



OPEN PACKAGING NETWORK **WHITEPAPER**



Table of Contents

- Abstract	3
- An Overview	4
- Why the time is Now?	7
- The Problems	11
- Our Solution	15
- The Token	19
- How it works	20
- The Revenue Model	42
- Foundation Chart	43
- Core Team	44
- The Roadmap	47
- Risks	50
- Legal Notice	54
- Annex	56

ABSTRACT

The world is changing in ways never imagined.

With the packaging sector so closely related to global social changings and fluctuations in the economic activities, analysing those megatrends that are shaping the industry, focusing on problems and related solutions, interpreting data, investigating the new requirement in the name of the latest sustainability requests, figuring out how the recent technological advances would be useful to increase our business is the key to success.

That's the reason why we decided to marshal our strengths and competences to build **one of the largest packaging decentralized networks in the world**.

We called it "**Open Packaging Network**" because our dream has always been to create an open ecosystem for stakeholders transactions.

We wanted it to be a **public digital ledger** for the packaging industry.

We conceived it to be an open, reliable marketplace for buyers and sellers.

We expected it to be able to provide sellers **seriously interested buyers, better payment terms, trustworthy demand forecasts and fair goods prices** and, on the other side, to guarantee buyers seriously interested sellers, first-quality materials and really fast deliveries.

And we developed it on the basis of the most advanced, safe, quick and interactive technology as far: **Blockchain**.

Details on how we are going to do all this form part of the present whitepaper: the information portrayed in this document serves as a guide to move into the complex space where packaging industry meets blockchain technology.

Our revolutionary platform is now a reality and we are glad you are here to discover more about it.

We are looking forward to meeting you **in the new era of the packaging industry**.

AN OVERVIEW:

Back in 1035, a Persian traveler reported to have seen, in a market in Cairo, sellers wrapping vegetables and spices in a piece of paper for their customers: that was the **birth of the packaging**.

Today packaging industry is a billionaire business, with a market value forecast at \$998 million in 2020 and a continuously growing expansion both in First and Third World economy.

We live in a wrapped world: from the highest New York skyscrapers to the smallest New Delhi shanty town, people unwrap millions of goods every day; from the shadow of the Coliseum to the depths of the Pacific, our land receive millions of wrappings every night and, as the **modern-day throwaway culture** does not really seem to be near to its end, the packaging industry is inevitably destined to have a long and prosperous life. But it has to cope with a wide range of factors (almost) unpredictable.

Just consider that 20 years ago consumers still thought packaging as unnecessary or even as just waste to be disposed of, while nowadays studies show that 64% of consumers sometimes buy a product off a shelf without prior knowledge of it and that it takes them just 7 seconds to take their final decision since they see the packaging for the first time .

Shifts in global economic power remain the longer-term influencing factor of the packaging industry, with rising oil prices, fluctuations in raw material prices, expanding use of E-commerce and, above all, the rapid growth of developing countries: increased economic power means increased consumption. Indeed, while in the mature markets of western Europe, Japan and North America packaging consumption evolve steadily and predictably, the rapid growth in packaging usage in the fast-growing economies of China, India and the rest of Asia, currently the principal users of paper per capita, open new scenarios for packaging suppliers despite the risks liked to politic instability, wars, landfill taxes introduction and natural catastrophes.

Although, there are a number of other direct or at least indirect influences on the packaging industry:

- **Urbanization:** with a consequent increasing demand for urban housing, materials and goods (the United Nations projects that 4.9 billion people will live in an urban jungle by 2030)

- **Population growth:** with Millennials holding huge buying power and behavioral habits completely different from previous generations
- **Resource scarcity:** with a growing demand for water and other natural resources that will press society to reduce water usage and repurpose materials like paper
- **Technological advances:** with a smart-packaging industry (3-D printing, robotics, IoT and drones) growing at a rate of 8% during the next 5 years.
- **Sustainability issue:** with the green packaging market expected to grow by more than 60% percent by 2018 driven by waste reduction targets, increasing awareness of carbon emissions, a lack of natural resources, and consumers' preferences for eco-friendly products .

Hence, far from being considered a relatively “low-value good” with a limited radius up to which it can be profitably transported to customers, packaging is now playing a pivotal role in modern economy, with nearly infinite growth potentiality for stakeholders who would be able to identify tendency and adapting to them. Ignoring lifestyle trends that nowadays impact consumer purchasing decisions means failing to take up the challenge of the new market. According to a study of the Flexible Packaging Association, “Consumers, Brand Owners, and Converters- a Unique Integrated Study on Flexible Packaging,” (March 2016) packaging attributes consumers consider most important are:

- 1- easy to store (66%);
- 2- ability to reseal (65%);
- 3- easy to open (60%);
- 4- ability to extend product shelf life (55%);
- 5- easy to carry (47%).

Then there is, of course, the environmental issue: associations and ONG throughout western countries are asking retailers, packers and packaging suppliers to take steps to deal with the issue of waste and recycling, and brands to keep marine conservation at the forefront of packaging development. Nowadays consumers are more sensitive about the problem and knowing that a brand is working towards a solution (for example, collecting waste plastic from the sea to recycle into new packaging) can really impact purchase decisions.

Another data that strongly emerges from all the most recent surveys is that “clients prefer it short”. Essentialism is the latest trend, minimalism bested. According to Mintel, the world’s leading market intelligence agency, “Brands who adopt clear and succinct package messaging will be rewarded as consumers prefer brands that embrace minimalism” . An overload of information leaves shoppers more confused than informed: what’s essential to consumers to make an enlightened and confident purchasing decision is just provenance, authenticity, and transparency.

And, last but not the least, never underestimate **the potential of e-commerce experience**: more and more brands are lately asking their packaging suppliers to reinvigorate their products in order to be ready to face the online shopping and social media sharing challenge. When thinking about a package that will be viewed online and opened upon delivery in the home, one has to be sure to reflect consumer expectations from shopping with that brand in-store: this means new shapes, more colors in greater definition, fast delivery and better price.

All the issues analyzed so far could leave stakeholders, suppliers and investors distrusted: keep up with a fast-changing, complex, multi-faceted, business as packaging is not easy, and is not just a matter of investing in the right technologies and capabilities. One should **have a global vision of the whole system**, be always updated with the latest trends, invest the right amount at the right moment, comply with the latest environmental requirements, taking into consideration e-commerce as well as oil prices, procurement of raw materials and brand images, Third World economy fluctuation and middleman reliability.

This is the reason why we are here: to build one of the largest packaging decentralized networks in the world, a platform to connect all the workforces, a decentralized, distributed and public digital ledger for the packaging industry.

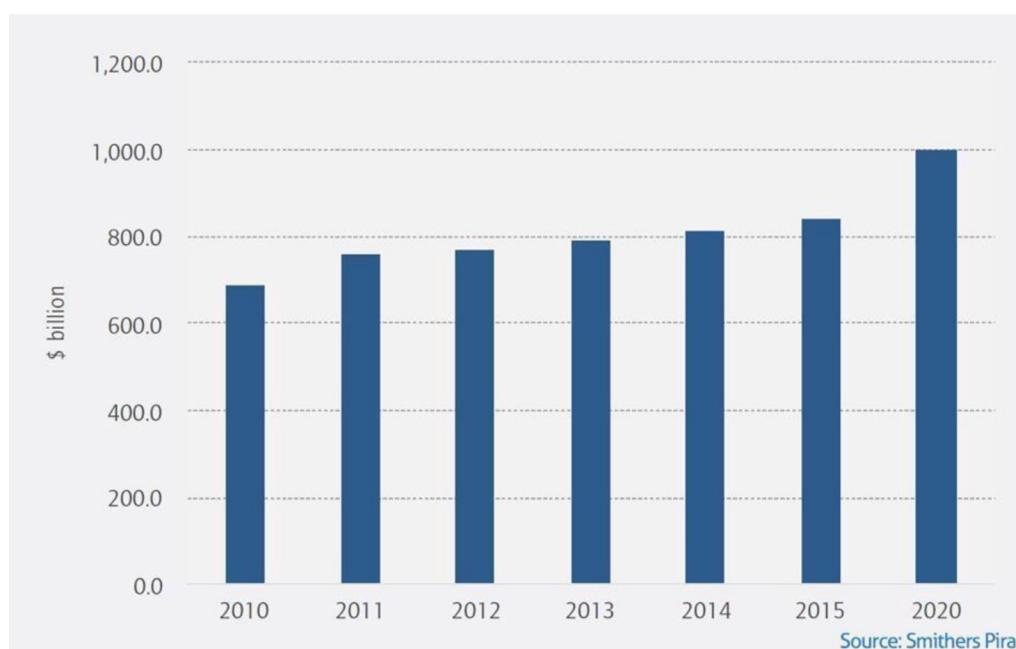
Be part of our dream,
Join Open Platform Network today.

WHY THE TIME IS NOW?

Let the data speak

MARKET ANALYSIS

Smithers Pira has forecasted a steady growth across the packaging industry. The industry was, indeed, valued at \$839 billion in 2015 and is expected to grow to \$997 billion by 2020, a year-on-year growth of 3.5%



According to a new research report by Global Market Insights Inc. packaging materials market is set to exceed USD 1.3 trillion by 2024. These developments will boost demand for flexible & rigid plastics, glass, metal, and paper packaging materials demand throughout the forecast span, with flexible plastics being the largest materials segment in terms of volume. This segment is likely to be valued over USD 190 billion by 2024, a growth augmented by extensive usage in packaging food items and household products. The availability of a broad range of flexible plastic materials, their capacity of being manufactured in a wide range of shapes and sizes, their lower weight, inert nature, low cost, and easy printability makes it the most versatile packing material.



MARKET SECTORS ANALYSIS:

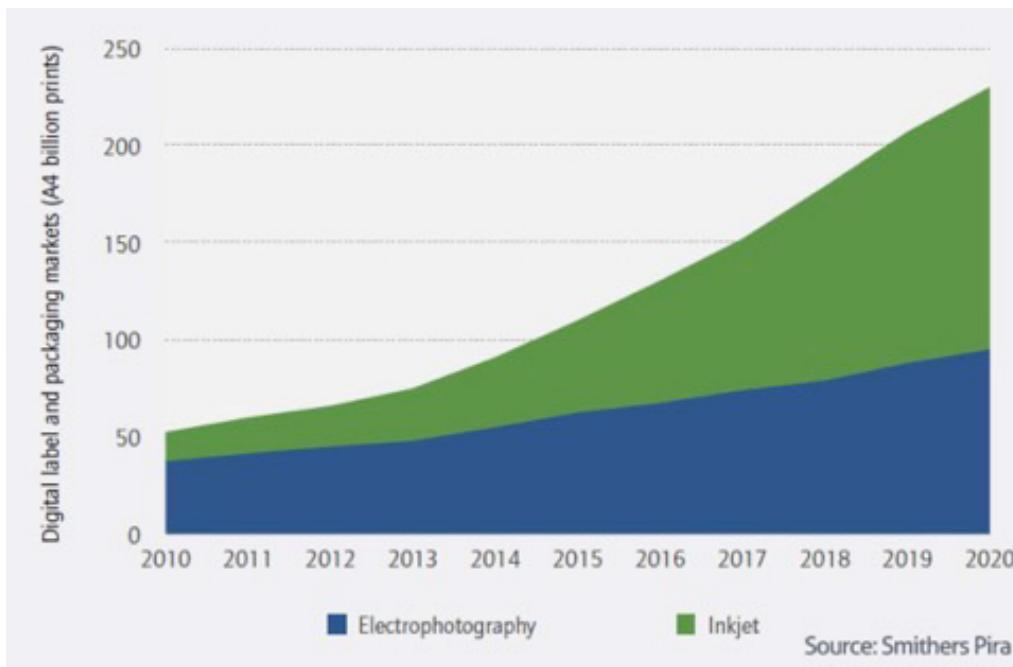
The growth of the most influent sectors of the packaging industry is summarized as follows:

1. DIGITAL PACKAGING AND LABELLING MARKET

The Global Digital Packaging and Labelling market is expected to grow at a CAGR of 16% between 2016 and 2022.

Europe leads the charge in the digital print for packaging market, followed by North America. Germany is the leading market in Europe for digital print for packaging, a market sector that in Asia Pacific is still in transition from analog to digital. Asia is the largest labels regional producer. Among all the markets, North American is the most developed.

Increased market competition has lead competitors to propose innovations on the packaging site. New shapes, innovative materials, more colours printed in greater definition, promotional packs, eye-catching and colourful designs, greater importance to brand awareness and its capacity to stand out on the shelf made labels one of the most attracting growing markets, with a wide range of side sectors - materials, adhesives and manufacturing application methods, equipment – primarily made to meet the needs of the new market demands and types of buyers.



2. DAIRY PACKAGING MARKET

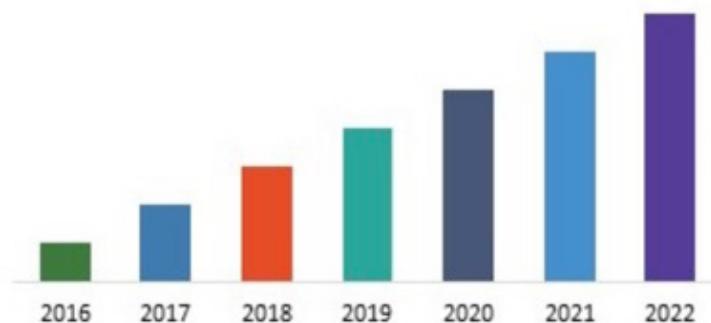
The Global dairy packaging market which was valued at \$23.03 billion is projected to grow at a CAGR of 3.62% during the period 2017-2022.

As the scope of the dairy packaging is to cover dairy products that are fragile and more prone to contamination if let exposed to atmosphere – such as cheese, milk, yogurt, frozen or dry dairy products- this industry mainly address to health conscious consumers.

