BITCARAT

At a Glance

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Abstract

By combining the insights from the field of academic finance with the boundless potential of blockchain we have created a robust infrastructure that offers the diamond trading and financing functionality far more efficient and comprehensive than what is available in the entire diamond industry today.

BitCarat platform is a scientific and technological foundation for a diamond marketplace with efficient price formation and deep liquidity. It is a blockchain-enabled effort to erase economic frictions that have defined every major flaw in an otherwise sound mechanism of the diamond industry.

Background and Motivation

Historically, diamond prices are known to demonstrate remarkable return performance, especially, on a risk-adjusted basis. Diamond returns are also known to be weakly correlated with the returns of conventional asset classes. Adding to the potential investment demand, strong fundamentals of the diamond industry lend strong support in favor of positive long term dynamics of diamond prices. These properties alone provide solid rationale for including precious gems in professionally managed asset portfolios.

And yet, investment demand for diamonds accounts only for 5% of diamonds sold. The remaining 95% are accounted for by retail demand for jewellery. What factors could account for this apparent contradiction?

As it turns out, the vast majority of answers to this question is hidden deep inside the opaque market structure of the diamond industry. This industry is plagued with inefficiencies that, using the economics jargon, are generally referred to as market frictions.

In what follows, using a set of basic economic concepts underpinning contemporary financial theory, we will tell a thrilling, yet tragic tale about the market for diamonds. We will defend a claim that, while varying widely in terms of in ubiquity and significance, all economic frictions hampering the evolution of diamond markets can be traced back to:

a. a set of unique material properties that make diamonds non-fungible[1];
b. the way they interact in determining diamond's price;
c. the way the resulting absence of fungibility hampers general diamond market liquidity;
d. the critical importance of liquidity for contemporary economic systems.

[1] Fungibility is a property of an asset that refers to value equivalence between any two units of it. In other words, any two units of a fungible asset have identical value and are mutually interchangeable.

Our tale, however, is not simply an account of impressively far-reaching and devastating consequences the interplay of (a)-(d) above had for the diamond industry. The purpose of such account is to provide the background required to appreciate the elegance of our solution; it simply sets the scene for something bigger.

