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BNT ECOSYSTEM

White Paper

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In the modern world, the interdependence of knowledge and money is a fundamental condition for the evolution of mankind.

Content

Bank of Nanotechnologies Presents BNT Ecosystem

BNT aims to:

- Bring breakthrough innovations to the market
- Contribute to the SDGs
- Support win-win solutions
- Help talented and capable scientists
- Remove obstacles for everyone willing to invest in innovations

OUR Vision

To create a trusted, safe, and **secure platform for commercialization of innovations**.

OUR Mission

We are dedicated to building a **trusted and secure online service to remove obstacles for everyone willing to invest in innovative technologies** and progress.

Safety and privacy are top priorities in our digital community.

Users can use **new fintech tools and smart contracts.**

Users can contribute to progress, make money and engage in the conscious investment community.

Problems We Solve

We all know that not every scientific breakthrough will eventually turn into a business. But why?

Let’s consider some of the challenges that innovative startups may face at the seed stage.

- Investment projects requiring specific knowledge may be of no interest to some investors (due to lack of technical expertise).

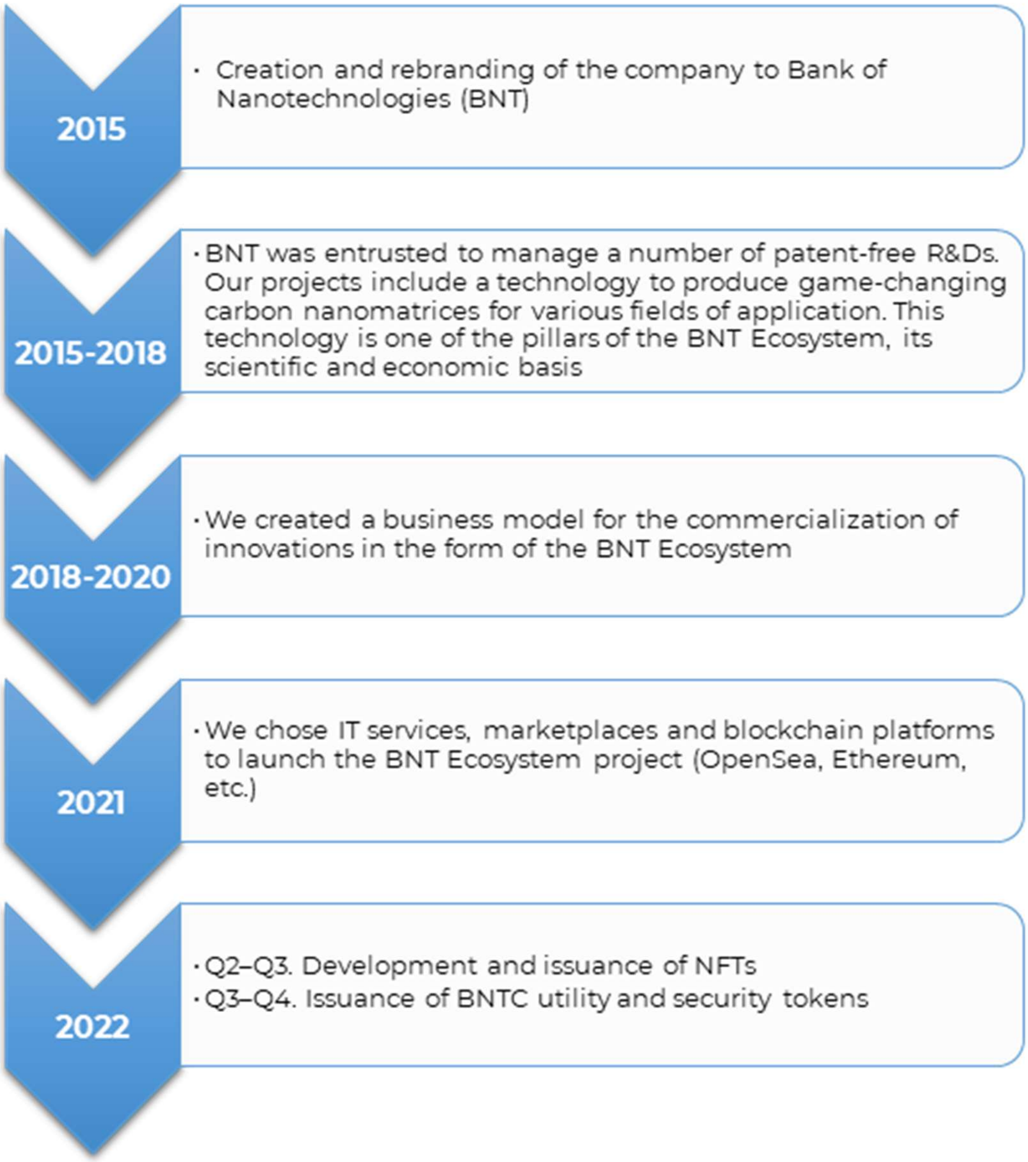
- There are restrictions for potential investors established by national laws and regulations in the field of innovations.