Dairy industry has many factors of growth but one of the most important is the development of highly effective packaging solutions to guarantee dairy products longer shelf life, sterility, but also to propose different sizes and formats to satisfy the growing culture of healthy snacking and higher consumption of ready-to-eat foods. Also, the rise in online and mobile shopping is altering the way food is being purchased and consumed but, first of all, packed.

However, environmental legislations are expected to hinder the future development of dairy production as the greenhouse-gas emissions from dairy activities make up a considerable share of the total emissions in some countries, and any changes in related policies could affect dairy production.

Dairy Packaging Market Value, 2016-2022 (\$ Million)

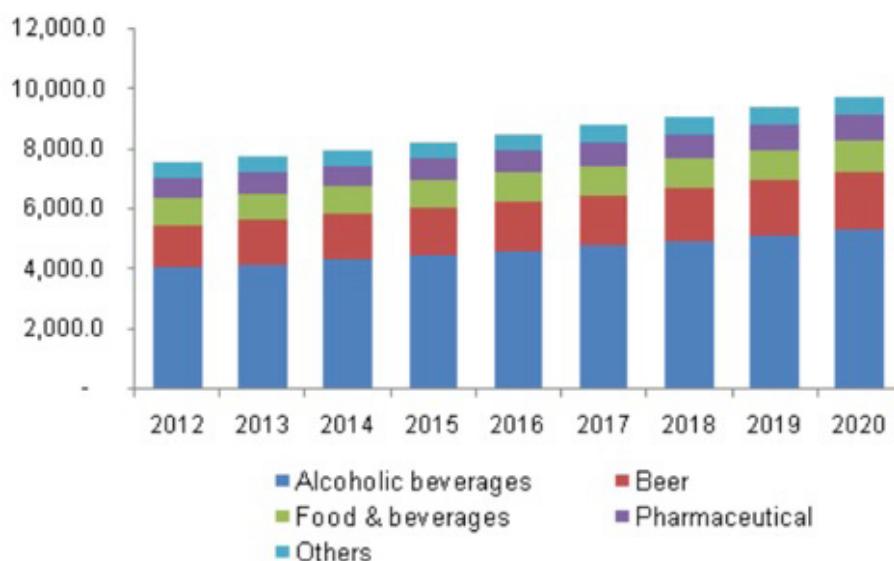


Source : IndustryARCAnalysis, Expert Insights

3. ALCOHOLIC DRINKS PACKAGING MARKET

The alcoholic drinks packaging market is expected to touch \$34.14 billion by the year 2022 at a CAGR of 4.9% from \$26.3 billion in 2017.

The rising social acceptance of alcoholic drinks and its growing intake by the younger generation, along with rapid growth of the beer industry in Eastern Europe and Asia Pacific have increased over time the demand for alcoholic drinks that, in turn, has directly influenced the alcoholic drinks packaging market. In addition, availability of various shape, color and graphics in packaging is expected to be a major factor responsible for the high growth rate. Even if metal cans and PET bottles are still common also in some of the developed countries because of their light weight and low costs, glass is the most used material for alcoholic drinks packaging for its properties - recyclability, non-permeability, and zero rate of chemical interaction. Increasing consumer awareness towards hygienic packaging in food & beverage sector is likely to open new avenues over the forecast period.



THE PROBLEMS:

From what we have analyzed so far, statistics paint a rosy future for the packaging industry. With the global population predicted to hit 9 billion by 2050 – and two out of every three people living in cities by 2050 – the countless potentiality offered by the e-commerce and the “virgin” markets of the Third World Countries to conquer. Worldwide, packaging is already one of the largest industry sectors, with those changes helping to grow the packaging demand.

Of course, while changes solve problems, it can also create new ones and focusing on this strong demand could obscure a more precarious reality: challenges in demand forecasting, payments, sustainability, stronger transparency and accuracy requests could derail the industry's growth. From the largest multinational firms to the smallest local companies, it's time to revisit your plans, as what has led to success until now may not work as well in the future. This whitepaper seeks to serve as a source of guidance and inspiration, as a collection of data and surveys, theoretical and applied knowledges for everyone involved in the packaging sector. A sector that, nowadays, is at a crossroads: companies that are ready to face these challenges head-on and re-imagine their businesses will reach success, while the ones that will fail to take the challenges seriously are destined to disappear from the marketplace.

We have created this platform to provide actionable insights, frameworks, tools and resources for the packaging community. We have created this “living” whitepaper and we want it to evolve over time and with your contribution.

Because you have more problems to focus on than just trying to keep your trucks full.

Listed below are some of the majors:

Demand Forecasting for Sellers:

Over-estimating demand means investing a large amount of the company's capital in an extra inventory that won't be turned into an immediate profit and that would probably be sold in the future at a lower price. This overstock both impede warehousing and financial operation: it prevents companies from having a place where storing new products and from investing cash in new ones. Nothing is worse than an overcapacity situation, except under-estimating demand. Running out of a product when all the world doesn't have eyes for anything else cost money and reputation and can hurt company relationship with its partners and customers forever. Hence, succeeding in a rapidly changing market, guaranteeing a timely and accurate production, ensuring to have the right amount of inventory is not a question of luck, but a science.

Quality and Accuracy:

Producing defect-free products or services, achieving competitive advantage by delivering value-added products or services in the shorter possible time, complying with government regulation and, above all, reducing costs without compromising customer satisfaction are no longer a choice: they are the basis of every long-lasting supplier/buyer relationships and they should be part of every strategy to support the business objectives and serve customers in better ways. Because cost savings often end up in extra costs, packaging experts can reduce the total manufacturing costs, protecting the integrity and reputation of the company and avoid customers dissatisfaction just by accurate quality products control. Other extra costs that could be avoided are related to delays—that increase costs at the end of the trade, when unsatisfied customer ask for warranty—inspections—that become frequent when companies produce large quantities of defected products—and product failures—that need to be replaced, returned or fixed, causing image damages.

Payment Issues:

No matter the internal or external cause, indeed, late payments are the main cause for poor supplier performance, deteriorating business and personal relationships and increasing prices. Except for dramatic circumstances—that are often about less than the 2% of the cases—it's merely a matter of disrespect: “live-with-it-if-you-want-to-keep-on-doing-business-with-us” is the underlying policy of many big buyers, that tend to stretch the payments as long as possible to improve their cash flow and have more bargain power, without bearing in mind that this is the first cause of disruption in the supply chain system, above all for medium and small sized companies, that will be devoid of cash for a long period of time.

Transparency and Trust:

In a global digital market where buyers invest their money to buy aleatory products and services from distributors and other intermediaries they will never see in the eyes, there is obviously an endemic lack of transparency that lead customers to diminishing their trust in a wide range of companies: the GlobeScan's annual report “Tracking of Trust and Transparency in the Supply Chain” (February 2017) reveals that almost two-thirds of consumers around the world expect companies to do more than just make money—and they expect governments to play a role in this as well. Loss of information, distances, barriers, the impossibility to evaluate the true cost of a product, to identify if an actor of the chain is conducting illegal activities (such as keeping workers in slavery or in inhumane work conditions, founding criminal activities or war, exploiting child labour, damaging the environment and exploiting raw materials) call for more social responsibility of enterprises in the so-called “hidden actions”, the ones that the companies don't have an insight into.

Answering to the “Do-you-know-who-supplies-your-suppliers?” implies analysing and monitoring the whole network of suppliers, components, and facilities; identifying and reducing business risks, frauds, unknown sources; discovering country of origin, certification compliance and environmental and social integrity and, finally, being able to show all this year over year, in order to satisfy the requests of consumers.

Low Credit Facilities:

t's not surprising that any kind of business would need an occasional injection of cash. Both if you are in deep water or you have the wind at your back, both for your day to day operations or for your extraordinary purchases, you may need extra capital at a certain point. And if you are a ring of the supply chain, I'd bet you know what I mean more than anybody else: being crippled by late payments is the order of the day, streamlining the production introducing new machines and technology is a gamble.

Since the times of the Great Recession it has not been easy for small and medium-sized supply chain companies to get it: most of the times, without assets as collaterals, SMBs might fail to secure a loan from the bank. While for big enterprises or for those with strong or excellent credit traditional banks' doors are wide open and they are offered flexible terms and low interest rates, for those with average credit, using the equity in their homes or business properties as collateral is often the only solution, although this evidently presents high risks.

Sustainable Packaging:

Since the “Plastics BAN (Better Alternatives Now) List” supporting California’s 67 ban on carry-out plastics, packaging industry’s Achilles’ heel has always been sustainability. Not just in the U.S. but also in the EU, many guidelines have been issued: at the moment there over 33 sustainability and environmental protection EU directives, regulations, targets and programs aimed to impact on packaging sector in order to improve environmental life, preventing waste and food spoilage, avoiding products damage and deterioration. Moreover, packaging waste in Europe is governed by the Packaging and Packaging Waste Directives 94/62/EC as amended by directive 2004/12/EC. This interests the whole packaging system of the European marketplace and also includes target figures for recycling for all EU member states. Life cycle analysis has become an important factor to evaluate and compare the environmental impact of different kinds of packaging, in regard to the following key factors:

- Emissions to air and water, including carbon dioxide
- Energy consumed

- Water consumed
- Disposal methods/recovery rates.

On the top of that 3D-forming for paper packaging is adding pressure on the packaging industries to transform into a more sustainable one. But being updated on U.S. and EU regulations is easy when you can count on a platform of experts in the field.

Raw Material Prices:

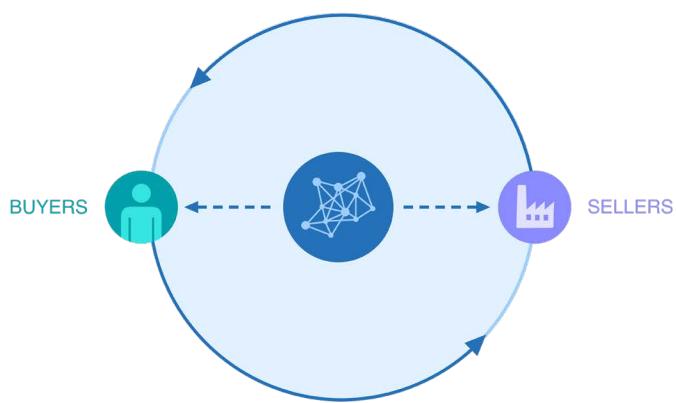
Over half the total cost of the packaging item depends from the major raw material used. Consequently, any fluctuations in the raw material prices are bound to have a huge impact on any business, and in particular, on the packaging, that entirely depends on them. Population and wealth around the world continue to grow putting a strain on the demand side of the fundamental equation for finite commodities: more people, with more wealth, translates to more demand for raw materials. And, when economic conditions are growing, demand for staples increases exponentially.

Many industrial commodities that are the building blocks of infrastructure around the world outperformed the major equity indices in 2017. The price of palladium, and industrial and precious metal appreciated by over 56% on the year. The price of lumber moved 36% higher, aluminum and copper posted better than 30% gains. Zinc, nickel, and lead were all up more than 20% on the year. Crude oil, gold, and heating oil all moved more than 10% to the upside.

Commodity raw material prices depend on the global energy prices and supply capacity, which in turn depend on world economy fluctuations, regional weather conditions, wars and hundreds of other complex and almost unpredictable geopolitical factors. There comes the challenge: to maintain a balance between the security of supply and low pricing volatility.

OUR SOLUTION:

We are aware that there are so many markets and customer segments and we found it is imperative to bring them together to a single place: so we decided to launch a marketplace for manufacturers to find their buyer counterparts and vice versa and for supply chain actors to build interaction between them. A platform, our platform. A unique experience in the supply chain technology process.

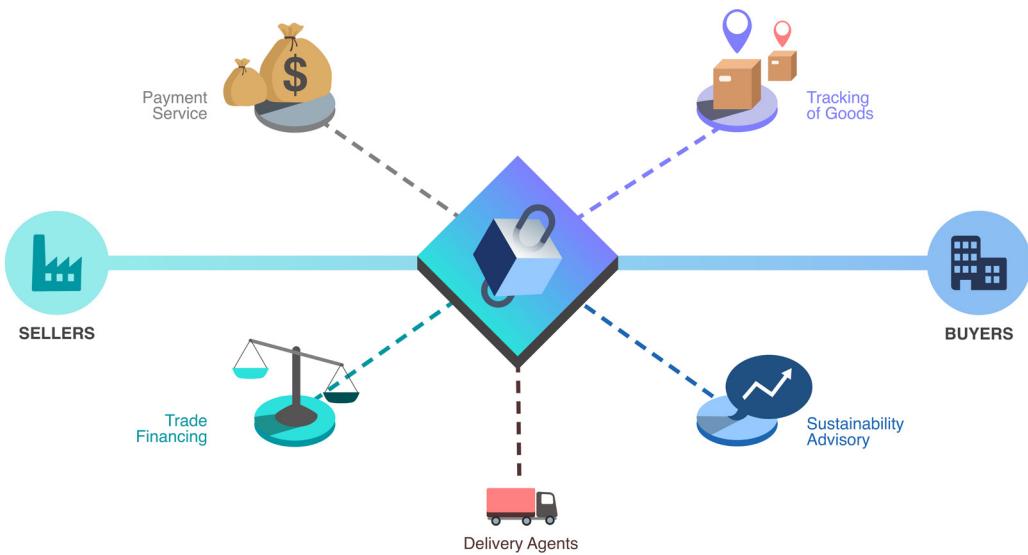


A platform is an **open architecture**, an interactive and information sharing system that can be programmed and therefore customized by outside developers -- users -- in more or less standardized ways. To orchestrate value created by others, it must be “open” to the World Wide Web and users must be invited to collaborate with it. It is built on a **governance model**, designed on a series of imperative rules to exclude bad actors and steer community behavior, encourage healthy interactions and profitable connections and to monetize. The value is, indeed, created by interactions: the platform connects producers and consumers, sellers and buyers, suppliers and stakeholders over a network and provides them the tools to interact with each other.

