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## About Basecope Software Inc.

Basecope Software Inc. was founded in 2022 and has been in operation since 2019. The Basecope family consists of eight young, energetic, selfless and passionate individuals, who come from different disciplines. Basecope specializes in smart contracts, blockchain, web 3.0, mobile application and website creation. Basecope, which has worked on more than 50 mobile apps and websites so far, has done a number of things, including Cryptonit, Turkey's first NFT outlet, and CopeTract, where smart contracts are reduced to the public. It has offices in three different cities: Ankara, Istanbul and Konya.

## Preface

Traditional database technologies present a number of challenges in registering financial transactions. Individualistically, both the buyer and the vendor can register financial transactions, but neither source can be trusted. The seller may claim that the money was not received even though it was, and the buyer similarly may claim that the money was paid even if it was not.

A trusted third party must supervise and verify transactions in order to prevent potential legal problems. The existence of this central authority not only complicates the process, but also creates a security gap that is concentrated in one spot. Both parties can be harmed by the imperilment of the security of the central database.

The blockchain technology reduces these issues by creating a decentralized, durable system where transactions can be recorded. In the scenario of the sale of real property, blockchain creates a ledger for each buyer and vendor. All transactions must be approved by both parties and are automatically updated in real-time on both ledgers. Any corruption in the past transactions leads to corruption of the entire ledgers. These features of blockchain technology have led to the use of this technology in a variety of industries and the emergence of digital currencies such as Bitcoin.

While blockchain technology, one of the greatest technological revolutions since the invention of the Internet, expands rapidly beyond the realms of digital currencies, which are the visible faces of it in the media, and expands their use, the magnitude of economic, social, legal and humanitarian effects of these transformations inevitably reveals the importance of setting the right policies. In order to better understand these implications, we can study the development of blockchain technology in four main categories: Block Chain 1.0 Digital Money Applications, Block Chain 2.0 Smart Contracts: Smart contracts that go beyond simple money transfer practices, smart contracts used for transfer of share, bonds, credit, mortgage, deed, asset, etc., Block Chain 3.0 Uncentralized Applications: Projects and applications that improve the scalability, interoperability, coordination, governance and sustainability of block chain technology, and finally, integration of Blockchain technology into Industry 4.0 with a wide range of application areas.



## What is Blockchain technology?

Blockchain technology is an advanced database mechanism that allows transparent sharing of information within a business network. Blockchain database stores data in blocks connected to each other on a chain. Data is chronologically consistent because the chain cannot be deleted or modified without consensus on the network. In conclusion, blockchain technology can be used to create a ledger that cannot be modified to keep track of orders, payments, accounts, and other transactions.

### Blockchain: A tool to promote collaboration

The fundamental value proposition of the blockchains has the ability to provide neutral infrastructure in the sense of dividing control of the technical substructure between stakeholders. This is particularly suitable for ecosystems in which participants need to cooperate while maintaining their potentially conflicting or competitive benefits. This applies to international trade processes involving a large number of actors in complex relationships in various regulatory frameworks. It can be seen as a tool to promote cooperation and trust.

### Potential practices in international trade

The use of blockchain in international trade is considered as a variety of uses in various areas of the overall trading process:

- Commercial transactions can be modified using non-fully centralized blockchain-based markets or by using blockchain to register and track trade transactions.
- Commercial finance offers a wide range of opportunities for blockchain usage, from letters of credit to open-account transactions and cross-border payments.
- In addition to exchanges related to customs duties, blockchains can also be used as an infrastructure for digitizing trade-related administrative processes (sanitary certifications, document of compliance, import and export licenses) and even intergovernmental exchanges.
- In logistics, blockchain initiatives are launched to facilitate and digitize the exchange of information along the supply chain. There are also some blockchain applications for marine insurance.
- Blockchains can also be used to add another level of monitoring, traceability and transparency that can be useful for enforcing trademarks, property rights, and regulations and providing additional information to the end consumer.