- There is no well-made software solution to help potential investors assess the risks. Making informed investment decisions is expensive and timeconsuming.

Bank of Nanotechnologies is focused on deep-tech innovation startups that are already at the initial stage.

Investing in new technology, especially early on, can be much more profitable than investing in traditional assets.

BNT Ecosystem Timeline



BNT Ecosystem Overview

The BNT Ecosystem has a set of frameworks, fintech instruments, utilities, and services for risk management on a blockchain platform. These tools and frameworks form a single system that monitors and ensures the fulfillment of safe investment obligations.

The BNT Ecosystem provides a customized software solution to assess the commercial potential of R&D projects. The solution supports dynamic monitoring of startup performance indicators.

As a priority, the Ecosystem supports highly profitable (3X growth), investmentworthy and socially responsible startups aimed at solving the problems of people all over the world.

We are going to develop technologies and materials for:

- solving environmental problems, including reducing the emissions of carbon dioxide (CO2), its concentration in the atmosphere, dispose of nuclear waste;

- for a new generation of bionano- and nanopharmaceutical products;
- for nano- and microelectronics;
- for new types of energy generators.

The BNT Ecosystem has 4 key ELEMENTS:

- IT platform
- Services
- Instruments
- R&Ds

Our MANAGEMENT SYSTEM includes:

- Founder and CEO
- Project managers (mentors)
- Expert board
- Advisory board

The BNT Ecosystem USERS are:

- Investors
- Initiators of innovative startups
- Participants

BNTC tokens are the Esosystem’s main payment instruments. Two types of tokens are used in the BNT Ecosystem for payment and investment operations – BNTC security token and BNTC utility token.

BNTC security token is a secure financial instrument that may be used to invest in the Ecosystem’s innovative high-tech business projects.

It functions similarly to shares or other securities, as well as gives the right to a share in the profits.

There is a limited amount of BNTC security tokens in free circulation that are required to raise funds and execute the business plans of the Ecosystem’s startups. Descriptions of all the Ecosystem’s startups are available on the official website.

BNTC utility token is a payment instrument that provides token holders with access to the Ecosystem’s services and products.

BNTC utility tokens can be converted to BNTC security tokens.

All of the Ecosystem's instuments and mechanisms use a blockchain technology, which helps prevent unauthorized access and guarantees the security of transactions made or arranged in the Ecosystem. Additionally, it ensures the fulfillment of the obligations by the parties, transparency and controllability of processes at all stages of business relationships. The BNT Ecosystem is a safe and secure business environment that provides for the AML and KYC procedures.

Ecosystem Functionality

Let's take a closer look at the Ecosystem's frameworks, services, and instruments.

ECOSYSTEM ELEMENTS

IT platform

The Platform is a secure data and business environment for investors and startup initiators.

NFTs, BNTC utility tokens and BNTC security tokens are created using ERC1155 Ethereum smart contracts. We are planning that BNTC security tokens will be deployed on Hedera, using the Kaleido and Enjin software services.

All users need to register to perform any actions in the BNT Ecosystem.

The AML and/or KYC procedures are mandatory for all users of the Ecosystem who perform actions with the BNTC security token for investment.

All investors have their personal accounts, where they can purchase services, make investments, check the wallet information and monitor the projects they invest in, etc.

Services

Investors buying BNTC utility tokens invest in the Ecosystem development, as well as purchase the BNT Ecosystem services, including:

Market Research. The BNT project team has the expertise and experience to conduct market research in the field of innovation. The market for carbon nanomaterials is of special interest to our experts. Since 2018, we have been conducting a market research focused on previously overlooked aspects influencing the conditions and potential growth of the market for carbon nanomaterials.