“Great!” one could think. Well, this process is **obsolete** in our opinion, as it is time-consuming for the buyer but also long, complex and insidious for all the actors involved. For instance: if you are a seller and you already have your product made and ready to sell, you have to wait first of all for the buyers who contacts the distributor (the coordination layer), than for him to get in touch with a specific seller and then for this latter to contact you and in the end again him to come back to the distributor and him, finally, to sell your product to the buyer. Surreal, isn’t it?

Hence, we have come up with an innovative idea to reduce time and control loss and to put YOU at the center of your deal.

OUR PLATFORM:



The **Open Packaging Network (OPN)** ecosystem is a fair marketplace where services are provided as per promises and agreements between buyers and sellers, an open platform for online reliable, fast and transparent transaction. Sellers and buyers are, indeed, able to publish services and products they provide or need, interact with each other get fulfilled from the counter party. The ecosystem is designed to act as a one-stop solution for all packaging related services. Besides having access to a wide variety of goods, better prices and different integrated and reliable services, stakeholders can also enjoy the benefits of these services with the help of OPK tokens.

FEATURES	Open Packaging Network	Offline Purchase
Fair Prices	5/5	2/5
Quick Payments	5/5	2/5
Integrated Services	5/5	1/5
Transparency	5/5	1/5
Trust	5/5	3/5
Assortment of Products	5/5	2/5
Online Documentation & Security	5/5	2/5

Our solution is designed to leverage the advantages of the most advanced technology to provide an open ecosystem for various stakeholders to transact with each other seamlessly. This is just an example of the various actions stakeholders will be able to perform:

A. Sellers:

- Post Delivery orders
- Place Bids for Purchase Orders from Buyers
- Deliver goods to the buyer through Delivery Agents
- Reward buyers for providing feedbacks and promoting his brand
- Vote for changes to the platform
- Digitally sign the following documents before delivery to the buyer: Insurance Policy, Quality Document, Packaging List, Invoice, and Delivery Note.

B. Buyers:

- Post Purchase orders.
- Place bets for Delivery orders from Sellers
- Reward sellers for promoting their brand and giving feedbacks
- Receive the ordered goods from Delivery Agents
- Vote for changes to the platform
- Verify and digitally sign the following documents after successful delivery: Quality Document, Packaging List, Invoice, and Delivery Note and CMR.

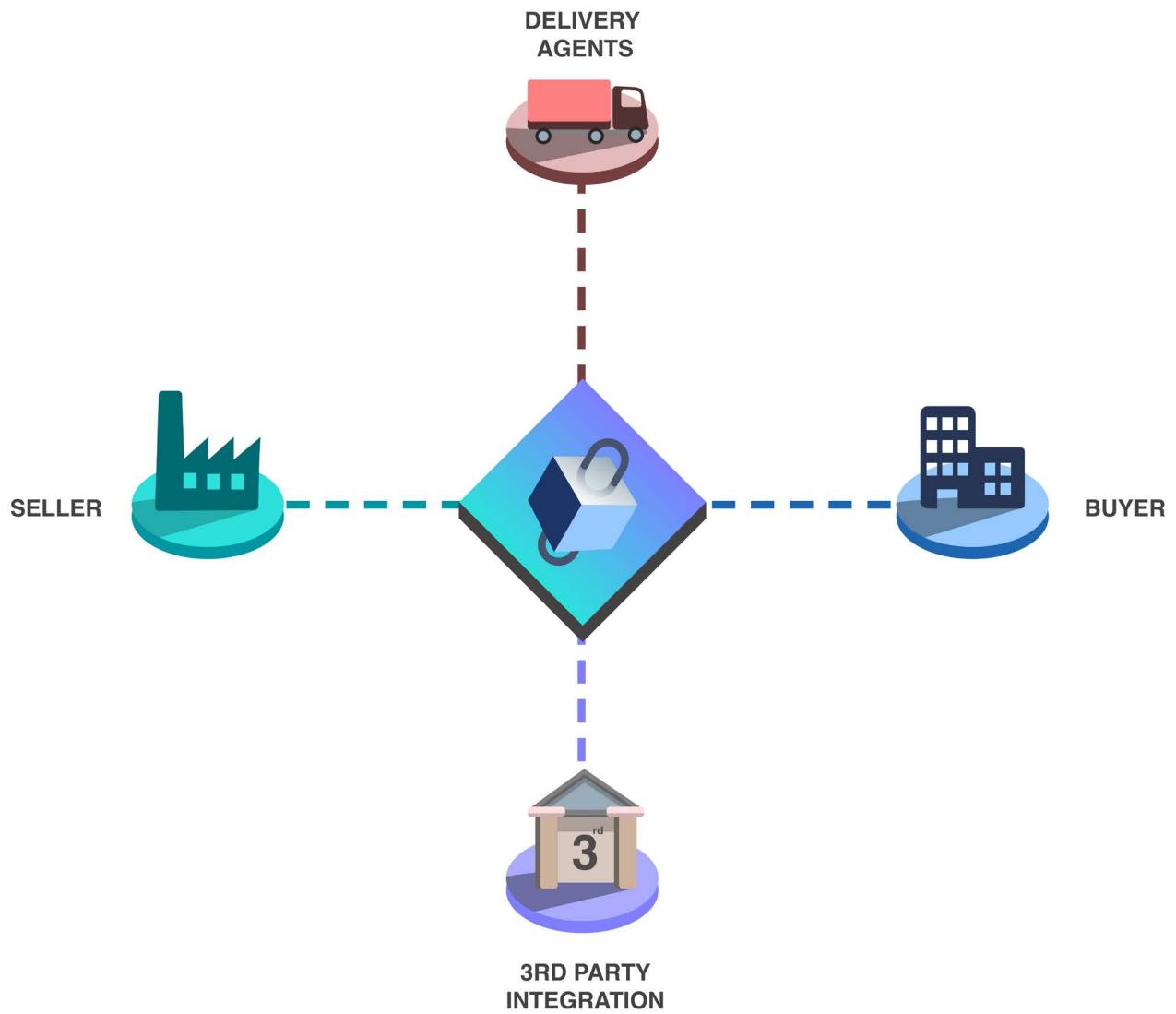
C. Delivery Agents:

- Deliver the goods from sellers to buyers
- Vote for changes to the platform
- Verify and digitally sign the following documents after successful delivery: Quality Document, Packaging List, Invoice, and Delivery Note and CMR before the delivery of goods to the buyer.

D. Validators:

- Prepare a list of best bids based on pre-set rules.
- Prepare a list of best bets based on pre-set rules.
- Validate the list of best bids prepared by a validator.
- Validate the list of best bets prepared by a validator.
- Vote for changes to the platform

The **OPN Ecosystem** is designed in such a way as to create an inherent virality to the network through '**Last Bid**' and '**Last Bet**' options for sellers and buyers respectively.



Our solution to transform the packaging space for the better is designed around the power of **Blockchain technology**: leveraging its advantages we are now able to present our revolutionary open ecosystem for stakeholders to transact with each other seamlessly.

THE TOKEN:

OPK Token:

As the fundamental unit of account on the OPN Blockchain, OPK is a liquid currency, and therefore can be bought or sold on exchanges, as well as transferred to other users as a form of payment. It has an incentive structure: every positive behavior is rewarded while the negative ones are penalized. Negative behavior reduces the rating of the actor as well as makes him lose his staked tokens (made possible by KYC).

OPK TOKEN –

Earned by:

- Platform usage
- Giving a feedback
- Promoting buyers/sellers
- Validating transactions

Used for:

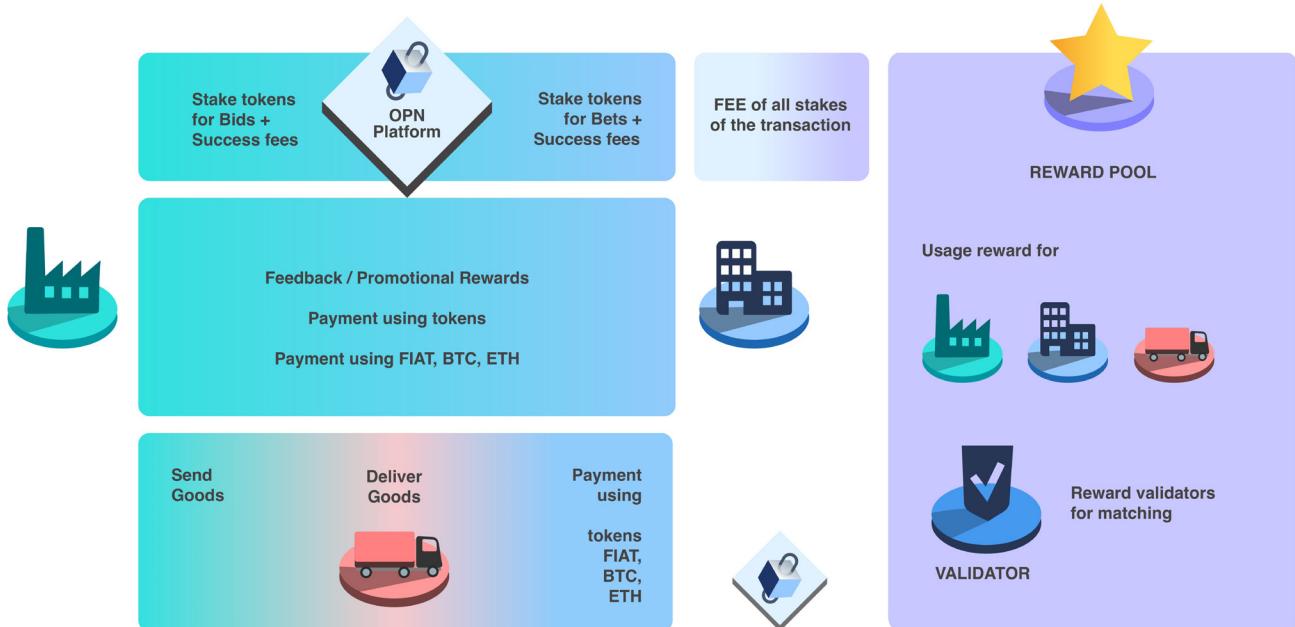
- Bidding – To go up the line in ‘Bid’ (stake)
- Betting – To go up the line in ‘Bet’ (stake)
- Accepting/Closing orders (stake)
- Promotions
- Earning interests through long-term vesting.
- Securing loans by using OPK as collateral
- Earning validator status
- Voting for platform changes

Penalties for:

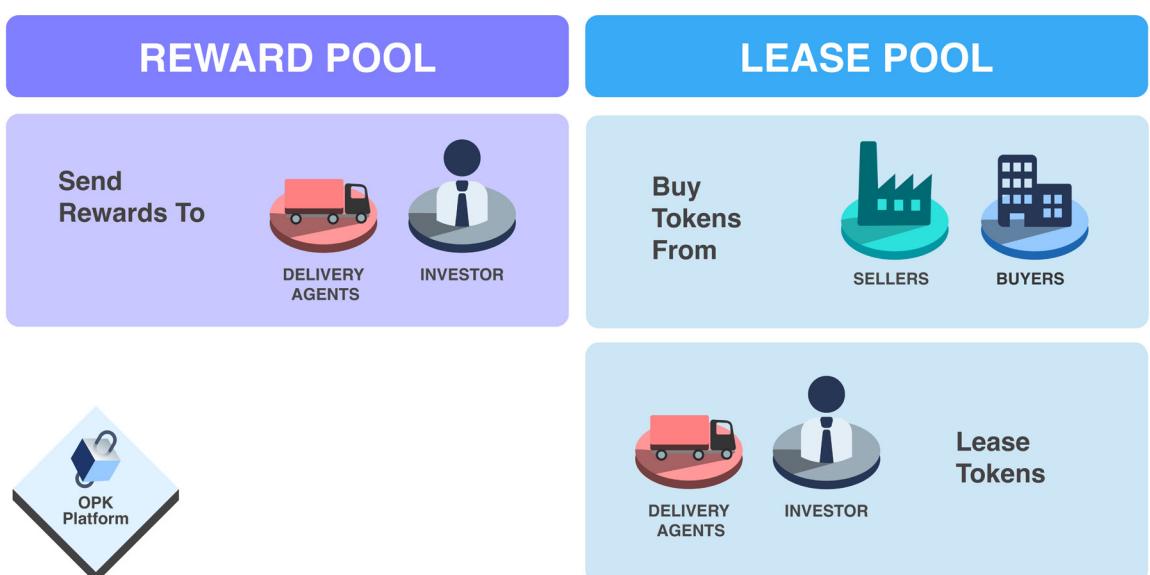
- Sabotaging payment process
- Using malicious software versions
- Matching the wrong list intentionally:
- Late delivery of products/services

HOW IT WORKS:

For Platform Stakeholders



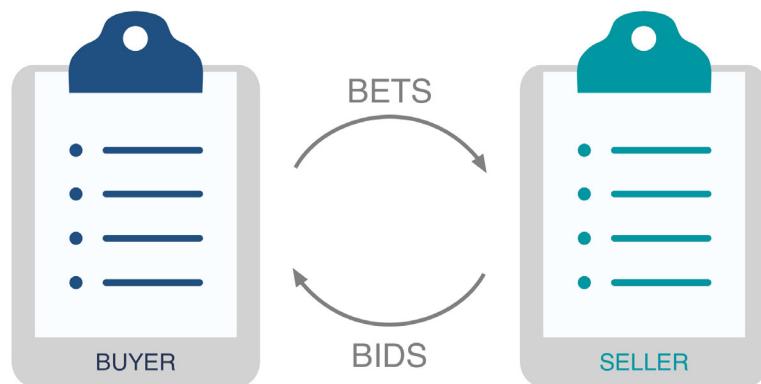
For Investors



Token Use Cases: **THE BID-BET MODEL**

Our solution is based on a new model providing more control both to the sellers and buyers, who happen to be the major parties to the transaction.