There are strong expectations around the use of blockchain in international trade as it is expected to reduce costs and delays, optimize efficiency, and help reduce fraud and litigation. However, some of these expectations are not intrinsic to blockchain, but rather due to the digitization of trading processes. Although there are many potential uses of the blockchain in supply chain management and international trade processes, this study focuses on eight special use cases:



- decentralized marketplaces;
- blockchain-based letters of credits;
- cross-border payment systems;
- marine insurance;
- tracking systems for shipping documents and supply chain events;
- blockchain-based e-origin certificate;
- proof of the originality of high-end products;
- monitoring ethical resources in the food industry.

### Facilitation of trade

The main influence of blockchain-based solutions in international trade will be to contribute to facilitation of trade. These are by no means the only solutions that can digitize the exchange of trade documents on their own, but they have the potential to contribute to the digitization process.

The main benefits of them will be to provide a reliable and secure infrastructure for document exchanges and automation of some processes. The uncentralized control of blockchains may be an argument for ensuring equity and peer control among stakeholders and persuading stakeholders to cooperate.

Your money is kept completely in the blockchain during the money transfer. That means that your money is safe even if there's a problem with any stock market, or bank.

In most cases, the recommended solutions will lead to common cost reductions.

### Social Perspective

This study identified the social impacts of SMEs that include better access to trade and trade financing, by use cases such as cross-border payments or blockchain-based letters of credits. Other use cases (e.g., proof of originality, traceability and use cases, or certifications of origin) may help to increase consumer knowledge of products through more ethical and environmentally-conscious consumption. However, these positive effects are not given for any potential use of the blockchain. These are linked with exclusive-use cases and may require special efforts.

In addition, it will have to balance potentially negative environmental impacts associated with the increase in the digital gap (like any digital technology, the blockchain will require access to digital technology, infrastructure, and capabilities, potentially excluding less-developed actors) or the increase in trade.



## Dictionary

ASYCUDA	Automated System for Customs Data
CEF	Center of Excellence in Finance
CEN	European Committee for Standardization
CENELEC	European Committee for Electrotechnical Standardization
DIH	Digital Innovation Hub
DLT	Distributed Ledger Technology
EBO	The European Board of Ophthalmology
EBP	European Blockchain Partnership
EBSI	European Blockchain Services Infrastructure
eCO	Electronic Certificate of Origin
EUIPO	European Union Intellectual Property Office
ETSI	European Telecommunications Standards Institute
ICC	International Chamber of Commerce
BIT	Information and Communication Technology
IEEE	Institute of Electrical and Electronics Engineers
INATBA	International Association for Trusted Blockchain Applications
FMH	Intellectual Property Rights
ITU	International Telecommunication Union
ISO	International Organization for Standardization
JRC	Joint Research Centre
LC	Letter of Credit
OECD	Organisation for Economic Co-operation and Development
PKI	Public Key Infrastructure
PoA	Power of Attorney
PoC	Proof of Concept
PoS	Proof of stake
PoW	Proof of work
SEPA	Single Euro Payments Area
SICC	Singapore International Commercial Court
TBT	Technical Barriers to Trade
TKA	Trade Facilitation Agreement
UCC	Union Customs Code
UN/CEFACT	The United Nations Centre for Trade Facilitation and Electronic Business
UNCITRAL	The United Nations Commission on International Trade Law
UNCTAD	The United Nations Conference on Trade and Development
DGÖ	World Customs Organization
DTÖ	World Trade Organisation