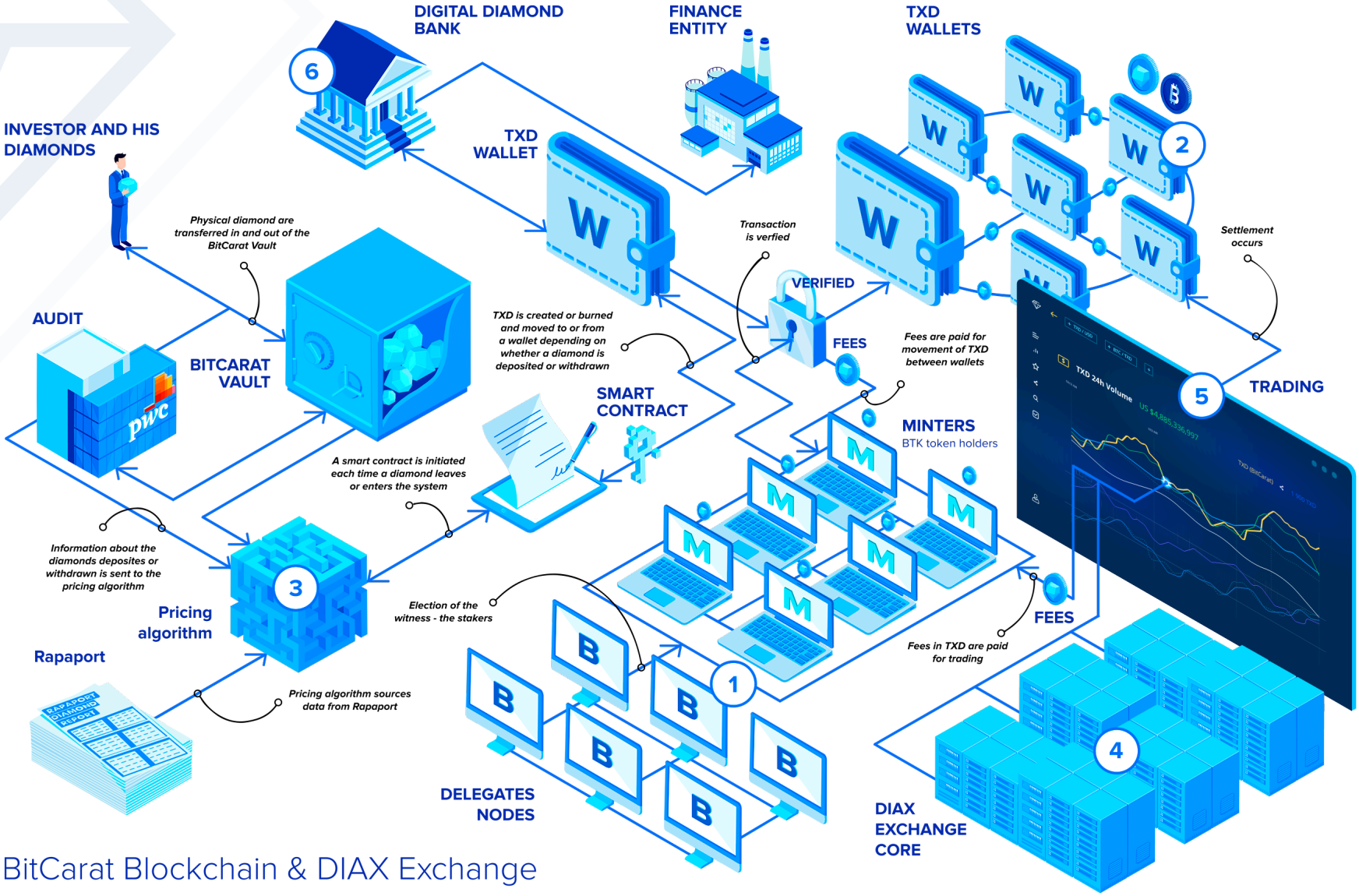
The BitCarat System

The blockchain revolution has provided us with the toolbox to liberate our financial system from market frictions and by implication from those who in the name of fighting these frictions designed a system where full control over many belongs to a chosen few. The blockchain is a story about salvation.

Likewise, our story is a narrative about an imperfect world and someone who is destined to save it, a Hero with answers to questions doomed as imponderable by the common wisdom. The 'Hero' in our tale is 'BitCarat', a blockchain-powered set of facilities that comprise a foundation for the brighter future of diamond markets; the future where liquidity and price efficiency are not abstract textbook definitions with no relevance for the diamond industry, but, instead, are its inherent features with direct implications for both, the present mechanics and future evolution.

Put in more concrete terms, BitCarat ecosystem is comprised of the following elements:

1. BitCarat, a custom blockchain with a dual currency monetary system and DPOS (Delegated Proof Of Stake) consensus protocol;
2. Two coins: price-stable coin backed by a portfolio of physical diamonds, and a staking coin fueling the economics of security of our blockchain;
3. The diamond pricing formula utilizing ML (Machine Learning) techniques that underpins the coin issuance and redemption mechanism;
4. Private-blockchain-powered hybrid exchange, DIAX (Diamond-powered Digital Asset eXchange). In developing DIAX, we have been guided by the idea of providing an orderly, fair and transparent diamond marketplace. Ultra low-latency high-throughput matching engine and advanced supporting infrastructure is the technological stack we provide to power the first liquid diamond marketplace;
5. DIAX Futures, the first-in-breed platform for providing deep liquidity to and hosting trades in diamond futures with arbitrary specification of physical properties of the underlying gem;
6. Digital diamond bank that provides lending and margin trading services leveraging obvious benefits of a stable coin as a collateral unit;



BitCarat Blockchain & DIAX Exchange

The entire BitCarat ecosystem is a product of interaction of these elements whereby each and every of them serves a unique clearly defined purpose and yet complements others. Linking other elements of BitCarat, two coins are powering the economics of the ecosystem. The rationale behind this separation will become evident in later sections of the text. Essentially, BitCarat can be viewed as an integrated financial system comprised of institutions that offer a comprehensive set of fundamental financial services.