But, what is a Bid-Bet model?



a. Bid:

A bid is placed by a seller for all order calls made by a buyer/client.

b. Last Bid:

The ability to place a bid after looking at all the other bids in place.

c. Bet:

A bet is a bid call made by the buyer/client in circumstances where a seller posts any product to be available.

d. Last Bet:

The ability to place a bet after all other bets are in place.

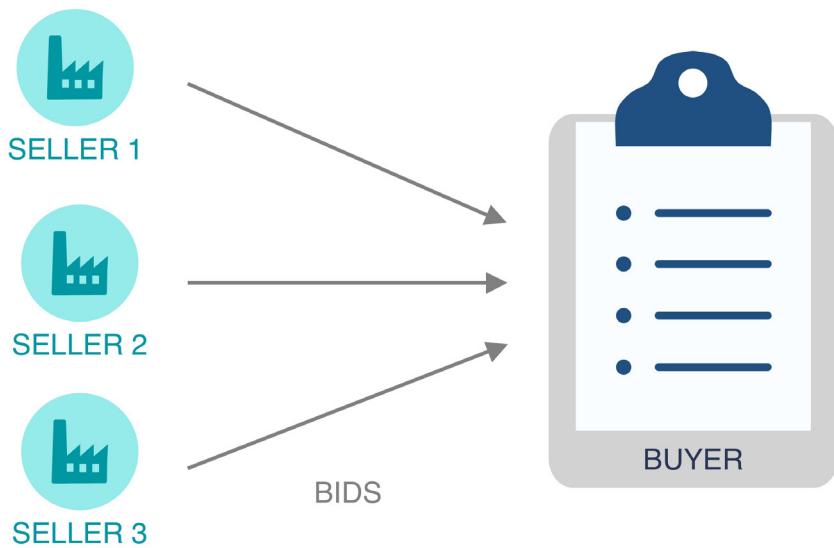
e. Item-order:

A request that could be put from either a buyer or a seller

f. Item-profile:

An offer to the item-order that could be put on the market by a buyer or a seller.

Seller Use Case: **Bidding**



The Bid Process

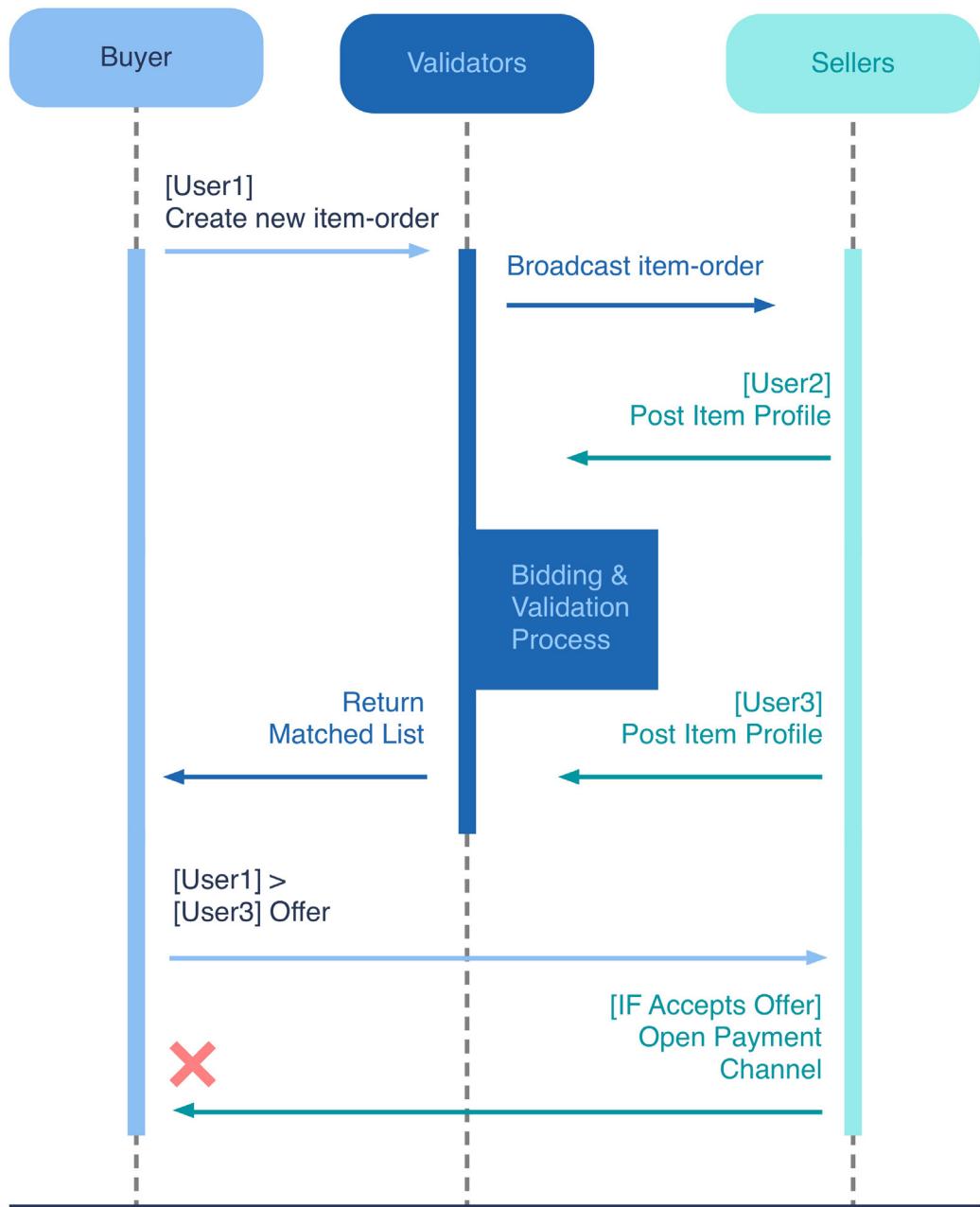
Step 1: Buyer posts an order to be fulfilled.

Step 2: Sellers who are notified of the order start bidding for the order by staking their tokens.

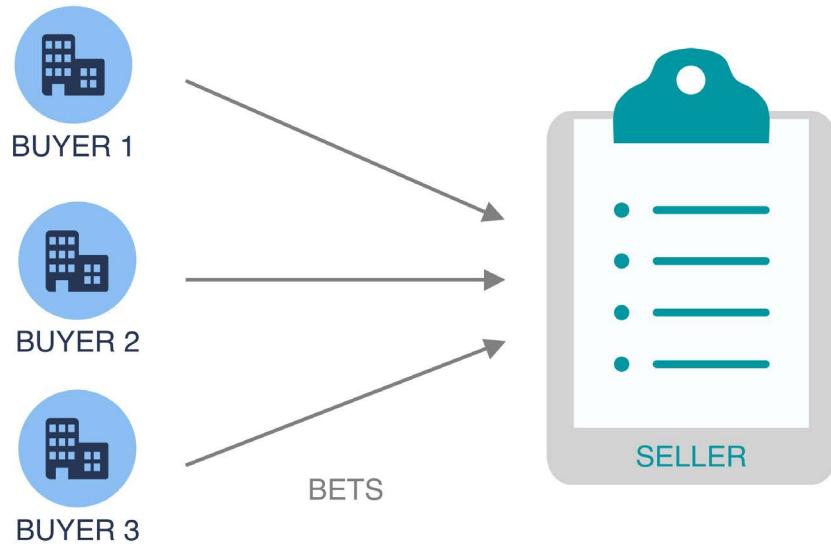
Step 3: Validators prepare a list of matching sellers for buyers based on pre-set rules.

Step 4: The buyer stakes coins before selecting an offer from the seller.

Step 5: The payment is initiated to the seller based on the terms of the contract using a Smart Contract.



Buyer Use Case: **Betting**



The Bet Process

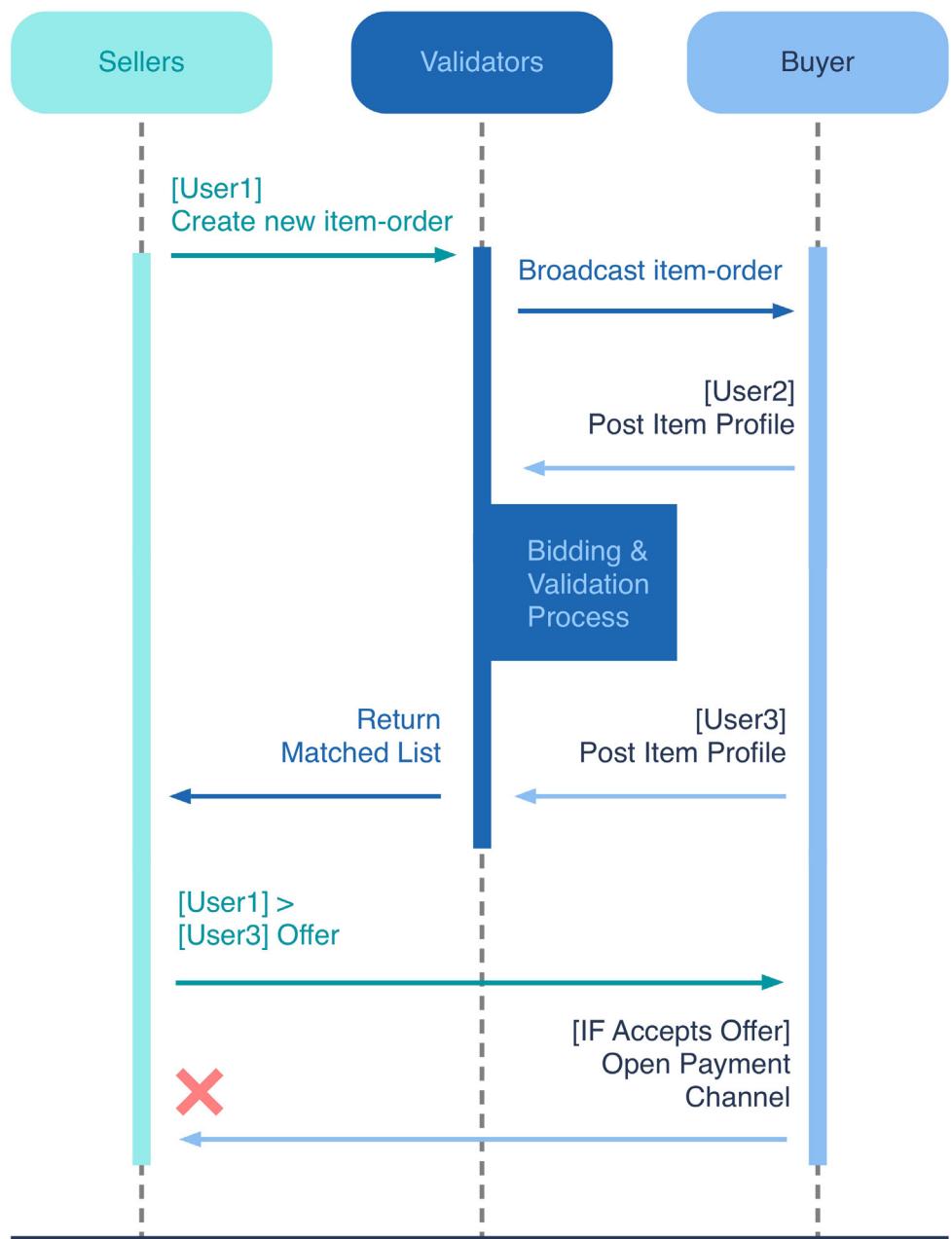
Step 1: Seller posts an item that he has in the inventory.

Step 2: Buyers who are notified, start betting for the order by staking their tokens.

Step 3: Validators prepare a list of interested buyers for the sellers based on pre-set rules.

Step 4: The seller stakes coins before selecting an offer from the buyer.

Step 5: The payment is initiated by the seller based on the terms of the contract using a Smart Contract.



Matching

Matching is a heavy computational task which cannot be efficiently solved by brute-force. In addition, if working on this task automatically on each computer involved, we may find that many computers can be slow (Internet traffic speed) in terms of collecting profiles or slow (Computational power) in terms of matching different fields. Thus, the choice is to attach the task of matching to nodes specifically chosen in process of voting.

Transferring Information between nodes

The appropriate system of transferring information could be implemented by using JSON structures to store information and RPC protocol to pass it to connected nodes

Personal Information, Item-orders and Item-profiles

Personal information a main source of user account information it may be described as something similar to the following JSON structure:

```
{  
    Id: "1010"  
    Invited_by: "100"  
    Wallet_address: "b...dfg" # first letter 'b' to identify type of wallet  
    Private/public key: "1234hashexampleBCD"  
    Rating: "450"  
  
    OPK: {  
        "2018-03-05": 10, # age could also be expressed with  
        # amounts of blocks from the start "2017-03-05": 40  
    }  
}
```

Item-profiles and item-orders are the main functional units of the network.
Item-profile looks like this JSON scheme:

```
{  
    Role: "buyer"  
    Type: "profile" Item: "apple" ID: "1010"  
  
    Quantity: "50"  
    Hash: "..."  
    Expiry: "2018-03-20" # expiry date of this request to buy Price: "2$"  
    Delivery_date: "2018-10-03"  
  
    Stake: {  
        OPK:  
        {  
            "2017-04-15": "10"  
        }  
    }  
}
```

Item-order would look like so:

```
{  
    Role: "seller"  
    Type: "order"  
    Item: "apple"  
    ID: "407"  
    Quantity: "100"  
    Hash: ".."  
    Expiry: "2018-03-14 20:00" # expiry date of this offer, the time when  
    you'd like to see the #list of potential buyers  
    Price: "1$"  
    Delivery_date: "2018-10-03" Invited_by: "1010"  
}
```

Data storage

All the data available on the platform could divided into three parts:

1. Delivery information, which includes details about single transaction represented by documents: Purchase Order, Quotation, Order Confirmation, Insurance Policy, Quality Document, Packaging List, Invoice, Delivery Note, CMR
2. Bid/Bet public information, which is adjacent to products placed as an item-orders or item-profiles. This might be product name, quantity, price, delivery date, incoterms.
3. Personal & Payment information, which includes customer names, addresses, mobile numbers, KYC data

The 1st group of data is managed by smart-contract since it is crucial information and any loss of that data might make the whole process unreliable and non-valid. Ethereum network is known for great sense of security and active community that keeps maintaining and developing their network.