Most of market research reports in this field provide general information about carbon nanomaterials, pricing, and market development perspectives.

However, carbon nanomaterials have several properties that, when examined closely, can reveal a number of new market prospects, previously unconsidered by other researchers. They include game-changing technologies for the classification and functionalization of CNMs.

Many investors and startup initiators made unproductive investment decisions as a result of mistakes of market researchers and inflated expectations of the CNM market growth in the second decade of the 21st century.

The market research report gives an outline of the synthesis of various nanomaterials and analyzes the current production volumes. It has been updated annually since it was originally prepared in 2018.

The main factors influencing the pricing of carbon nanomaterials are:

- purity of carbon nanomaterial (ash content);
- functionalization (the presence of certain functional groups on the surface of CNMs);
- classification by size.

The obstacles for the CNM market growth include:

- inefficient industrial technologies for cleaning, functionalization, and classification;
- lack of technologies for the use of carbon nanomaterials in end products of various industries.

Risk Management. The Ecosystem management team has excellent academic qualifications and extensive experience in doing business in the conditions of critical risks in the commercialization of innovations in compliance with the BNT Ecosystem Protocol.

The BNT Ecosystem focuses on managing the following risks:

- Forecast risks
- Commercial risks
- Management risks
- Anthropogenic risks
- Risks of intellectual assets
- Intellectual property risks
- Financial (lending) risks.

The BNT Ecosystem Management System creates a sustainable business model of its projects. In this regard, it determines the acceptable level of risk for each startup. The risk factors that have a critical impact on the state of the project are selected jointly with the owner (customer) of the risk management service. A set of administrative and organizational measures and smart contracts are used to exercise control. As a solution, the customer receives certain estimates, possible scenarios for the impact of critical risk factors and an account of risk management measures.

Innovation Commercialization Potential Assessment Service (ICPAS) is an AI software solution for assessing the commercial potential of R&D at an early stage of commercialization. The software uses the criteria importance theory and other mathematical models to calculate the ranking of various factors (groups of factors) for assessing conventional and innovative high technologies. Decision makers can obtain important additional information using this service:

Is it worth investing in / developing / buying a technology or product?

We plan to implement the service in several forms of software:

- integrated into the project's IT platform;

- desktop software;
- mobile software application for Android and iOS;
- both free and paid.

All startup initiators and investors in the BNT Ecosystem can access the ICPA service for free. A user can perform a simplified multi-criteria innovation analysis that does not take into account the influence of risk criteria and the Ecosystem's actions to create a sustainable startup business model and commercialize a technology.

The paid version of the service will be available to everyone who has purchased it, investors registered in the BNT Ecosystem and initiators of startup projects. It takes into account the actions of the Ecosystem and the investor, the conditions and amount of investment in an innovative startup. This version of the ICPA service shows a dynamic map of risk criteria (depending on the startup implementation stage) for each technology and the impact of critical risk criteria on the assessment indicator. Additionally, it includes general recommendations for localizing risks.

Project initiators can access the full version of the ICPA service for free after signing a smart contract with the BNT Ecosystem.

Instruments

BNTC utility tokens and BNTC security tokens are the main payment instruments of the BNT Ecosystem. BNTC security tokens are backed by the value of intellectual property items amounting to over 100 million euro.
BNTC utility token is a payment instrument that provides token holders with access to the Ecosystem’s services and products.

BNTC security token is an asset-backed investment instrument for the Ecosystem’s startup projects based on innovative technology. BNTC security token is a digital share (certificate) that gives its owner the right to a share in the profits of the Ecosystem’s startups. Its security is based on the investment and market value of R&D projects and specific products of a given startup project.

Non-fungible token (NFT) is a type of crypto tokens, which is unique in some way and cannot be replaced or counterfeited. Our NFTs confirm the right to tokenized versions of physical, financial, intellectual assets created and acquired in the BNT Ecosystem.

Smart derivative contracts are digital financial instruments for risk hedging. It can be a smart contract that hedges an event of default. A smart derivative contract transfers the risk of non-performance or improper performance of an obligation.

A smart real option means an obligation or right to buy or sell the Ecosystem’s underlying assets, including financial assets and assessed R&D projects under certain conditions. Additionally, the parameters of smart real options serve as a data source for the Ecosystem's own AI solution. It is a benchmark for assessing and controlling the cost of financial flows of the Ecosystem and its startup projects. Volatility of the Ecosystem's assets is a key parameter of a smart real option.