The BitCarat Value

BitCarat is a project that positions itself as the core infrastructure for the reborn diamond industry. Digital, liquid and transparent, the emerging landscape of diamond trading will have an expanded list of participants. The value BitCarat creates will accrue directly or indirectly to everyone: BitCarat is not simply a milestone that sets in motion the transition to a new paradigm, it is the new paradigm itself.

The Classic Diamond Industry

As we will illustrate in detail later in the text, the value of BitCarat for the diamond industry is immense:

a. DIAX is the first truly liquid secondary market for polished diamonds;

b. DIAX encompasses the universal diamond limit order book: unthinkable today, any diamond can be melted into a massive diamond liquidity pool;

c. DIAX Futures platform offers the first liquid marketplace for diamond derivatives with an arbitrary specification[2] of underlying diamond characteristics;

d. Finally, TXD, the stable diamond-backed coin and simultaneously the first universal unit of diamond value exposes the diamond industry to two completely new markets: that of professional asset managers and that of crypto traders.

Professional Asset Managers

The value proposition of BitCarat to professional asset managers is quite simple

[2] We will elaborate on the importance of flexibility of contract specification below.

a. BitCarat system erases the frictions that have historically set diamonds at a disadvantage to other commodities, such as gold, silver or oil,

b. Basically, BitCarat is designed to provide institutional traders with an orderly access to an entirely new asset class with outstanding properties from a portfolio management perspective.

c. Most importantly, BitCarat enables deep diamond liquidity.

The World of Crypto

Crypto traders, blockchain enthusiasts, ICO investors and those otherwise familiar with the crypto space will also benefit from the launch of BitCarat:.

a. TXD, the diamond-backed stable coin, will provide an efficient safe haven asset in times of extreme volatility;

b. A blockchain with eventually free transactions. Importantly, this feature comes without compromising security;

c. Finally, the diamond bank's lending facility is a tool that would allow for efficient shorting of the crypto market along with margin trading.

Having diverse value proposition for a wide range of participants of the diamond trading process, we aspire to see BitCarat as a symbol of the limitless potential of the digital age technologies to revolutionize the established industrial landscape.

Conclusion

As a concluding remark to this introductory chapter, we, as a BitCarat team, would like to share our vision of the future of economics as a science and, more broadly, of the evolution of the global financial system as a whole.

XXth century was the time when economic science has made a dramatic leap forward: the analysis of departures from the state of perfect markets has emerged as a convenient framework for analyzing a broad range of phenomena, beginning at micro and ending at macro level. Today, leveraging the immense advancements in financial technologies, we can start working backwards systematically erasing frictions on our way to more efficient markets.

At BitCarat we embrace the belief that today the ideal of frictionless markets is slowly leaving the domain of utopias and emerges as an attainable goal. In this context, distributed ledgers offer the essential toolbox: it's raw and deeply underdeveloped and yet, it is just enough to make the first step.

BitCarat is one such step.

Team

Aleksandr Malkov - Founder and Chief Executive Officer: Aleksandr is co-founder and CEO of Arbi (legal and escrow services for ICOs), member of the Top 100 Blockchain Legal Advisors in CIS, member of Expert Council on Digital Economy in the Duma State of the Russian Federation.

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Sergey Goncharenko, PhD - Chief Strategy Officer: Having obtained his PhD in Economics in 1995 from the National University of Science and Technology (MISiS) in Russia, Sergey is currently a professor in the university. He specializes in developing sustainable methodologies for optimizing the strategies for the management of mining companies at various stages of their technological life cycle.

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Marina Panfilova - Chief Marketing Officer: Previously Head of Strategic Planning for SPN Ogilvy, specializing in marketing analysis and strategy planning for large scale Russian and international companies, innovative & hybrid projects for more than 11 years.

Studied Marketing Analytics at the St-Petersburg University of Engineering & Economics, Economics & Management at Universite de Pierre Mendes, Grenoble.