## Blockchain as a ledger for Bitcoin

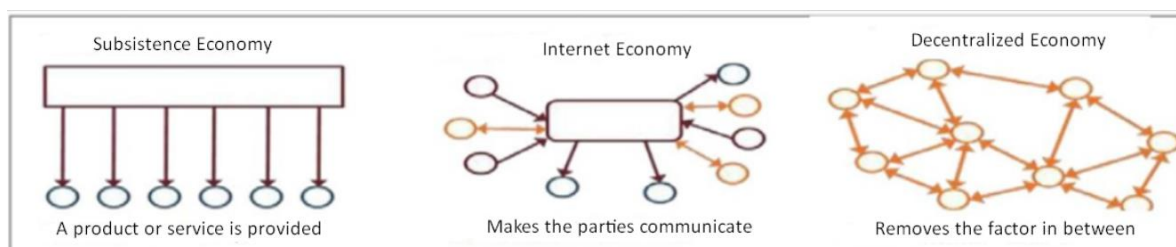
Thanks to its distributed, decentralized and transparent structure, Bitcoin has risen against today's financial order in a very short time. The increased use of bitcoin, limited supply, and the technology it brings with it have been embraced by many investors and financial organizations.

Bitcoin has allowed many advanced sectors and technologies to develop with its pioneering in the world of cryptocurrency and technology. The transparency and limited supply of the Bitcoin blockchain structure not only has led to the technological revolution introduced by Bitcoin, but also has caused many investors to see it as a low inflation and high potential investment.

This emerging decentralized digital currency provided a reliable digital infrastructure to ensure the security and validity of transactions. This led to the creation of the blockchain concept: a secure and modification-resistant digital ledger based on a combination of decentralized networks and cryptographic techniques. When it comes to digital currencies, blockchains are used to track, verify and store every transaction with a high level of security and reliability. This provides a high level of security. In the current sector, trading of banks and stock exchanges over your financial holdings may be compromised by the interference of intermediaries, but transactions through the blockchain prevent this situation.

## Primary Vision

Originally created as a support for Bitcoin, the blockchain concept is often associated with the libertarian vision of a decentralized Internet. This vision is intended to transform the economy into a fully peer-to-peer exchange, in which both financial institutions and governments have no role as mediators. Thus, in this decentralized electronic payment system, trust relies on transparent, encrypted evidence that is used to validate operations rather than reliably third-party.



Source: IDATE DigiWorld, blockchain, Oct, 2016.

## The use of blockchain as an infrastructure

This initial vision still can be found in some blockchain communities. However, the ecosystem of blockchain quickly diversified, and several blockchain attempts have made the blockchain a new type of digital infrastructure rather than a political revolution.

Overall, blockchains have widely varied their use. Financial services remain the most common practice, but even in this area there may be use by established financial institutions (banks and insurance) as a means of establishing distributed trust with applications targeting cryptocurrencies and maintaining robust data inputs and operations against peer-to-peer and unauthorized modification.



Beyond finance, other industries such as manufacturing, logistics, health care or public services also consider the use of blockchains for specific applications.

### How does blockchain work?

Although the underlying blockchain mechanisms are complex, the following steps offer a brief overview of the process. Software of blockchain can automate many of these steps:

#### *Step 1 – Enrollment of process*

A blockchain operation indicates physical or digital assets changing hands, shifting from one side of the blockchain network to another. This transaction is saved as a block of data and may include details such as:

Who is involved in the transaction?

What happened during the transaction?

When did the transaction take place?

Where did the transaction take place?

Why did the transaction take place?

How much of the asset has changed hands?

How many prerequisites were met during the transaction?

#### *Step 2 - Ensuring unanimity*

Most participants in a distributed blockchain network must acknowledge that the saved operation is valid. Acceptance rules may vary depending on the type of network, but are usually determined during the setup of the network.

#### *Step 3 – Connecting blocks*

Once the participants reach the unanimity, the transactions on the blockchain are written to blocks that are equivalent to the pages of a ledger. With the transactions, an encryption hash is added to the end of the new block. This hash acts as a chain that connects blocks. The hash value changes if the content of the block is changed consciously or inadvertently. This change provides a way to determine if data is tampered with.