The 2nd group of data cannot be managed by smart-contract efficiently since it is costly to make frequent operations with highly mutable data structures. Moreover smart-contract are not a good choice for fast and real-time operation. Thus, the choice was to move this data to non-generic blockchain model using DPoS as a consensus algorithm.

The 3rd group of data is managed by Open Packaging Network in a centralized highly secure storage until we have a chance to move this to a decentralized service like Storj.

CONSENSUS

The consensus algorithm is based on DPoS(Delegated Proof of Stake). All the processes could be divided into a few steps:

Voting:

1. Once a day, the stakeholders choose their representatives by voting
2. Voting power is determined by coin age and amount of coins
3. Most voted representatives form validators pool

Consensus:

1. Validators pool is shuffled every N minutes
2. Item-orders are assigned to each validator in the pool sequentially
3. Validator matches item-order with item-profiles in a FIXED amount of time
4. Matched list is checked by the item-order owner and other validators in the pool
5. IF steps 3 and 4 are successful THEN validator responsible for matching the list and stakeholders that voted for them get their rewards
6. ELSE validator is suspended from the pool and stakeholders that voted for them is penalized. After that voting is performed urgently either to vote for a new validator or to expand the pool if needed
7. Item-order owner is notified

Voting

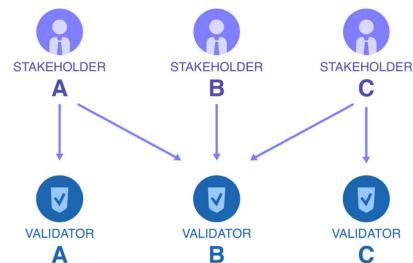
1. Anyone who holds the blockchain base can vote for a validator



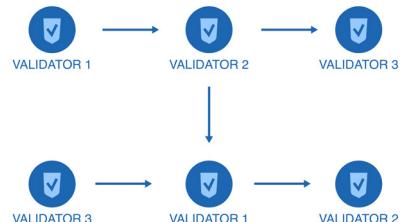
2. Vote power is determined by stake



3. Validators with the most votes get to become witnesses/delegates, matching lists and validating transactions and collecting rewards for doing so

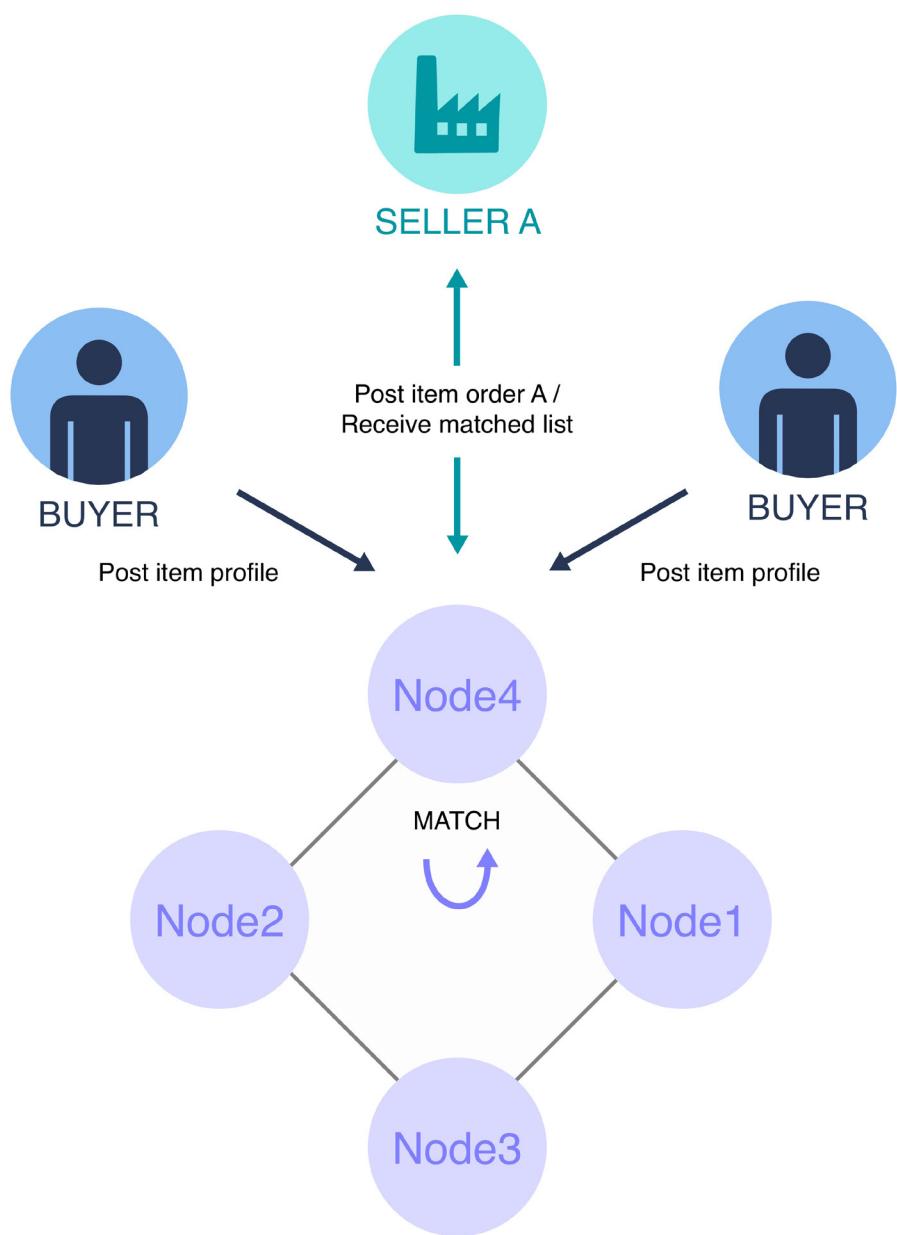


4. Delegates/Witnesses shuffled minutes ahead randomly (yet evenly) from blockchain entropy

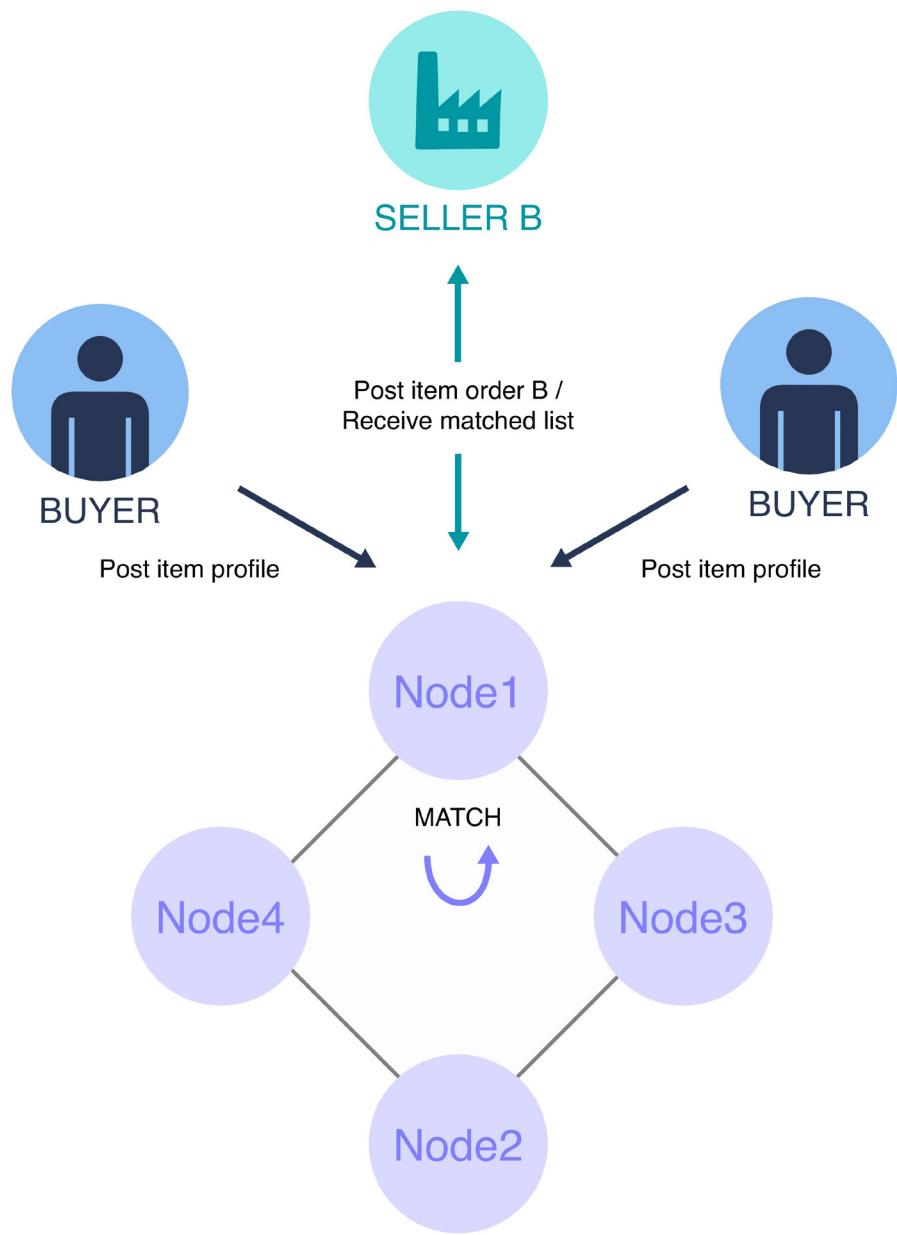


Consensus

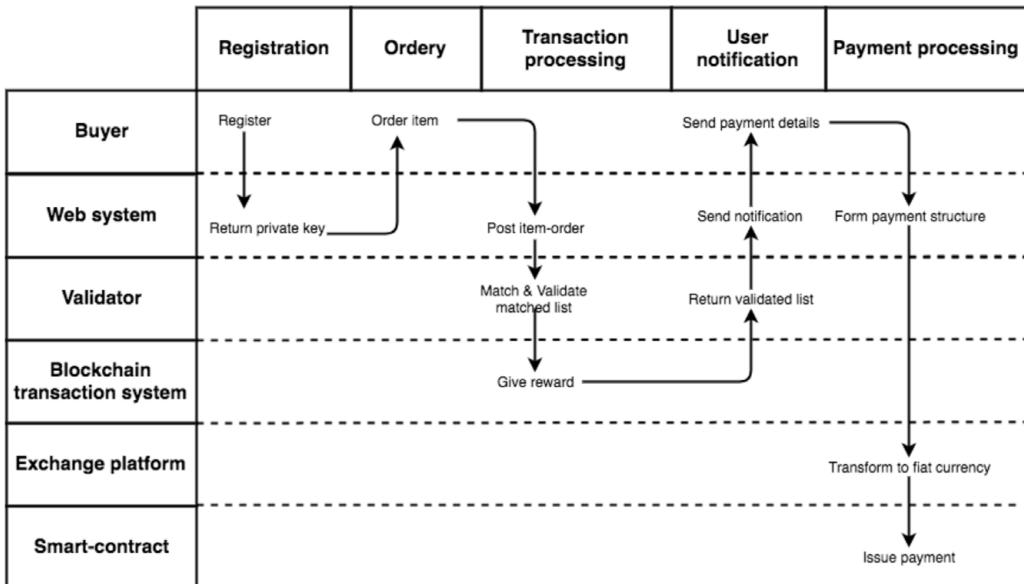
Matching Round 1



Matching Round 2



Workflow



Dispute Resolution

The ecosystem is devised to avoid most of the possibilities of having any dispute. However, in cases where a dispute arises, the advised method is to resolve mutually. If this process fails, OPN platform will act as a trusted arbiter for the dispute. Based on the result of the resolution, one or the other seller/buyer will be penalized by slashing his rating on the platform to highlight this event.

Algorithms and data structures

The part of matching is difficult to implement because of the simple algorithms doing their job too slow for the requirements. The most appropriate variant would be to use a combination of Heap queue for extending the list efficiently and Graph & Tree algorithms to do exhaustive search.

THE PAYMENT NETWORK

Every digital transformation process is a painfully long one, mostly because of the industry's inability to get out of the traditional web. We recognize this pain and to make the transition as less painful as possible or rather more pleasant as possible, we plan to let the users make use of fiat currency for their transactions. Not just that, we plan to allow crypto enthusiasts to make use of our token along with BTC and ETH to complete their transaction in a short time. Care should be taken by players who reside in countries where transaction like this are either restricted or regulated.