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Yuriy Kirichenko, PhD - Chief Technical Officer: Yurii has obtained his PhD in technologies for complex mechanization of open mineral deposits in 2001 and specialized further in the field of hydromechanized development and is currently professor at the National University of Science and Technology. He has published over 200 scientific papers, has issued 11 patents, and written multiple chapters of two books all in the field of mining engineering. He has obtained numerous prizes in his field of specialization including that of the International Soros Science Education Program in 2001.

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Alexey Puchkov, PhD - Chief Financial Officer: Aleksey is currently a PhD candidate in Economics and head of the Mining MBA program as well as docent at the Faculty of Finance and Credit at the National University of Science and Technology.

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Dmitry Tretyakov - Chief Business Development Officer: With over 8 years of experience in investment banking Dmitry began his career as the Moscow National Investment Bank as the Head of Institutional Clients Relations which he held for over three years before moving to Konrast Bank. For five years he was a SEVP and played a key role in the communications of the bank with its largest institutional partners. Currently, he is on the board of directors and a founding member of a fund that focuses on strategic partnerships, acquisitions, and large scale investments in innovative digital technologies in the payments sector.

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Dmitry Sukhov - Head of Research & Development: Having graduated the Moscow State Mining University and obtained MBA with specialization in mining companies management Dmitry is currently the Head of Research & Development at Severalmaz - a Russian mining company, wholly owned subsidiary of Alrosa. Before beginning his career at Severalmaz he was for nearly five years a researcher at the Institute of Diamonds and Precious Metals in Russia where he studied, among others, the the structure and evolution of real-structural complexes of the lithosphere of cratons and orogenic belts. He contributed greatly to the body of knowledge in geology, mineralogy and forecasting of diamond deposits depletion, precious metals and other minerals.

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Alexey Dimitrienko - Director of Blockchain Development: Graduated Industrial Software Engineering from the Moscow Power Engineering Institute with “Honors” and since then worked on developing innovative solutions in the field of payment systems for Russian SMEs. Since 2010 he has began investigating the use of blockchain technologies in the payments industry by working on projects related to scaling existing solutions for the demand of Russian online stores.

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Advisory

Alexey Blagirev - Fintech Advisor: A top expert on data, one of the first people to held the position of Chief Data Officer in Russia. For more than 10 years, he has been involved in rolling out cutting-edge technology solutions for major companies, such as Societe Generale, PwC, Samsung, Marriott and Alfa Bank. Currently, he is Project Lead R3 for Corda CIS, promoting Corda and R3 and developing local sales desk for R3 membership.

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Roadmap

August 1, 2018	Formation of Swiss Company	A company is established and incorporated in Switzerland
August 15, 2018	Application for Licenses	Application for Swiss Self Regulated. Organization (SRO) license.
September 8, 2018	Beginning of ICO	The ICO will begin with a private sale round.
November 5, 2018	Swiss SRO	An SRO (Self Regulated Organization) Switzerland-issued license for operating a cryptocurrency exchange is obtained. It allows the launching of an exchange where cryptocurrencies, the BTK and TXD tokens can be traded against USD and other fiat in a regulated setting, temporarily.
December 1, 2018	Applying for SDL	Application for a SDL (Securities Dealer License) where the trading of cryptocurrencies against fiat is possible and permanent. This license also allows for the launching and trading of leveraged products as well as trading of exchange traded funds.
January 2, 2019	End of ICO & Listing	The ICO will constitute 3 sale stages with different discount on each level. Listing on exchanges.
February 1, 2019	Swiss Banking License	Application for a Swiss banking license.