Thus, blocks and chains are securely linked together and cannot be edited. Each additional block increases the validation strength of the previous block, and therefore the entire blockchain. This process is similar to building a tower by stacking wooden blocks. You can only put the blocks on top, and if you take a block from the middle of the tower, the entire tower collapses.

#### *Step 4 – Sharing the ledger*

The system distributes the latest copy of the central ledger to all participants.





## Smart contracts and decentralized applications

Smart contracts add an additional level of automation above blockchain applications. Currently, the most popular smart contract platform is Ethereum, but many other cryptocurrency blockchains (including EOS, Neo, Tezos, Tron, Polkadot and Algorand) can also run them. A smart contract can be created by everyone and applied to a blockchain. The code of it is transparent and verifiable by everyone. So all respective parties can see exactly what logic a smart contract follows when they buy digital assets.

Smart contracts are written in several programming languages (including Solidity, Web Assembly, and Michelson). In the Ethereum network, the code for each smart contract is stored in the blockchain. In this way, all respective parties can review the contract's code and current status in order to validate the contract's function.

Each computer (or "node") in the network stores a copy of all existing smart contracts and their current state, as well as blockchain and transaction data.

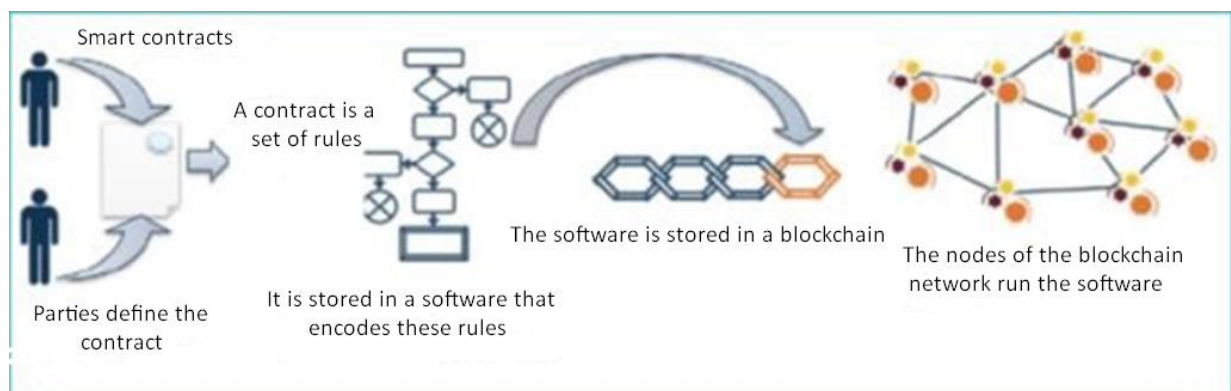
A smart agreement is executed by all nodes in the network to reach a consensus on the outcome and the resulting value stream occurring when a user receive resources. This is what allows smart contracts to operate securely without centralized authority even when users conduct complex financial transactions with unknown stakeholders.

To execute a smart contract within an Ethereum network, a fee that is called "gas" has to be paid (because these charges enable the blockchain to work).

Smart contracts cannot be changed, even by their creators, after they are applied to a blockchain.

### Automatic Operations

Smart contracts are self-executing programming codes that automatically transfer digital currencies or assets between the two parties under pre-defined conditions.





Smart contracts increase the complexity of blockchain-based transactions by adding a series of conditions requested through the system to complete the operation. These conditions are defined in a computer program that serves as the contract between the parties in a transaction and is automatically validated and enacted by the blockchain.

Intelligent contracts provide alternative uses of the blockchain, particularly in financial services, loans, insurance, betting, crowdfunding, recurring contracts, leases, etc. Thus, contracts become automatically conditional. Financial transactions (transfer, credit, taxation, commission, etc.) take place in the event if the conditions specified in the agreement are met. In addition to disintermediate ones whose work is to draw up and implement contracts, this service of the blockchain helps reduce insurance and collection costs on contracts and can speed up the process. Smart contracts can be enacted by making changes or additions to the first blockchain platform (for example, Bitcoin) or by using custom blockchains (especially the Ethereum project).