R&Ds

Bank of Nanotechnologies has its own portfolio of high-tech innovations.

The BNT Ecosystem plans to:

1. Explore new methods for the production of nanoproducts and materials based on them.
2. Develop new methods for the classification and functionalization of nanomaterials.
3. Test new methods for obtaining mono- and polyfunctional nanoparticles.
4. Develop new methods for the industrial production of chemically modified nanoproducts for multifunctional application, including:
   - complex nanostructures of the core-shell type;
   - nanomaterials with special properties (magnetic, dielectric, etc.);
   - nanomaterials and their composites with extreme characteristics (thermal stability, hardness, corrosion resistance and radiation resistance);
   - new multipurpose catalytic systems in the chemical and petrochemical industries;
   - new sorbents and sorbent-based technologies for landfilling, disposal of waste and man-made formations, wastewater treatment and
   - decontamination of industrial waste gases;
   - nanomaterials with new ion-exchange properties for use in the modern technologies for processing mineral resources and deep water purification from harmful impurities;
   - new nanomaterials and environmentally friendly technologies for electroplating;
   - new fillers and carriers for the creation and processing of polymers and composites;
   - nanomaterials for medical use;
   - new multipurpose composite ceramic and cermet materials;
   - new multifunctional systems for use in hydrogen economy, solar cell production and supercapacitors;
   - nanomaterials in various forms (suspensions, emulsions, pastes, powders, composite and sintered materials);
   - new types of coolants, lubricants and composites for use in metallurgy;
   - new types of coatings;
   - magnetically controlled sorbents.

MANAGEMENT SYSTEM

BNT Management System assesses the commercial potential of R&D projects. Its functions include dynamic control over launch parameters and dynamic risk management of intellectual property items and startup projects in accordance with the Ecosystem protocol.

- Founder and CEO is responsible for the trust management of R&D, provides leadership to project managers. He is a member of the expert board.

- Project managers provide support to the startups entrusted to them, help them draw up business plans, constantly monitor their life cycle, the progress of projects (stages and milestones). They are responsible for the ongoing risk management.

- The expert board consists of academic, industry and business experts, specialists in various branches of science. The board's function is to assess the commercial and scientific potential of innovative R&D projects.

- The advisory board is a group of experts who provide non-binding strategic advice to the Ecosystem management and startups to achieve the goals of the project and the entire system.

BNT ECOSYSTEM USERS

Legal entities and individuals may have one of the following statuses in the Ecosystem: investors in startups, investors in security token, startup initiators, and Ecosystem participants.

Mezzanine crypto financing model is used for all startups. Mezzanine crypto financing consists in providing seed investment to startups, investment in fixed assets, as well as extended credit lines in BNTCrypto.

Unlike business angels and venture funds, mezzanine investors are not expected to be actively engaged in business operations of the companies they invest in.

Investors in Startups

- have access to the profiles of all the startups in the Ecosystem;
- can use and take advantage of the secured crypto financial instruments;
- make smart and safe investment decisions using their own tools and the Ecosystem's services to assess the risks.

Investors in Security Tokens

- have an option to transfer the assets they have acquired to the Ecosystem's trust, thus lowering the barrier to entry in deep tech investing;
- can invest in startup projects on their own at any time;
- can sell their crypto assets to the Ecosystem or its participants at the market price or hold their security tokens in custody as defensive assets.

Startup Initiators

- have free and unlimited access to the services for assessing the commercial potential of their R&D projects.
- make profit in a favorable and secure environment.

We guarantee the support of startups up to the MVP stage, if their commercialization potential has been confirmed by the Ecosystem.

Ecosystem Participants

- can get access to the Ecosystem overview, its services, and publicly available information about the current projects (after registration);
- can buy BNTC NFTs, BNTC utility tokens to pay for the Ecosystem's services and BNTC security tokens to accumulate and/or transfer them to the trust;

- go through the mandatory KYC and AML procedures to become approved investors in startups.

This status is suitable for those who seek a high return on investment, but do not want to know much about the science behind the Ecosystem's startup projects.

This is an attractive option for traders dealing in the cryptocurrency market, as well as non-professional investors with no hands-on experience in startup projects.