March 1, 2019	Exchange MVP 2.0	Deposit, withdrawal, trading of diamond tokens also available.
April 1, 2019	Blockchain MVP 1.0	The first era will be characterized with several trusted nodes acting as both, delegates and witnesses. The fees are paid for both, on-chain transactions and exchange trades. During this era, the stability of the system is tested. A large bug bounty will be initiated.
August 1, 2019	Blockchain MVP 2.0	The second era will begin with decentralizing witness and delegate selection process. The structure of fees and the rules of their distribution will remain the same.
September 1, 2019	Obtaining SDL	Obtaining the Securities Dealer License in Switzerland.
October 1, 2019	Institutional Futures	Launching 0.3; 0.5; and 1.0 CT diamond futures to institutional investors. Settled in cash or diamond tokens.
November 1, 2019	Blockchain Finalized	The third era will emerge when protocol will be sufficiently mature while volume of trades at DIAX will become satisfactory. We hope the community will vote out on-chain transaction fees with the intention to make BitCarat suitable for (micro-) payment applications.
December 1, 2019	Retail Futures	Launching all types of futures also to retail investors. Settled in cash or diamond tokens.

February 1, 2019	Margin trading and shorting instruments & Finalized Exchange	Organizing margin trading and shorting instruments facility. The exchange is not fully functional and it's capabilities are utilized.
May 1, 2019	Bank	Establish a bank that will be able to receive deposits and give out loans.
July 1, 2019	Investment Fund	Establish an investment fund that will form portfolios that invest directly in diamonds as underlying assets rather than companies or other funds.
November 1, 2019	Venture Capital Organization	A fund that provides capital to start-ups in the diamond industry to promote competition and stimulate growth.

The Fundraising

Motivation for a Security Token Offering (STO)

Once a token's value is determined based on the performance of an external asset that token is then classified automatically as security token and all related regulation also subsequently applies. The STO structure provides all of the future and global BitCarat investors - be them institutional or retail - with a fully legitimate way of securing funding for the project as compared to an ICO. The distribution of BTK (the security token) assures that it's holders are entitled to the residual cash flows of the exchange (that is part of the fees) along with the blockchain transactions' fees. In this setting, the BTK clearly qualifies as a security token and will be treated as such.

STO Structure

Two types of tokens will be distributed to the public and private investors – the "stable coin" TXD as well as the "staking coin" BTK.

STO Distribution

The total supply of the BTK is set at 100,000,000 while that of TXD is unlimited. The team reserves 40% if BTK (40,000,000) for project development, advisory and team incentive schemes, market making, listing, and other promotional activities of the project.

The distribution is broken down into three phases as illustrated in the tables below:

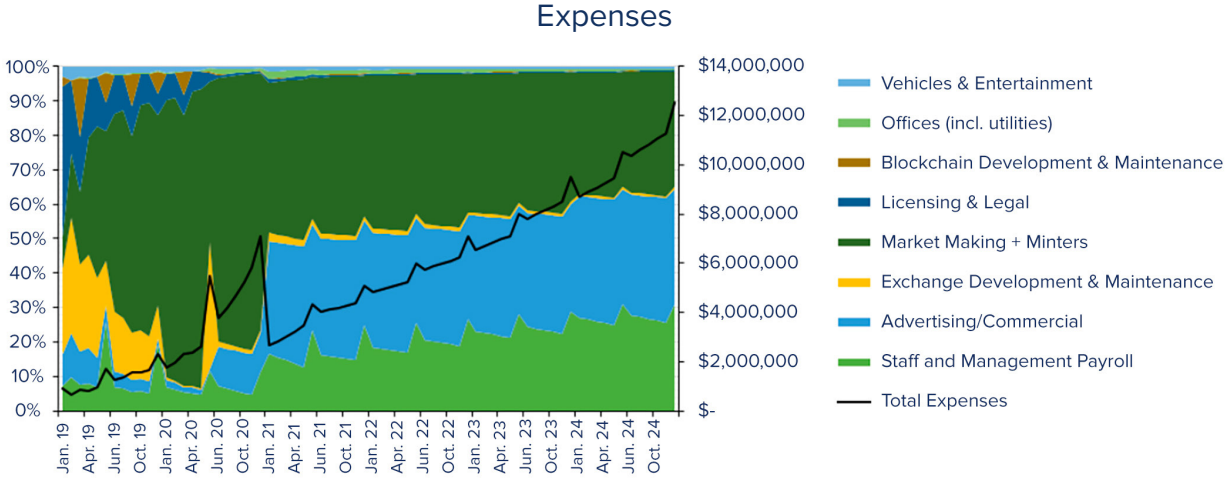
	Start		End	
STO Phase	Date	Time GMT+0	Date	Time GMT+0
Phase I	Nov. 1, 2018	4:00:00 PM	Dec. 1, 2018	4:00:00 PM
SPhase II	Dec. 2, 2018	4:00:00 PM	Dec. 17, 2018	4:00:00 PM
SPhase III	Dec. 18, 2018	4:00:00 PM	Jan. 2, 2018	4:00:00 PM