### Restrictions and concerns about smart contracts

As described above, smart contracts add another layer of service above the blockchain infrastructure, as well as complexity. It offers efficient automated solutions, but it also brings up specific technical issues. Smart contracts refer to blockchain-based software that can automate many autonomously conducted critical processes but can lead to significant financial consequences in the event of breakdown or inappropriate use. An error or malicious compromise with the smart contract code may lead to unauthorized financial transactions.

Therefore, it is vital for a smart contract to ensure that the software code is quality-assured and corresponds fully to intended uses and operations, i.e. to ensure that it meets the conditions agreed upon by the parties in the 'actual' agreement. Cash flow may not be managed properly in your smart contract if it is not fully ensured. CopeTract can help fix these issues (see the benefits of CopeTract below).

## What is CopeTract?

Copetract is a multifunctional smart contract system developed using web 3.0 and blockchain technologies.

Using a simple user interface, it is a platform on which the end user can alter contractual clauses upon their request; that the transfer of funds (in contracts where transfer is required) is easy and seamless; that no one can access the formed contract except the parties' permits; that the problems in smart contracts are fixed; that individuals and businesses (brands) can claim their rights.

## What are the technologies used in the construction of Copetract?

We can divide the development of the Copetract into two parts, the user interface and the infrastructure. Next.js, one of the Javascript libraries, is used to improve the user interface of the project.

And the infrastructure is being developed in Ethereum's infrastructure, using the Solidity and Javascript programming languages at the current stage.

## CopeTract's solution to concerns and limitations in smart contracts

With multi-sign technology we use in cases of contract malfunction or inappropriate use, contracting parties can stop these problems. Nevertheless, due to the problems that can arise from financial results, we are able to protect your money by having it in the contract with the contract or contract side problems that can occur with the blockade system that we develop ourselves. At the same time, in case of problems that may occur again by multi-signature, the parties can solve the problem by making a joint resolution.



## Ethereum

### Purpose and main features

Ethereum was introduced in 2013 as both a cryptocurrency and a decentralized platform designed to run smart contracts, as described above, which are computer programs that are automatically executed when specific conditions are met. As a platform, Ethereum enables the development of non-centralized applications for specific needs, regardless of their usage status. It has become one of the most valuable and recognized cryptocurrencies along with Bitcoin.

Although Ethereum applications go well beyond cryptocurrencies, the network's Ethereum platform also includes its own currency, called 'ether' (ETH/ETC), which is necessary to conduct operations. Ether can be exchanged for "gas", a measure of internal effort required to execute smart contracts. In other words, Ether is used by developers who develop applications on Ethereum and users who interact with smart contracts in the Ethereum blockchain. Plays the role of a currency and is used as a tool to carry out operating fees for required transactions on the platform. Besides, one of the central elements of the ethereum ecosystem is the Ethereum Virtual Machine (EVM). EVM is isolated from the rest of the Ethereum network and serves as a working environment for smart contracts based on Ethereum.

### The main reason we use ethereum

Ethereum ERC-721 is the first altcoin to introduce the concept of NFT to the crypto market with the smart contract system. The most favored and largest NFT marketplaces globally are also written with Ethereum infrastructure.

We opted for Ethereum because of the DAPPs it provides, the NFT software community, and the easy and fast usability of the test infrastructure.

### Key advantages





Apart from all the traditional advantages of the block chain, the most important benefit of Ethereum is the possibility of distributing and using smart contracts with Turing completeness. The Ethereum blockchain allows complex smart contracts to be carried out, and is designed with the ability to support a wide range of complex applications. Another benefit is the opportunity to adapt the blockchain to a variety of different usage situations through non-centralized applications (conducted using smart contracts) that can be built on the platform or already available on the platform.



## Blokchain usage fields

This section provides a summary of the concepts needed to understand international trade processes.