Payment Method	Prices	Rewards
Fiat	Prices of goods +2/3 card fees	Partial
ETH, BTC	Prices of goods +transaction fees	Partial
OPK Token	Prices of goods + minimal transaction fees	Full

THE PLATFORM ADVANTAGE

Some of the advantages that the platform and the blockchain solution bring to the actors are as below:

a. Fair-Price Market:

One of the advantages of decentralization is that it brings a lot more people and lot more knowledge onto the platform. We can harness this knowledge and get what is called as 'Wisdom of the crowd'. We plan to do this by introducing a mining mechanism (reporting layer) to facilitate the matching

the matching of orders between Sellers and Buyers. These actions will be awarded with tokens, hence allowing a market which is fair and free from any malicious actors wanting to manipulate the market.

b. Feedback Mechanisms:

Feedback mechanism can be of different kinds – Single User Feedback or Multi-User Feedback. The platform solution offers various feedback mechanisms like recommender systems, analytics, rating mechanisms which form a part of the multi user feedback system. Similarly, we have single-user feedback systems in like and comments on - discussion forums, posts and articles etc. All these data help the actors to make informed decisions regarding their transaction. Also, not just this, it is also decentralized since the mining mechanism can help identify good and malicious actors and consequently will be rated based on their actions.

c. Trust and Transparency:

Blockchain can improve the visibility to the supply chain. Each side can know where exactly the product is. When this information is shared, it can make the planning process easier. Buyer / Planners can predict lead times better and make accurate order counts.

d. Streamlined Payments:

Smart Contracts and payment gateways can be used to build a mechanism to enable automated payments to the transacting parties. This will reduce the time the sellers normally wait to receive the payment.

e. Quality of Products:

Set up an agreed upon and bonding quality standard through a Smart Contract. Both Buyer and Supplier can hold each other accountable on this. It cuts down confusion. It improves communication due knowing each sides expectation. Best of all, you know what your plan of attack is if the issue occurs. (3rd party integration)

f. Financing:

Actors will be able to use their OPK Token as a collateral to secure loans for their business requirements.

g. Demand Forecasting:

The platform allows the sellers to forecast the demand for products in a much better way. This is made possible by 2 major features: Bets and Wish Lists. The ‘Bets’ placed by the buyers/clients indicate to the sellers regarding the products that are in demand from the clients. Similarly, the Wish Lists feature of the clients allows them to mark the products that they need in the future which also can be a real mine of data for the sellers.

h. Sustainability:

The actors can now benefit from the in-house experts and advisors who will help them make the right business decisions in terms of sustainability which is one of the most concerning factors for the packaging industry today.

i. More Business for Sellers:

The availability of Buyers/Clients on the platform means that the sellers will be benefited with more business at their disposal.

j. Wide range of products and better services for Clients:

Now clients need not worry about finding a product since the availability of sellers on the platform reduces the pain.. Thus, clients can expect the product to be received with lesser lead times now

k. Wide array of functionality with 3rd party apps:

Not just the sellers, buyers and other actors can also benefit once the APIs are in place that will allow 3rd party applications to plug and play into the existing platform. For Example: Prediction Markets, Futures Markets, Graphic design apps are some of the use cases that can be developed with the APIs.

THE TOKEN SALE STRUCTURE

Summary

Token name: OPK

Token Sale Duration: 01/10/2018 - 31/12/2018

Standard: ERC-20

Accepted Currencies: BTC, ETH, USD, EUR, CHF

KYC/AML: Yes

Token to be sold: 30,000,000 OPK

Hard Cap: \$30 million

Unsold OPK Tokens: To reserve fund

Total Token Supply(max): 50,000,000 OPK

Token Purchase price: 1 USD = 1 OPK

Min Purchase: 50 OPK

Max Purchase: 100 000 OPK

Token allocation: Automatic

Lock up: No

Fund Collection: Escrow

Funds Release: Roadmap Milestones

Bonus Structure

TIMEFRAME	Below 10 ETH	10-100 ETH	Above 100 ETH
First 24 hours	20%	22.50%	25%
Week1	15%	17.50%	20%
Week2	5%	7.50%	10%
Week3	1%	1%	1%
Week4	0%	0%	0%

- The exact number of tokens generated depends on the amount of funds contributed
- Tokens will be transferable once the ICO is completed
- Upon reaching the hard cap, the ICO will end immediately

The number of tokens generated will be proportional to the number of OPK token generated.

* The number of OPK Tokens per 1 ETH will be pegged to the \$US value of Ethereum at the time of the ICO

ICO Participants	Team (Subject to vesting and lockups terms)	Advisors, early supporters, bounty	Reserve Fund
60%	15%	5%	20%

- The team's tokens are locked for a period of 2 year vesting schedule with a 6 month cliff.
- Advisors' and early supporters' tokens are locked for 6 months.

BREAK DOWN: ADVISORS, EARLY SUPPORTERS, BOUNTY:

The 5% of the tokens (2,500,000 OPK tokens) would be distributed among investors, early supporters and bounty as per the below table:

ACTOR	% of tokens for Advisors, Early Supporters, Bounty	Value in tokens
Investors	40%	1,000,000 OPK Tokens
Advisors	40%	1,000,000 OPK Tokens
Bounty	20%	500,000 OPK Tokens

BOUNTY CAMPAIGN AND REFERRAL AWARDS

Activity	% of Bounty Pool
Signature Campaign	20%
Blog Article and Video Campaign	20%
Social Media (Facebook & twitter)	20%
Translations	15%
Telegram	5%
Miscellaneous	10%
Referrals	5%
Reserved Bounty Pool	5%

Activity	Reward as % of tokens purchased
Referrals	5%

Referral reward to a referral link owner is 5%, based on the number of tokens purchased using the referral link. Those who bought tokens using a reference link receive an extra 3% bonus.

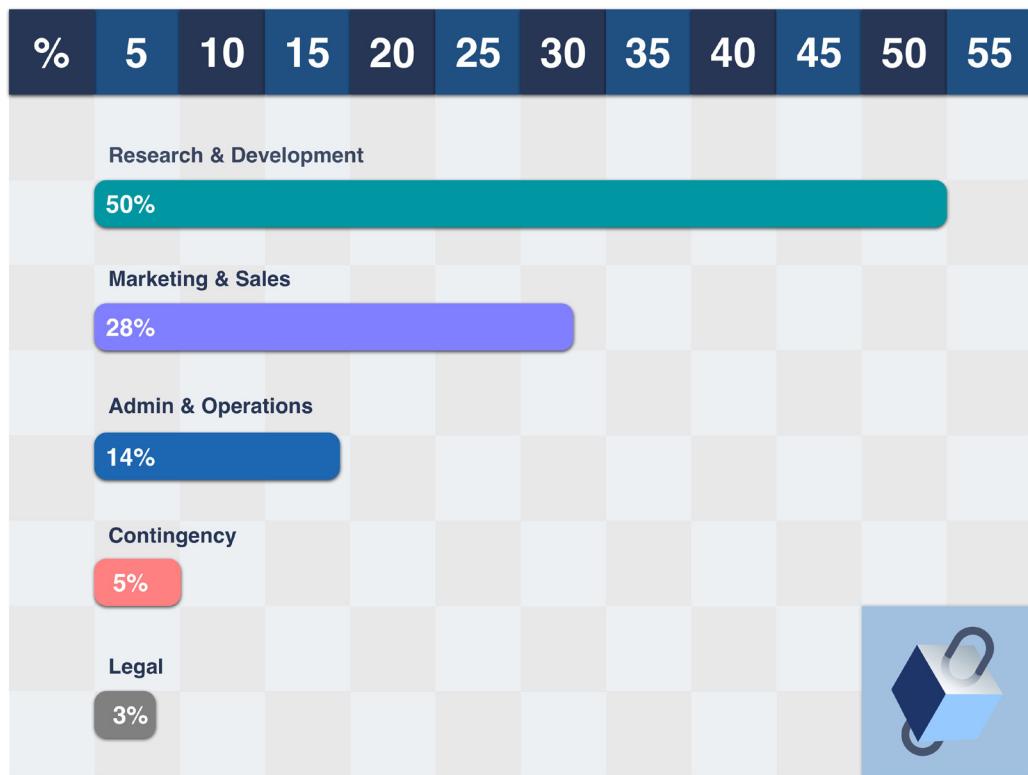
THE TOKEN SALE PROCESS

Planned Fund Allocation	%	Amount
Research and Development	50%	18000000
Marketing and Sales	27.80%	10008000
Admin and Operation	14.40%	5184000
Legal	2.80%	10008000
Contingency	5%	1800000

Our roadmap assumes development of all features for the OPN platform and mobile applications and interfaces for all the platform participants, with a strong sales and marketing support to accelerate adoption by sellers and buyers of the packaging industry.

- Research & Development costs cover all R&D expenses, including design and development of smart contracts, cryptographic mechanisms, the OPN platform, apps and interfaces, etc. Includes opening of an R&D center with approximately 40 engineers.
- Admin & Operations costs include salaries of all OPN employees excluding the R&D team. Marketing & Sales budget will be allocated on acquisition of both sellers and buyers.
- Legal costs include all legal expenses associated with expansion of the OPN ecosystem in different countries.
- Contingency fund is calculated as 5% of the total budget.

TOKEN SALE ALLOCATION



THE REVENUE MODEL

The OPN Ecosystem will be developed with the help of the funds collected from the token sale. Once the platform is live, we plan to incorporate a ‘Free Trial + Subscription’ revenue model where users could try our services for free for the 1st one month, post which they can opt-in for one of the below subscription plans based on their needs.

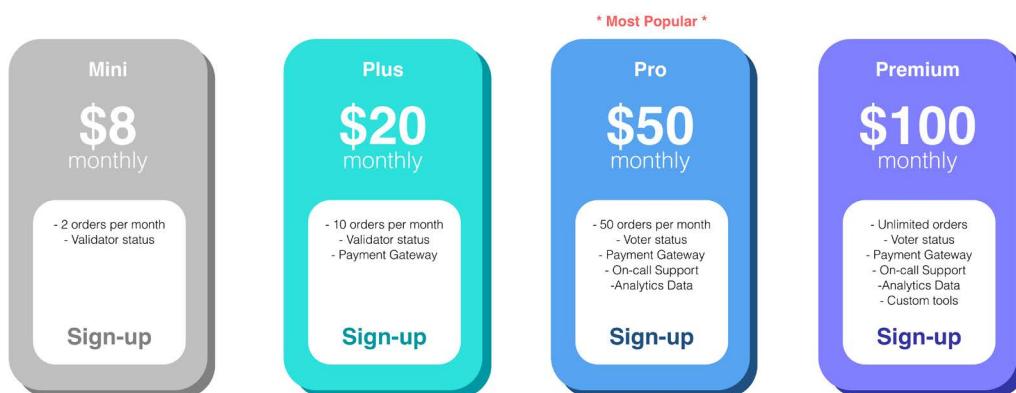
MONTLY SUBSCRIPTION

Renews monthly

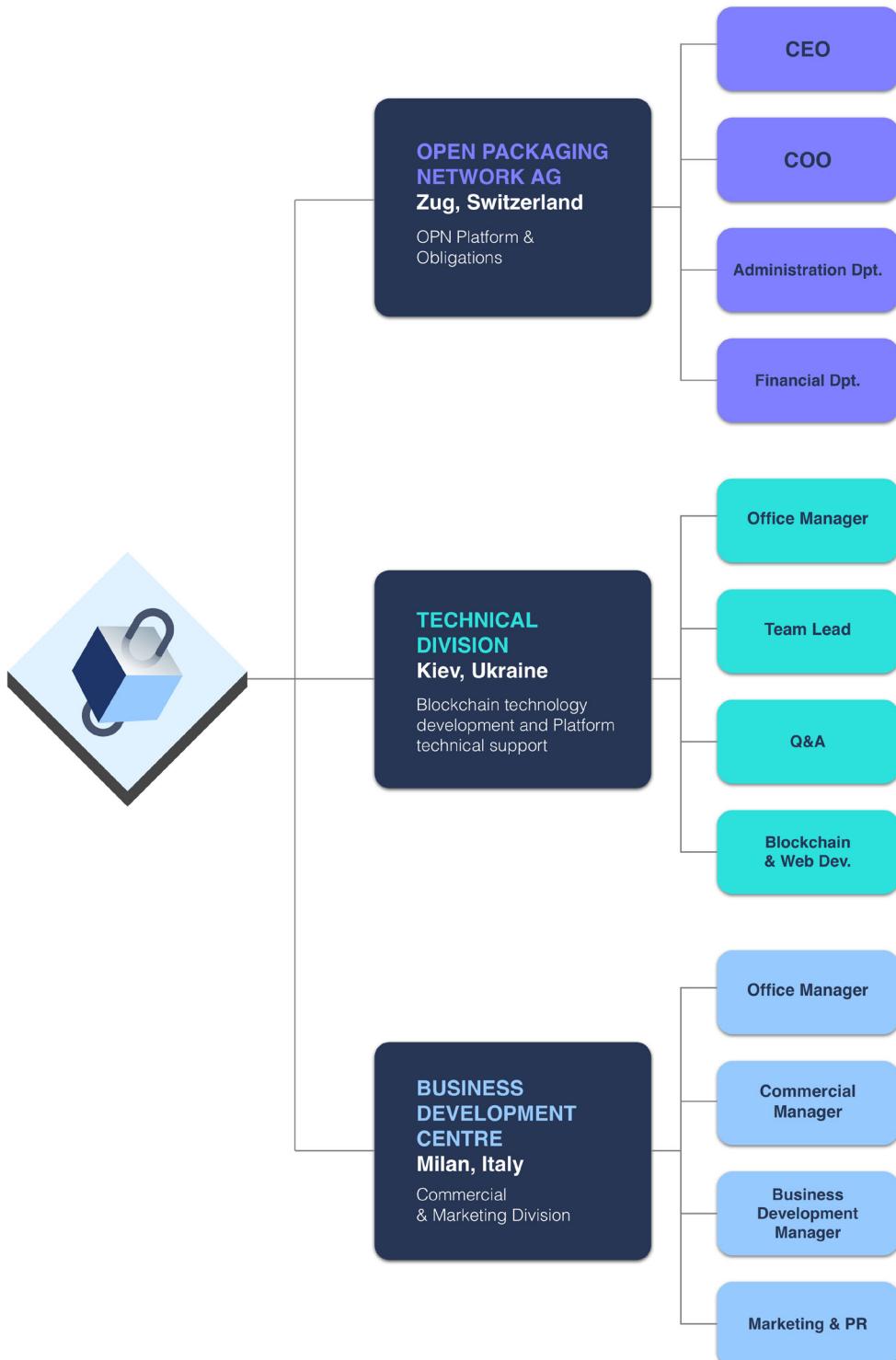


YEARLY SUBSCRIPTION

Renews yearly



OPN FOUNDATION CHART



CORE TEAM



Mattia

Regulatory Relation Advisor / Advisory Board Member

Mattia is the chairman of the Regulatory Policy working group at the Crypto Valley Association (CVA), co-author of the CVA ICO Code of Conduct, founder and owner of Dr. Mattia L. Rattaggi Advisory & Consultancy and Chairman and co-founder of DecentAge Ltd. Next to his advisory capacity, Mattia is a thought leader in the crypto, financial regulatory and risk spaces, a regular speaker at international conferences and writer.