STO Phase	BTK Distributed	In Percent	Price	Discount	Raise	TXD Distributed % of Raise	Worth of TXD Distributed
Phase I	15,000,000	25%	$ 1.04	50%	$1 5,625,000	20%	$ 3,125,000
Phase II	18,000,000	30%	$ 1.56	25%	$ 28,125,000	5%	$ 1,406,250
Phase III	27,000,000	45%	$ 2.08	0%	$ 56,250,000	5%	$ 2,812,500
Total	60,000,000	100%			$ 100,000,000		$ 7,343,750

Each phase begin at 4:00PM GMT+0 and at the 1st day of each new month starting September and ending November of 2018. The first rounds lasts 30 days, the second 31 days, and the last 18. The amount of tokens distributed in each phase increases while the discount falls from 50% in Phase I. The hard cap of the project is US$100,000,000 while the soft cap is US$15,000,000. All unsold tokens will be burned.

In addition to the conventional, nonetheless quite large discounts the BitCarat STO will give as a bonus also TXD - that is, part of the raised sum will be used to purchase and store physical diamonds. These distributions are conditional on reaching the soft cap. To make this point clearer, 20% of the raised funds during Phase I will be used to buy diamonds and distribute (airdrop) to the investors proportionate amount of TXD. The TXD will be readily convertible to physical diamonds that BitCarat will deliver to their respective holders

STO Funding Allocation



The funding will be allocated across eight general cost components:

1. **Exchange Development & Maintenance** – These costs comprise the development of the exchange system alongside its support components, colocation, and the maintenance of each. The total capital expenditure amounts to a little over $5,000,000 with yearly recurring costs of about $700,000.

2. **Market Making & Minter's Fees** – Providing depth of order books and narrow spreads is essential for the establishment of a market of entirely new asset class aimed for institutional participation. Therefore, 10% of monthly revenues are allocated each month for market making. Minters' Fees are as % of total monthly revenues and fall each year as follows: 2019: 90%, 2020: 90%, 2021: 10%, 2022: 10%, 2023: 8%, 2024:5%.

3. **Staff and Management Payroll** – The payroll is based on a C-suite of six people and a starting operational level staff of nine which later grows to 445 – 203 of which support and 102 marketing and the rest risk management, administration, analytics, business development and IT. At the end of each June and December salaries of the operational level employees are indexed by 10% and the management receives bonus which is between seven and nine times the monthly salary depending on KPIs.

4. **Advertising & Promotions** – Before June 2020 these expenses will consists solely of articles, PR, and some SEO. After that, each month 15% of the revenue will be spend on heavy advertising and customer acquisition techniques.

5. **Licensing & Legal** – The application for and obtaining of Swiss MTF could take over a year and will cost upward of $2,000,000. In addition, monthly litigation reserves are made in total of $25,000 to cover any unexpected legal fees.

6. **Blockchain Development & Maintenance** – Blockchain development is expected to cost no more than $750,000 with monthly maintenance fees of $5,000.

7. **Offices (incl. utilities)** – Offices in Russia, Netherlands, Hong Kong, and Switzerland will be opened over time as the headcount grows towards the targeted over 450 by end of 2014.

8. **Vehicles & Entertainment** – Corporate vehicles will be leased as well as events organized to keep up the company morale as it expands.

9. **Depreciation, Amortization, Interest Expenses, Tax** – None will be incurred as loans are not taken and cars and offices are leased while intellectual property would take time to be developed and it is difficult to estimate as of this moment its value. Taxable rate is also ignored as it is yet not known the tax efficiency with which the company will operate.