These basic concepts are outlined in the following sections to describe the implementation of blockchain technology in trade finance processes.

 Prep. for exportation	<ul style="list-style-type: none"><li>• Establishing a transaction</li><li>• Involves exporters/importers, banks</li></ul>
 Exportation	<ul style="list-style-type: none"><li>• Financial trading procedures</li><li>• Involves exporters/importers, banks and insurance companies</li></ul>
 Transportation	<ul style="list-style-type: none"><li>• Forming transport and logistics strategies</li><li>• Involves exporters/importers, logistics and shipping companies, port operators, customs and insurance companies</li></ul>
 Prep. for importation	<ul style="list-style-type: none"><li>• Customs and administrative processes</li><li>• Involves exporters/importers, banks, customs office, national and international authorities</li></ul>
 Importation	<ul style="list-style-type: none"><li>• Terminating trade processes: making payments and storing assets</li><li>• Involves exporters/importers, banks</li></ul>

It is also important to note that different usage cases and stakeholders are all linked in a continuous process. For this reason, information gathered at one point in the supply chain for a particular purpose can be used by other stakeholders for different purposes throughout the chain, making the transfer of information an important part of the trade sequence.

## Setup of transaction

A transaction refers to the interaction between two or more parties in which goods and services are received for some kind of charge. Such interaction is possible between a company and individual consumers (B2C), as is possible between two or more companies (B2B). Traditionally, many producers sold their products to retailers from physical locations. However, with the occurrence of the Internet, B2B and B2C business channels evolved into e-commerce markets where goods and services were sold over the Internet.

## Financing trade

Trade finance consists of financial products and services used by companies to facilitate international transactions and reduce risks. Trade finance principle is to introduce a viable and reliable third-party basis for exporters and importers to do business safely through trade. Key stakeholders interested in trade finance are exporters, importers, and related banks.



## Letters of credit

A letter of credit is a financial instrument used in trade financing when the recipient's bank issues a letter of promise to the seller to guarantee the obligation of their customers for the goods dispatched. Letter of credit, most commonly used in global processes, is very important in international trade because of the distance between the trading partners and the legal complexities of the countries involved. A letter of credit guarantees safety in a trade relationship, while the time-consuming banking fees and formalities are a deterrent to key actors involved in trade financing processes.

## Open account trading

Open accounts are trade financing tools commonly used by trading partners and related banks for cross-border trading. Open account transaction is a sale by which the importer receives goods dispatched by the exporter before the goods are paid or exchanged for.

Open account trading is most commonly used when exporter relies on receivers' payment records and credit valuation, as well as the country's jurisdiction in the event of an arbitration clause attempt.

Given the intense competition in exportation markets, open-account maturities are advantageous to the importer in terms of cash flow and costs, but remain as a high-risk to exporters.

## Cross border payment

Cross-border payment refers to incoming and outgoing financial transactions involving companies, individuals, and banks operating in different countries. Currently, the majority of the payment swap and accordancy processes (including FX) are carried out by the relevant banking arrangements for cross-border payments.

Paying internationally through stationary banking channels is a complex process involving several instruments and must be compatible with multiple regulatory regimes.

## Customs, regulations and administrative taxes

Traditionally, customs duties are the taxation format paid for imported goods and services. Their primary objective is to protect society and local production from imported goods and services, as well as to raise financial income for the state budget. In addition, customs duties guarantee the importer or the authorities in the country from which imports are made that exported goods meet the required standards. The most common guarantees of these standards are certificates of origin, sanitary ware, phytosanitary certificates, and certificates of conformity assessment certificates.

The rules that are used to define the country of origin of a product, and therefore customs duties, can present significant challenges for both exporters and importers.

## Logistics

Logistics is an integral part of international trade, which includes shipping, purchasing, storage, inventory control, and distribution. By 2018, 80% of the world's trade is transported by sea, considered the most cost-effective and efficient means of transportation.