Mark

Packaging Advisor

Mark is a Multilingual Commercial Professional with a vast experience in the packaging industry. He is specialized in packaging equipment (process and end-of-line) and materials (plastics and resins). Mark has lived in Europe, Asia and Latin-America and works with multinational customers and suppliers all over the world.



Michele

Graphic Designer

Passionate, creative and detail-oriented graphic designer. Before joining the OPN Team, worked and lived in Melbourne (Australia), Toronto (Canada), and Leeds (England). As he travelled around the world, his greatest pleasures came from blending design, culture and arts, and discovering the multitude of ways people used to express their creativity.



Sergio

Project Leader

Sergio is a Project Leader with immense Packaging Industry experience with deep knowledge about problems in the space. He is responsible for the conceptualization, partnerships and commercial success of the Open Packaging Network.



Abhilash

Blockchain Product Manager

Abhilash is a Product Manager with previous Product Management experience with IBM. He has studied with Boston University on Platform Strategies for Businesses and currently takes care of the platform at Open Packaging Network.



Sergey

Senior Project Manager

More than 10 years of experience in print and packaging industry. Strong knowledge of all phases of packaging development and production process. Projects delivered for Savushkin, Campina, GFD etc. Organization and management of the educational process at the faculty. Responsible for scientific and research work at the faculty



Vlad

Web / Mobile Developer

Vlad is a Web and Mobile Developer with more than 5 years of experience in building applications. He is a seasoned blockchain guy with 3 cryptocurrency projects in his city. He is creative person who likes to try out new things, highly adaptable and tries to build lasting relationships with his colleagues.



Udoх

Community Manager

Gideon Udoх is the founder of Gibsoon corp, with a crypto experience in more than 10 projects, most notably -Coinjanitor, Fresco, Swachhcoin, The key, Vsport and more. He is a crypto enthusiast and is currently working as a Community Manager and Telegram Moderator at Open Packaging Network.



Vladislav

SMM

Vladislav is a Ukrainian-born Facebook Blueprint certified traffic-manager with a marketing experience for 30+ ICOs. He started working in internet advertising in the year 2014 year and up to now has spent over 1 million USD on targeted ads.



Jacopo

Web Developer

Jacopo is a Web Developer with a wide array of projects under his belt with 10 years of experience. He is responsible for developing, maintaining and supporting the team with all and any issues related to web. He is a big-time crypto enthusiast.



Igor

Software Architect

Igor is a Blockchain Developer with vast knowledge in the blockchain space having already worked on many projects in the past 2 years. He is responsible for conceptualizing, designing implementing and maintaining the technical architecture.



Ivanyo

UX / UI Designer

Sergio is a Multidisciplinary designer with 10+ years of experience in design. He has previously worked on graphic design, publishing, print design, package design, marketing & presentation design, complex banding and digital (web & mobile) projects. He currently handles the UX and UI at Open Packaging Network.



Uros

Supply Chain Advisor

Uros has 13 years of experience in freight forwarding. Since 2005, he has handled all kinds of cargo from standard cargo, like cars, standard containers, group shipments to personal effects, special equipment, out of gauge cargo, military cargo, dangerous cargo, temperature controlled cargo, food/beverages etc.



Sanjeev
Marketing Advisor

Sanjeev is a Sales & Marketing professional with 14 years of experience across E-commerce, Education & Finance industries. He has led P&L roles to generate revenue while being profitable through digital sales platforms. He is active trader & advises ICO's to setup marketing strategies.



Valentina
CMO

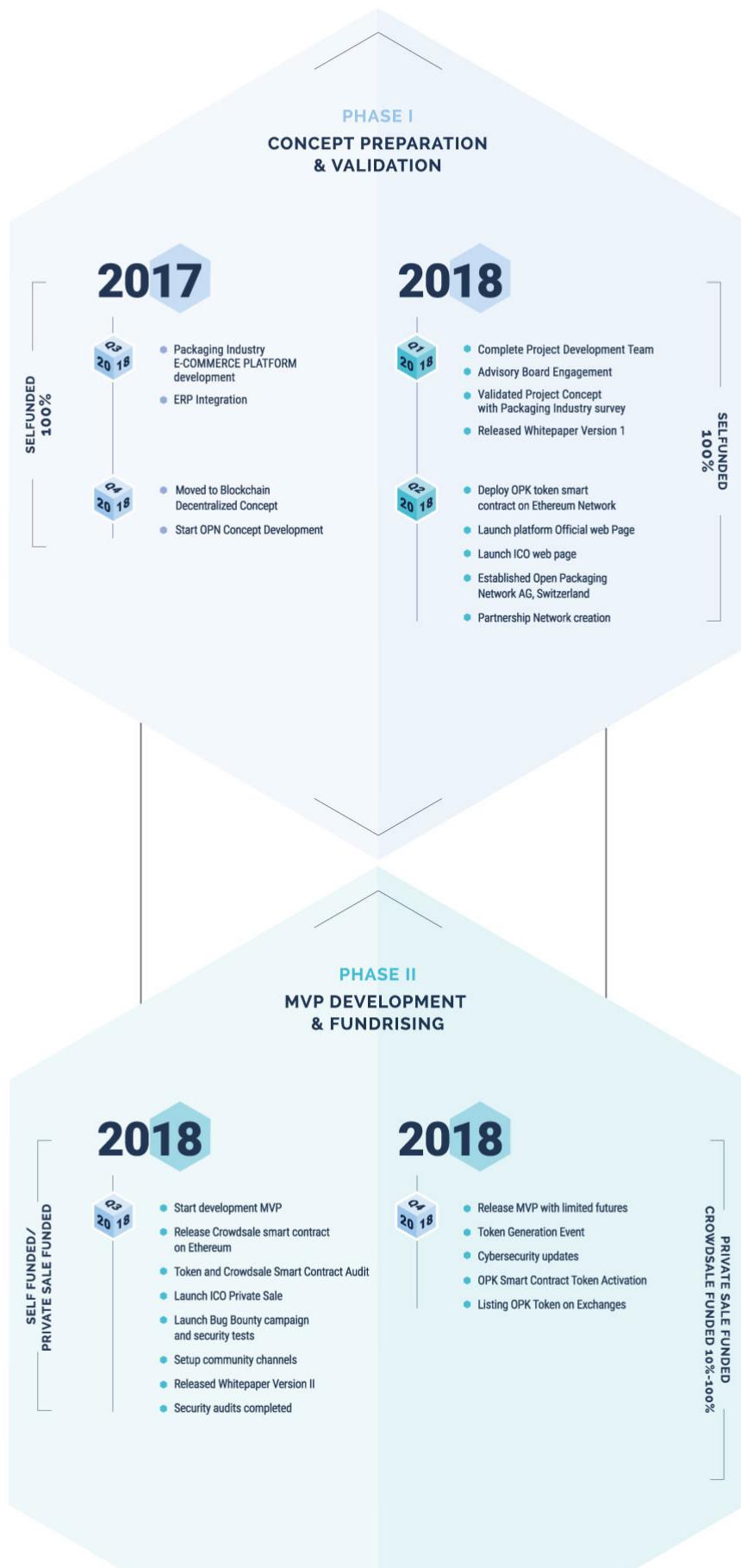
A person with excellent communicational skills and an ability in establishing relationship with people, having previous experiences in Coprodeli USA and SA.IN as Communication Manager. Excellent organizational competencies, ability to write up documents with good skills in coordinating work groups and public speaking.



Ed
Smart Contract Developer

Ed is a Kiev based Smart Contract developer having previous experience in smart contract development for an ICO of an American company. His previous experiences include: Creating an attestation bot for Byteball (Tonych).

THE ROADMAP



PHASE III PROTOCOL DEVELOPMENT & INTEGRATIONS

2019

CROWDFEED
15% - 100%

D1
2019

- Start development OPN Platform Alpha Version
- Launch Platform Interface Web App
- Develop API
- Futures update
- Website redesign
- Privacy Preserving Cryptography

D2
2019

- Launch Android Mob App
- Standard relayer API draft
- Protocol features and optimizations R&D
- Governance R&D
- Reusable relayer UI components
- Supply chain Integration

2019

CROWDFEED
25% - 100%

D3
2019

- Launch OPN Platform Beta version
- Cybersecurity updates
- Launch IOS Mob App
- Payment gateway development
- Quality Goods Verification Service Development
- Europe Road show

D4
2019

- Provenance of goods Integration
- Trade Finance Service Integration
- Launch payment API Integration
- Commodity market Integration
- Asia Road show

PHASE IV BLOCKCHAIN DEVELOPMENT & MARKET EXPANSION

2020

CROWDFEED
15% - 100%

2021

CROWDFEED
10% - 100%

2021

- Cross Blockchain Support
- Waste Recycling rewards concept development
- Overseas expansion: representative offices in Asia and Americas
- America Road show
- Start Development IoT Integrations

2022

SELF
FUNDING

- Brand&Design tool integration
- IoT Integration
- Overseas expansion: representative office in Africa

- Research on governance, privacy, scalability, future-proofing
- Blockchain protocol development

The goal of the project is to create a decentralized ecosystem for the packaging industry where buyers and sellers can transact with each other transparently and without the need to trust the other party. To bring about these ideals, we have devised the following roadmap.

Goal 1: Create an MVP: A Smart Contract platform to facilitate faster payments between buyers and sellers.

Our research with the sellers and buyers have given us insights on the glaring problem with payment terms in general and payments in particular. Hence, we plan to develop a centralized e-commerce platform as part of our MVP which would allow the sellers and buyers to transact with the help of a Smart Contract that would take care of payments. This we hope, adds enough value to the ecosystem to move onto our next milestone.

Goal 2: Decentralized platform development.

Once we have the traction with the payment solution on our platform, the next step is to move the data to a decentralized network. This will be the 1st step after the token generation event where the contributors will receive the OPK tokens and would be able to use them as work tokens once the platform is live. In this phase, the Bid and Bet model would be implemented along with the DPoS protocol on our own blockchain.

Goal 3: Web interfaces for Sellers, Buyers and Delivery Agents

Once the platform is developed, it will be able for use by the buyers and sellers to perform transaction on their desktops. We understand that the industry is still nascent and might be averse to crypto and hence the move to start with a web-first approach. This web interface will be integrated with payment functionality to carry out payments using widely used cryptos like BTC, ETH along with FIAT currency in addition to the native OPK token. This will be followed by a web-interface for delivery agents to allow them to interact with the platform.

Goal 4: Mobile Apps for Sellers, Buyers and Delivery Agents

The ubiquity of mobile apps is unquestionable and with the platform fully developed, it makes more sense to roll-out mobile apps for the web application to make the service seamless for the stakeholders.

Goal 5: 3rd Party Integration

A platform is only as good as the services it provides. With Amazon, we have a range of web services that go with it which makes it the go-to stop for all things web. We believe that the OPK platform should become a one stop shop for all things packaging and to that end we plan to integrate with other services which would add value to the ecosystem. Some of the integrations include : Bill of Landing services, IoT services, Provenance of Goods tracking etc.

RISKS

Token Sale Risks

OPK Tokens are not securities, equity or profit-share mechanisms. Token sale participants should understand the risk of purchasing tokens and read this whitepaper in full before participating.

Participating in the Token Sale is subject to the Token Sale Purchase Agreement. Open Packaging Network staff are available to answer any questions at <https://www.opnplatform.com>.

Technical Risks:

The OPK Token contract is based on the ERC20 standard. All efforts will be made to ensure the contract is free from technical bugs but once submitted to the Ethereum network, it is unable to be modified. Participants should be intimate with Ethereum and blockchain technology to understand these risks. Participants should understand the risks around private key storage and transmission.

Hackers and criminal intervention

The OPK Token contract address will be made available via www.opnplatform.io. History has shown that sometimes criminal elements attempt to take over computer and email servers to trick people into sending money to the wrong address. This may include social engineering. Open Packaging Network will implement all best practice security measures to thwart potential attacks. Participants must make all reasonable efforts and follow all instructions from Open Packaging Network to ensure they are dealing with the correct contract address. Participants should not use any smart-contract address published outside of www.opnplatform.io as it could be a scammer pretending to represent Open Packaging Network. Participants should follow all security best-practice procedures as directed by Open Packaging Network.

Tax & Regulatory risk

The token buyer must conduct their own due diligence to ensure that they comply with all local laws regarding cryptocurrency, tax, securities and other regulations in their jurisdiction. The OPK Token Sale may in the future be subject to further regulation.

Refunds

Refunds are not permitted. Sales will be final once transacted.

The initial offering

The OPK token implies certain risks. We do not recommend you make any decisions regarding the purchase of tokens until you have attentively studied the following risks.

Ethereum Network

The OPK token is an ERC20 standard token of the Ethereum protocol. The token is stored in and transferred to, from wallets, and on the Ethereum blockchain platform. Overloading, technical failures, and mining-attacks against the Ethereum network may negatively affect the value of the OPK token.

Token Storage

The OPN system does not save private keys or password data. Private keys and passwords are saved on the user's device and the security of the tokens depends exclusively on the security of this device and the Ethereum platform. The loss or transmission of private keys or passwords could lead to the loss of OPK tokens. User error in the manipulation of wallets could also lead to the loss of OPK tokens.