Monetary Policy

Monetary policy is specified in the token issuance strategy. The strategy determines the number of issued tokens, limits, dates of issuance, the amount of securities and utility tokens in free circulation.

In addition to setting a certain limit on the total token offering, only a part of the issued utility and security tokens is on offer in the market. This part should be enough to raise a fixed amount of capital to meet the goals and launch deadlines specified in the business plan.

The remaining tokens are held in an escrow fund to finance the Ecosystem's current and future projects. Tokens for administrative and operating expenses are also withdrawn from the escrow account.

Volatility Control

A number of tools to maintain a stable security token exchange rate on a crypto exchange can reduce its volatility. This can be achieved based on the real value of intellectual property of the Ecosystem's startups backing the security token. Independent experts will perform intellectual property valuation in this regard. Additionally, the Framework of Controlled Release of Reserves (an internal regulatory document) sets out the provisions for volatility control. All of the above creates the conditions for a moderate growth in demand, increasing the market value of the security token.

Liquidity Control

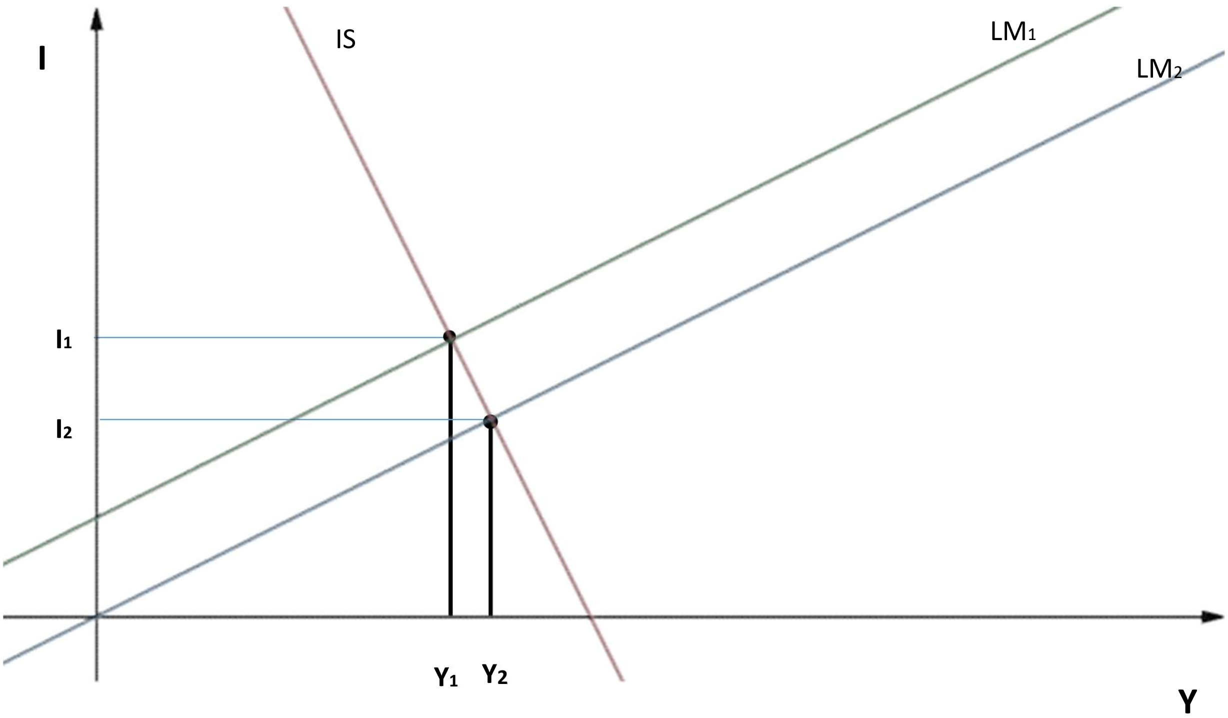
The BNT Ecosystem will be able to maintain the stability and value of security tokens, due to the availability of FinTech, compliance with the internal policy of risk management regulations and the issuance strategy.

Additionally, the BNT Ecosystem will regularly assess the value of R&D projects, create a demand for the BNTC security token as a defensive investment asset, while maintaining the potential for high return on investment.

