of all users and stakeholders.

2. VAULTITUDE will pay due regard to the interests and needs of each and all its customers and must communicate with its customers in a way which is fair, clear and not misleading. To do so, VAULTITUDE will devote as much time and consideration to protecting consumers’ interests as to their own, and dedicate all resources necessary to protect consumers.

3. As a provider of IP services with a sustainable business model, VAULTITUDE will ensure the stability and persistent quality of its services by maintaining sufficient financial and non-financial resources to ensure that it can be operated in a sound and safe manner and comply with any legal requirements.

4. By applying forward-looking strong risk management practices VAULTITUDE seeks to manage and control its business effectively and to provide assurance to all stakeholders and partners that the core processes and systems are effectively controlled, are fit for purpose and that risk is being managed in the right way.

5. Working with leading technical advisors and programmers, VAULTITUDE has devised a technical infrastructure based on Blockchain technology, which allows for the best possible protection of intellectual property and the data of our users. While this setup ensures an inherently robust and accurate record of all transactions, all reasonable precautions will be taken against unexpected eventualities and threats.

6. VAULTITUDE pledges to deliver and maintain a corporate culture consistent with the secure and confident delivery of the principles set forth in this document in the context of the company’s structure, processes, culture and strategies.
USE OF FUNDS

The development of VAULTITUDE will follow a chronological order with basic features taking precedence over useful but complementary parts.

VESTING RULES

VAULTITUDE tokens assigned and distributed to the team are subject to vesting, which is an effective way of ensuring that the core team remains loyal to the project and the goals defined in this white paper. If team members get added after the token sale the vesting model will apply on a pro-rata basis.

- 80% of tokens are locked once Token Sale distribution has ended.
- 50% of tokens are locked after 6 months from Token Sale distribution.
- 25% of tokens are locked after 12 months from Token Sale distribution.
- 0% of tokens are locked after 18 months from Token Sale distribution.

USE OF FUNDS

- Development: 45%
- Marketing & PR: 5%
- Technical Infrastructure: 10%
- Operations & Admin: 10%
- Legal: 15%
- Misc.: 15%

VAULTITUDE ROADMAP

This timeline is a non binding estimate and external factors can play a role in determining the ultimate timeline.

<table>
<thead>
<tr>
<th>TECHNICAL DESIGN &amp; REGULATORY SPECS</th>
<th>APRIL</th>
<th>MAY</th>
<th>JUNE</th>
<th>JUL</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARTNERSHIPS WITH IP STAKEHOLDER</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEMO RELEASE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEVELOPMENT &amp; BETA TESTING</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MARKETING CAMPAIGN &amp; ROADSHOW</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RELEASE OF VAULTITUDE 1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PUBLIC TOKEN SALE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FURTHER OPTIMIZATION (V2.0), API FOR PATENT OFFICES &amp; UNIVERSITIES</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
It should be noted that not all conditions for a highly functioning platform are purely technical in nature. To ensure the biggest benefit to users and innovators, and thus the long-term success of the platform, acceptance by authorities and professionals using the system will be required and ultimately achieved through great usability and extensive networking. This will include both initial and ongoing networking and marketing activities to ensure that all 152 patent offices that are part of the international PCT treaty will use it in their prior art search. The same applies for courts and IP lawyers. VAULTITUDE will allocate sufficient funds to these tasks and the team further aims to support the community by setting up community centers in cooperation with leading international universities. These centers will create awareness of IP management strategies and will be a valuable tool for VAULTITUDE’s goal to support young inventors through free access to our services.

VAULTITUDE will quickly build a strong community of creators of intellectual property from all over the world. A share of VAULTITUDE profits will be used in joint projects with leading universities to make free tokens for VAULTITUDE publication available to young academic innovators. VAULTITUDE commits itself to actively support the continuous growth of its community through a number of activities and partnerships. These will include:

- Partnerships with universities to set up programs in which students can receive free vouchers for the use of VAULTITUDE services to help them protect and realize their projects and to set up community centers.
- The organization of an international VAULTITUDE conference, that will highlight successful VAULTITUDE publications, strategies on intellectual property rights and set the stage for inventors to attract investors.
- Teaching seminars and webinars that will help students and users learn how to protect their inventions.
- Partnerships with nonprofit organizations.

As mentioned previously, the success of VAULTITUDE will depend on the acceptance by all stakeholders, which include all 152 patent offices that are part of the international PCT treaty, government organizations, courts and IP lawyers which will require initial and ongoing networking and marketing activities. VAULTITUDE has already established partnerships with prominent members of these of groups of stakeholders to ensure that the platform is ideally suited to their needs.
USE OF FUNDS FOR THE DEVELOPMENT

The development of VAULTITUDE includes thousands of hours of UX design, extensive Blockchain architecture & Smart Contract development and the frontend and backend coding of the platform.

UX DESIGN
The user experience (UX) design of VAULTITUDE combines elements of interaction design, visual design, information architecture, user research, and other disciplines. The goal was to provide users with the best overall experience. Challenges in this regard are the large number of features and the different user groups (artists, inventors, scientists, IP professionals, companies and patent offices), which all have unique requirements. VAULTITUDE has been designed to be intuitive and easy to use.

SMART CONTRACTS
For many of its features VAULTITUDE uses smart contracts, which are account holding objects on the blockchain. To enable the storage, exchange, sale or documentation of intellectual property, these smart contracts contain code functions and can interact with other contracts, make decisions, store data, and send tokens to other users or each other. The execution of the smart contracts is done via the Blockchain network itself which this is one important part of the VAULTITUDE architecture.

FRONTEND/BACKEND
Frontend development for VAULTITUDE focuses on the “client side” and revolves around the coding, design, and debugging of the browser based application to ensure a seamless user experience. Backend development is just as important but will not be noticeable to the Vaultitude users as it refers to the server side of development, where our team deals with the interaction of the different parts such as the Blockchain, the server(s), the frontend application, IPFS storage, the smart contracts and the database.

EXPERTS FOR EACH ASPECT OF VAULTITUDE

With IP professionals, patent offices and leading companies using VAULTITUDE for the protection of their IP, we decided to hire only developers with years of experience and a proven trackrecord.

CHIEF TECHNICAL OFFICER
PROJECT MANAGEMENT
UX DESIGN
BLOCKCHAIN & SMART CONTRACTS
FRONTEND/BACKEND DEVELOPMENT

“We strongly believe that by combining the talents of a pool of different developers and development partners, each with their own strengths, we can provide the very best solution possible.”
VAULTITUDE 1.0 AND BEYOND

Designed with the support of major IP stakeholders VAULTITUDE 1.0 will already be an revolutionary tool for the protection and management of IP. Later versions will offer even more features.