Attacks During the Initial Offering

We take very seriously the safekeeping of funds received during the initial offering. Private keys will be kept in escrow. Despite the measures we have taken, we cannot guarantee safety from possible robbery by hackers or a DDoS-attack of a vulnerable website, a smart contract, or the Ethereum platform. The theft of funds could affect the ultimate version of the OPN system and negatively affect the value of the OPK token.

Token Value

The OPK token is meant for internal use on the OPN system and applications that are integrated into the OPN system. During the token development process, no attempt to determine its future value was made, and accordingly, we do not represent or guarantee any value of Token. A fast-growing market for blockchain technology, various regulatory factors, and the influence of the global markets prevent us from determining a projective value for the token.

Judicial Risks

At the time of writing, most jurisdictions had no legislation regarding blockchain technology. The implementation of legislation, as well as any regulatory changes could negatively affect the system and the value of the OPK token. The actions of regulators could bring about a ban on a blockchain technology, which forms the basis of the OPN system, or existentially limit it, halting the functioning of the OPN system in a particular jurisdiction, leading to major changes in the token smart contracts or stopping it from functioning entirely. Personal information about token holders, as well as other information saved in the OPN system – personal user data, passwords, wallet addresses, and other such information – can be revealed to governmental or law enforcement bodies in cases when such information must be revealed according to law or court decisions.

Taxes

In certain jurisdictions, the storage and sale of tokens may be subject to taxation. Token holders are responsible for abiding by any tax law that might apply to them.

Ecosystem/Platform

The OPN system, as well as applications developed in it, are primarily based on a blockchain technology. This is innovative. Constant growth in the number of transactions in a blockchain system imply a corresponding development of this system. Full transition of the OPN system to a blockchain technology will become possible only when a blockchain protocol will be able to process a certain quantity of transactions in any given time. Delay in the development of the blockchain protocol could negatively affect the ecosystem and the value of the OPK token.

Implementation

Experts application illustrates an example of the implementation of any other application in the ecosystem, including third-party ones. Insufficient interest of users in such applications in terms of their inactivity, insufficient reconcilability and other factors – left unconsidered by the developers of those applications, can negatively affect the OPN ecosystem and the value of the OPK token. The OPN Ecosystem is currently at the development stage. The quality of its final functionality depends therefore on the number of OPK tokens sold during the initial offering. We try hard to predict various hacking attacks, service errors, defects, and vulnerabilities in the OPN ecosystem, as well as the smart contracts used within it. The ecosystem infrastructure

is partially located on a premise owned by a third-party, as well as on rented servers. Any damage or safety violations, arising because of the above, could negatively affect the ecosystem and the value of the OPK token.

Company Token holders do not receive the right to participate in the management of ecosystem actions. All decisions regarding the development of the ecosystem, its integration into third-party applications, or any other decision in relation to the company will be made independently and could affect the value of the OPK token. Negative press about the company or its participants could negatively affect the value of the OPK token.

Force Majeure

The development of the OPN ecosystem could be interrupted, suspended, or terminated for reasons outside anyone's control (force majeure). This could include a natural disaster, war, armed conflict, public disarray, industrial conflicts, epidemics, mass layoffs, strikes resulting in a decline of productivity, extended shortages or interruptions in the supply of electricity or telecommunication services, or actions of regulators or governmental bodies that might be absent at the time of the ICO. Those risks are not exhaustive and there are other risks that we are currently not able to predict.

LEGAL

This document is for informational purposes only and does not constitute an offer or solicitation to sell shares or securities in Open Packaging Network, or any related or associated company.

Any such offer or solicitation will be made only by means of a confidential offering memorandum and in accordance with the terms of all applicable securities and other laws.

None of the information or analyses presented are intended to form the basis for any investment decision, and no specific recommendations are intended. Accordingly, this document does not constitute investment advice or counsel or solicitation for investment in any security.

This document does not constitute or form part of, and should not be construed as, any offer for sale or subscription of, or any invitation to offer to buy or subscribe for, any securities, nor should it or any part of it form the basis of, or be relied on in any connection with, any contract or commitment whatsoever.

Open Packaging Network expressly disclaims any and all responsibility for any direct or consequential loss or damage of any kind whatsoever arising directly or indirectly from: (i) reliance on any information contained in this document, (ii) any error, omission, or inaccuracy in any such information or (iii) any action resulting therefrom.

Risk disclosures will be made available prior to the beginning at www.opnplatform.io of the token sale. Information in this document shall not be exhaustive or comprehensive and shall not imply any legal obligations from a third party. The primary goal of this document is to describe the OPK Token and its use within the marketplace as well as to provide general information about the system, and the possibility of its integration into third-party applications – to expand the future potential application of Tokens. This document is not an offering of security in any jurisdiction, as the OPK Token will only be issued once and is exclusively intended for the following:

- Enablement of a functioning network;
- Payment for services on the platform;
- Payment for services in our own and partner applications;
- Motivation for users.

The OPK Token is not intended to be used to complete any functions apart from those indicated above. Nothing in this White Paper shall be deemed to constitute a prospectus of any sort or a solicitation for investment, nor does it in any way pertain to an offering or a solicitation of an offer to buy any securities in any jurisdiction. This document is not composed in accordance with, and is not subject to, laws or regulations of any jurisdiction, which are designed to protect investors. The buyer shall first inform himself or herself about the actual value of the proposed material, its conditions and risks prior to acquiring the tokens. The most significant risks, from our

are presented in the relevant section of this document. Certain statements, estimates and financial information contained in this White Paper constitute forward-looking statements or information. Such forward-looking statements or information involve known and unknown risks and uncertainties, which may cause actual events or results to differ materially from the estimates or the results implied or expressed in such forward-looking statements.

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- OPK Tokens have been transferred to a third party
- Personal keys and password data has been lost or transferred to a third-party
- User's device is not secure
- Tokens have been used for speculation

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ANNEX

INTERNET, BLOCKCHAIN AND ETHEREUM

Without doubt, the internet has revolutionized how humans live, communicate, think, and shop – how they live their everyday lives. It has turned their very existence upside down. Today, most humans take the internet for granted and cannot even imagine their lives without it. The internet was born nearly five decades ago, and since then, technology has rapidly advanced by huge leaps. About 15 years ago, only 12% of all people owned mobile phones. Now, more than six out of ten persons worldwide use a mobile phone. About 15 years ago, one third of the population in developing countries lived in extreme poverty, compared to less than 15% today. Facebook, which now has nearly 1.5 billion users, had not even been launched then. In another fifteen years' time, who knows how much technological innovation and developments society will see, and what changes this will bring?

Cryptocurrencies offer a fundamentally different way of approaching money and conducting online commerce. The development of blockchain-based money solves a number of problems inherent in the current financial system. While it is not a panacea, a properly implemented ecommerce platform with integrated cryptocurrency payments has extensive advantages.

Bitcoin

The first cryptocurrency was the Bitcoin. Articulated in Satoshi Nakamoto's 2008 white paper, Bitcoin deals with the «double spending» problem through the use of a shared ledger that is maintained by a large number of network nodes. By contriving a system in which it is computationally expensive to add a block of transactions to the ledger, but easy for anyone to verify it, Bitcoin makes it unlikely for any member of the network to succeed in submitting a fraudulent transaction – and it is expensive to try to do so. Thus miners – those tasked with upholding the security of the network – are better off acting honestly and maintaining the integrity of the ledger.

Financial independence

Nakamoto's implementation of his white paper effectively removed the need for a trusted third party to act as a middleman in online transfers. This enabled real peer-to-peer monetary transactions online for the first time ever: a remarkable breakthrough, and a task that many experts had believed could not be achieved. Money, which had been centralized for millennia in seigniorage, and for decades in terms of the payment system, could once again become purely a tool of commerce rather than a way to extract value and exert control. Because Bitcoin transactions take place directly – from

sender to recipient, and without the involvement of a centralized third party – they cannot be censored. Once a transaction has been accepted into the ledger, there is no way of reversing it. This has a simple but powerful implication: if you want to send someone money, you can. There is no authority that can block or reverse the transfer. Bitcoin's financial system restores full autonomy to its users.

Low-cost transfers

Because Bitcoin and other cryptocurrencies use a blockchain to secure transactions, there are no middlemen to keep accounts, and therefore, there are no single entities that can charge fees for the service. Miners collectively process transactions and are rewarded for verifying a block with both new coins (block rewards, currently set at 12.5 Bitcoins per block) and the smaller fees incurred with each transfer. Unlike the legacy banking system, Bitcoin does not recognize geographical borders. Transferring funds to a neighbor on the other side of the road is as fast and efficient as sending money to the other side of the world. While banks and remittance services tend to charge significant flat fees as well as unfavorable exchange rates between currencies, Bitcoin's fees are fixed and low by comparison. Other blockchain protocols tend to charge even lower fees.

Privacy

Bitcoin's use of a shared ledger to facilitate peer-to-peer transactions also has implications for privacy. The Bitcoin ledger is fully transparent by design, meaning that anyone can trace transactions from one address to another, right back to the block in which the coins were first created. However, because addresses are essentially strings of random alphanumeric characters, it is not inherently obvious to whom the address belongs. Bitcoin is, strictly speaking, pseudonymous rather than anonymous. While data may be leaked in a variety of ways that associate a Bitcoin address with other personal information to reveal the owner's identity, by using best practices it is possible to use Bitcoin privately. The lack of a trusted intermediary means that no information needs to be registered to use a Bitcoin wallet. There is no administrative authority to control transactions or to collect user data.

Ethereum

Bitcoin offers a huge leap forward in the fields of online financial privacy and independence, but it is limited in its scope. Bitcoin does one thing very well: it transfers value securely. Although Bitcoin is the largest cryptocurrency, adoption has been limited, and a large part of the ecosystem's economic activity is accounted for by roles that support the currency itself, such

as mining and trading. Relatively few merchants have taken the step of integrating Bitcoin payments. This is partly because they do not believe the disadvantages of the status quo are grave enough to switch to something viewed as experimental, that still has a significant technical overhead, and partly because a broad user base does not exist yet. Bitcoin has been adopted on the dark web, where its relative privacy and freedom from intervention have made it the currency of choice for online drug markets. However, Bitcoin only addresses one side of the e-commerce transaction: the buyer's. Online stores require the involvement of a third party, which holds a database of products, merchant information, and transaction histories – with all the coupled risks for privacy.

The Ethereum platform has the potential to disrupt e-commerce at least as extensively as Bitcoin has, and probably much more dramatically. While BTC acts as an ideal medium of transfer, Ethereum opens the possibility of a computer that performs operations across its global network. This has the potential to decentralize not only the means of payment, but also the infrastructure for the e-commerce platform itself.

Smart contracts Developed by the Ethereum foundation, a Swiss non-profit organization, Ethereum upends the traditional approach to offering services on the internet. Instead of building server farms across the world – staffing them, maintaining them, and securing them – Ethereum makes it possible to build a global computing infrastructure by using a type of coding called «smart contracts». These contracts allocate computing resources across the blockchain and reward those who use their own hardware to support the calculations required.

With the right skill and hardware, anyone can join this effort by creating an Ethereum node and be compensated for their contribution, all without a central coordination authority. Ethereum works in a fully decentralised manner, just as the Bitcoin blockchain does. Smart contracts are pieces of code, whose execution is ensured by the network, in the same way that Bitcoin's transfers and records of funds are policed by the whole network. This means that applications that run automatically can be built, and the reliability of the services they offer is guaranteed because there is no single point of failure. Ethereum's smart contracts therefore offer the possibility of an e-commerce platform that has unique properties: privacy for both the buyer and the seller, complete freedom from censorship and interference, and very low fees for users.

REFERENCES

- <https://hbr.org/2004/11/aligning-incentives-in-supply-chains>
- <http://i1-news.softpedia-static.com/images/news2/How-to-Repack-Deb-Files-on-Debian-and-Ubuntu- 404930-2.jpg>
- <http://www.dupont.com/industries/packaging-and-printing/media/press-releases/2016-judges-discuss-challenges-facing-packaging-industry.html>
- <http://blog.rbwlogistics.com/4-challenges-with-balancing-the-buyer-supplier-relationship-and-tips-to-overcome>
- <https://www.invoicera.com/blog/top-10-challenges-faced-in-buyer-supplier-relationship-management/>
- <http://piai.org/Challenges.aspx>
- [http://www.ey.com/Publication/vwLUAssets/Unwrapping_the_packaging_industry_%E2%80%93_seven_factors_for_success/\\$FILE/EY_Unwrapping_the_packaging_industry_-seven_success_factors.pdf](http://www.ey.com/Publication/vwLUAssets/Unwrapping_the_packaging_industry_%E2%80%93_seven_factors_for_success/$FILE/EY_Unwrapping_the_packaging_industry_-seven_success_factors.pdf)
- <https://www.smitherspira.com/resources/2017/may/packaging-sustainability-challenges-and-trends>
- <https://www.beveragedaily.com/Article/2015/09/30/What-are-the-problems-with-packaging-design- today>
- <https://blog.innocentive.com/packaging-industry-challenges>
- <https://www.all4pack.com/The-Packaging-sector/Discover-the-packaging-sector/Packaging-market-challenges-2016>
- http://www.sustainablebrands.com/news_and_views/packaging/sustainable_brands/trending_pack_aeaging_industry_challenged_plastics_ban_list
- <https://www.smitherspira.com/resources/2017/may/packaging-sustainability-challenges-and-trends> <https://www.gartner.com/smarterwithgartner/gartner-top-10-strategic-technology-trends-for-2018/> <http://www.pdachain.com/2017/09/13/the-global-packaging-market/>
- https://en.wikipedia.org/wiki/Packaging_and_labeling#Books,_general_references
- <http://startupmanagement.org/2017/06/10/tokenomics-a-business-guide-to-token-usage-utility-and-value/>
- <https://medium.com/@cburniske/cryptoasset-valuations-ac83479ffca7>
- https://www.jdcsl.com/pt/pt_2_pre_p_esko_artwork.html