Fiscal Policy

The BNT Management System will regulate aggregate demand and contribute to an attractive investment climate by increasing the BNT Management System's spending on BNTC tokens.
The BNT Ecosystem operates as a self-sufficient economy. Therefore, we take into account that the effect of such fiscal policy will be achieved when the demand for money is very elastic in terms of the BNTC rate, but inelastic in terms of income.

As part of our fiscal policy, there is also an entry threshold (a certain number of tokens) to invest in the BNT Ecosystem startups.



I – BNTC rate, Y – income, IS – equilibrium in the investment–savings market, LM – money market equilibrium.

The IS curve shows the relationship between the exchange rate I and the level of income Y and has a negative slope, since an exchange rate depreciation stimulates investment, which leads to an increase in income.

The LM curve shows the relationship between the exchange rate I and the income level Y, i. e. how a change in one of them affects the other in order to maintain equilibrium in the money market.

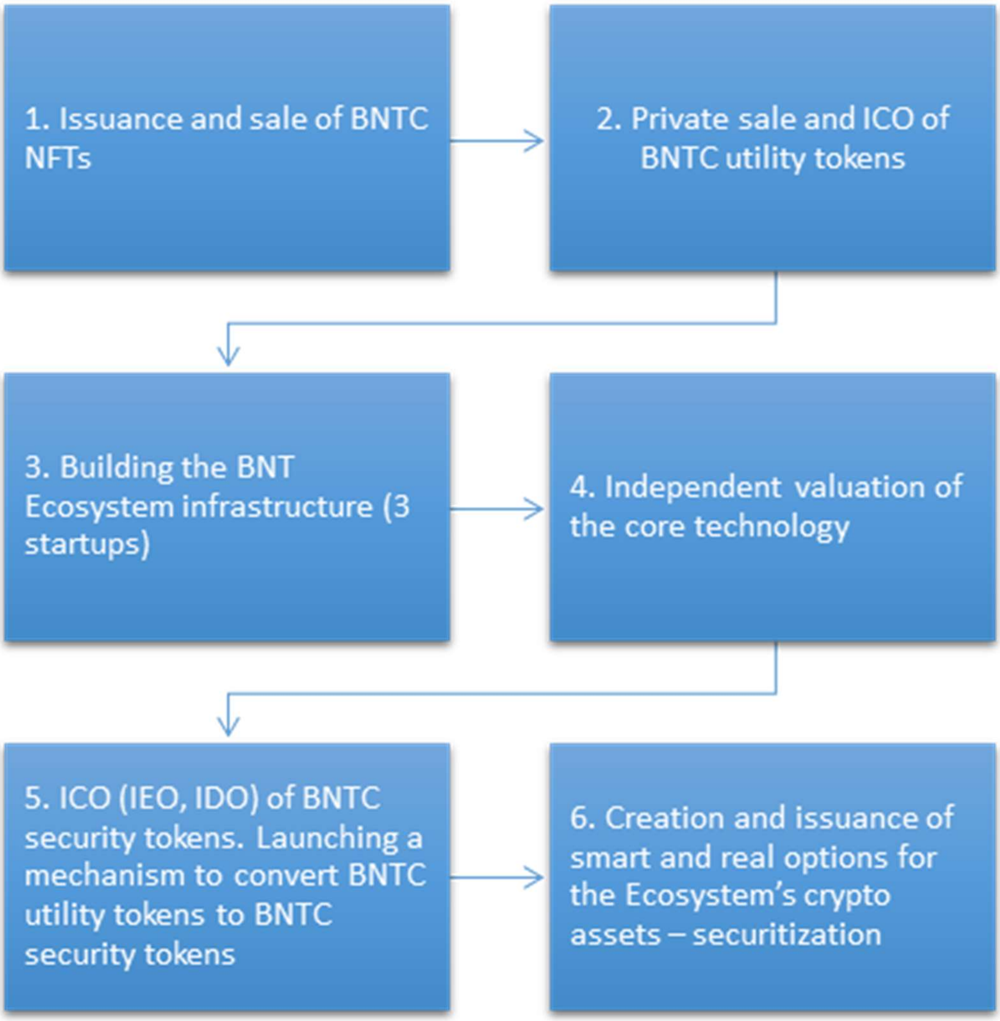
An increase in the money supply (a shift to the right of the LM curve) leads to an increase in income from Y1 to Y2 and an exchange rate depreciation from I1 to I2.

The BNT Ecosystem does not charge any membership fees.

At the infrastructure development stage, the BNT Ecosystem will not use any incentives (allowances, benefits, contributions, etc.)

Project Stages (Roadmap)

We have formulated 5 project milestones for the short term.



Issuance and Sale of BNTC NFTs

BNTC NFTs are original digital certificates that confirm the ownership of unique digital assets. They are collectible. BNTC NFTs are a marketing tool of the Ecosystem. Users will have an opportunity to win functional BNTC NFTs at online gambling and exchange them for cryptocurrency or fiat money any time soon. They can also use them to become a member of the Ecosystem and purchase BNTC Utility tokens on beneficial terms.

Private Sale and ICO of BNTC Utility Tokens

We plan to issue and sell a sufficient number of BNTC Utility tokens for the stable operation of the Ecosystem (for users to pay for its services).
BNTC Utility tokens will be available for sale to a limited number of participants. At the issuance stage, public offering of BNTC utility tokens on crypto exchanges is not foreseen.

Building BNT Ecosystem Infrastructure (3 startups)

The funds raised during the private sale and ICO will be invested in the BNT Ecosystem's startups: Manufacturing CNM, Analytical Laboratory, and ICPAS.

Implementing the core technology via a startup with an estimated cost of 500 thousand euro will allow BNT to launch at least 10 new startups with a total estimated cost of up to 2 million euro. After the launch of the first 3 startup projects the investment cost of technologies will exceed 1 billion euro. This will be possible due to the creation of a new composite material with special physicochemical ionexchange properties that make it more efficient by at least an order of magnitude. The core umbrella technology may become a booster for the market of carbon nanomaterials and open new prospects for the development of a number of hi-tech industries.

Independent Valuation of Core Technology

The investment value of the technologies for the production and processing of carbon nanomaterials is the economic basis for the Ecosystem's startup projects.

In 2018, the investment value of the core technology was estimated at over 100 million euro.

Once the new technology is embraced in one of the startups, this will be a foundation for the commercialization of technologies in various industries (medicine, energy, extraction of precious metals, etc.).

Further valuation will be performed by independent international experts.

ICO of BNTC Security Tokens

We will start with the issuance of 100 million security tokens (ICO). Once the technology is introduced, additional IP assets will be obtained. More security tokens will be issued after their valuation.

In the event that the Ecosystem violates the regulations for the issuance and use of security tokens, it will buy back the tokens purchased by the users at the exchange rate set on the date of the transaction (acquisition).

After ROI, investors may choose to reinvest in the BNTC security token liquidity maintenance tools. In this regard, a procedure for market revaluation of assets is provided. Real smart options will be a technical instrument for liquidity maintenance.

Legislative Framework

Since we plan to launch the BNT Ecosystem project in Slovakia, we comply with the legislative framework of the European Union and the national legislation of Slovakia. In view of this, BNT group s.r.o. was founded. We may also launch several startups in other countries, for example Israel.

Considering the business models and technologies that are the essence of the BNT Ecosystem, we have studied the following regulatory documents:

BIS Digital currencies (11/2015)

BIS Central bank digital currencies (12/03/2018)

BIS Designing a prudential treatment for crypto-assets (12/12/2019)

BIS Policy responses to fintech: a cross-country overview (30/01/2020)

COM Digital Finance Strategy for the EU (24/09/2020)

EBA Opinion on Virtual Currencies (04/07/2014)

EBA Opinion of the European Banking Authority on lending-based crowdfunding (26/02/2015)

EBA Joint Committee Discussion Paper on the Use of Big Data by Financial Institutions (2016)

EBA Discussion Paper on innovative uses of consumer data by financial institutions (04/05/2016)

EBA Report on Innovative uses of data 2017 (28/06/2017)

EBA Opinion on the EU Commission's proposal to bring Virtual Currencies into the scope of Directive (EU) 2015/849 (4AMLD) (11/08/2016)

EBA Report on the prudential risks and opportunities arising for institutions from fintech (03/07/2018)

EBA publishes Report on regulatory perimeter, regulatory status, and authorisation approaches in relation to FinTech activities
(18/07/2019)

EBA Final Report on Big Data and Advanced Analytics (13/01/2020)

EC: FinTech action plan: For a more competitive and innovative European financial sector (08/03/2018)

EC: Shaping Europe's digital future: Commission presents strategies for data and Artificial Intelligence (19/02/2020)

EC: CONSULTATION DOCUMENT On an EU framework for markets in crypto- assets (19/03/2020)
ECB: Virtual or virtueless? The evolution of money in the digital age - Lecture by Yves Mersch, Member of the Executive Board of the ECB, Official Monetary and Financial Institutions Forum, London, 8 February 2018 (08/02/2018)

ECB Crypto-Assets: Implications for financial stability, monetary policy, and payments and market infrastructures (05/2019)

ECB Report on a digital euro (02/10/2020)

ESAs JC Report on automation in financial advice (16/12/2016)

ESAs JC Warning on Virtual Currencies (12/02/2018)

ESAs JC report on Big Data (15/03/2018)

ESMA Opinion Investment-based crowdfunding (18/12/2014)

ESMA Discussion Paper - The Distributed Ledger Technology Applied to Securities Markets (02/06/2016)

ESMA Report - The Distributed Ledger Technology Applied to Securities Markets (07/02/2017)

ESMA highlights ICO risks for investors and firms (13/11/2017)

ESMA Guidelines on certain aspects of the MiFID II suitability requirements

(06/11/2018)

Securities and Markets Stakeholder Group advice to ESMA Own Initiative Report on Initial Coin Offerings and Crypto-Assets (19/10/2018)

ESMA Advice - Initial Coin Offerings and Crypto-Assets (09/01/2019)

ESMA Report - Licensing of FinTech business models (12/7/2019)

FATF Guidance for a Risk-Based Approach to Virtual Currencies (06/2015)

FATF G20 commitment to implement FATF standards and support for work on crypto assets (24/07/2018)

FATF Public Statement – Mitigating Risks from Virtual Assets (22/02/2019)

FATF Guidance for a Risk-Based Approach to Virtual Assets and Virtual Asset Service Providers (21/06/2019)

FATF Report to G20 on So-called Stablecoins (07/07/2020)

FATF 12 Month Review of Revised FATF Standards - Virtual Assets and VASPs (07/07/2020)

FSB Financial Stability Implications from FinTech Supervisory and Regulatory Issues that Merit Authorities' Attention (27/06/2017)

FSB Artificial intelligence and machine learning in financial services. Market developments and financial stability implications (01/11/2017)

FSB Crypto-assets Report to the G20 on work by the FSB and standard-setting bodies (16/07/2018)
FSB Crypto-asset markets Potential channels for future financial stability implications (10/10/2018)

FSB FinTech and market structure in financial services: Market developments and potential financial stability implications (14/02/2019)

FSB Crypto-assets regulators directory (05/04/2019)

FSB Crypto-assets Work underway, regulatory approaches and potential gaps (31/05/2019)

FSB Decentralised financial technologies Report on financial stability, regulatory and governance implications (06/06/2019)

FSB Regulatory issues of stablecoins; IOSCO-Regulators' Statements on Initial Coin Offerings (18/10/2019)

FSB Addressing the regulatory, supervisory and oversight challenges raised by global stablecoin arrangements Consultative document (14/04/2020)

IOSCO Statement on Addressing Regulation of Crowdfunding (21/12/2015)

IOSCO Crowdfunding 2015 Survey Responses Report (21/12/2015)

IOSCO Update to the Report on the IOSCO Automated Advice Tools Survey Final Report (21/12/2016)

IOSCO Research Report on Financial Technologies (Fintech) (08/12/2017)

IOSCO Issues, Risks and Regulatory Considerations Relating to Crypto-Asset Trading Platforms, Report of the Board of IOSCO (28/05/2019)

IOSCO Issues, Risks and Regulatory Considerations Relating to Crypto-Asset Trading Platforms (12/02/2020)

IOSCO Global Stablecoin Initiatives (23/03/2020)

IOSCO CR022020 The use of artificial intelligence and machine learning by market intermediaries and asset managers (25/06/2020)

G7 Working Group on Stablecoins Investigating the impact of global stablecoins (10/2019)

OECD Initial Coin Offerings (ICOs) for SME Financing (14/01/2019)

OECD Principles on Artificial Intelligence (22/05/2019)

OECD The Tokenisation of Assets and Potential Implications for Financial Markets (17/01/2020)

WBG Distributed Ledger Technology (DLT) and Blockchain (19/12/2017)