Various actors are interested in logistics, which complicates the process to coordinate resources and documents.

In the logistics chain, the carrier transports goods by air, land or sea, using different means of transport.

Shipment delivery is regulated by brokers who are intermediaries between transporters and carriers.

While brokers only serve one aspect of transportation, 3PL (Third Party Logistics) are an all-in-one logistics provider that offers an extensive bundle of supply chain services.

### Monitoring and traceability

Current challenges in the supply chain relate to the ability to identify, track, and trace items or products that move through their phase. The most obvious situation is forgery and fraud, which constitutes a threat to consumer welfare as well as to the reputation and income of companies. The most vulnerable products for fraud include drugs, luxury goods and other products whose value is tied to their originals. The increasing importance of product traceability will help customers improve their buying behavior while determining a product's origin and manufacturing processes.

Some of these monitoring and traceability requirements go beyond current regulation practices and may have direct necessities of importers, exporters, or other clients in the trade supply chain.

### Storage of engagements in blockchain

#### Use case description

Blockchain can be applied to facilitate importer-exporter relationships by using a blockchain to securely store contracts and automate the execution of a sales agreement through the use of smart contracts.

This can be done through smart output-based contracts that are executed when all predefined conditions are met. The two main parties making use of the blockchain for commercial transactions are an exporter and importer who wish to ensure that the contract terms are being met correctly. With these types of smart contract solutions, stakeholders participating in operations are:

- importer
- exporter
- credit agencies
- insurers and insurance brokers.

The basic limitation is due to the requirement of different stakeholders working together on a common infrastructure (i.e., a blockchain) and making the adoption of technology a precondition for trade.

### Using blockchain for cross-border payments

#### Use case description

The blockchain solution for cross-border payments has the potential to resolve inefficiencies and provide a fast, cheap and secure alternative to traditional banking methods.



Blockchain overcomes these challenges by facilitating the process and storing each operation in a secure distributed ledger simultaneously.

Transactions in the block chain are executed over digital currencies, while the process is accurate, tamper-proof, and less costly. They can rely entirely on cryptocurrencies or use a blockchain to register and transfer nominal money markets. Many blockchain enthusiasts predict that the use of technology and cryptocurrencies will have a major impact on the financial inclusion of developing countries and will become highly accepted in the international money transfer market.

### Insurance via CopeTract

#### Use case description

In Inco Terms, such as CIF, there are a lot of problems with the vendor's insurance policy. To prevent these kinds of issues, your insurance is determined via CopeTract. The buyer and the vendor confirm this. Then, based on the approved insurance, an insurance policy and the price of that insurance will be offered. In conclusion, insures according to the terms of the agreement between the buyer and the vendor.

### Blockchain in marine insurance

#### Use case description

Marine insurance is a supply chain-specific insurance that aims to reduce the risk related to loads such as damages or shipment delays. The blockchain-based marine insurance platform provides automatic charges and premiums through smart contracts under certain circumstances (after the deposit is approved, policy documents are automatically issued to ship operators). Other typical functions of such platforms include sharing of real-time shipping information between importers, exporters, insurers and brokers, and tracing of the risks by insurance companies. The blockchain application on marine insurance is unlike other types of insurance since damage assessment can be done without human interference and is based on incorruptible data related to freight charges such as weather conditions or speed of the ship.

### E-Commerce via CopeTract

#### Use case description

A vendor contracting through CopeTract may find other clients; contracted clients may recommend a vendor they are satisfied with. The contents of a previously formed contract can be shared directly with the vendor and/or a new client. In this way, the vendor to increase the number of clients and profits by making new agreements with time savings.

### Using blockchain for government-to-government transactions

#### Use case description

The principle of G2G information exchange is to use a decentralized permitted ledger for cross-border exchanges between government agencies interested in trade (customs, chamber of commerce, regulatory agencies). Permitted blockchain-based platforms can be used to store documents in sensitive international trade, transmitting them from one nation state to another and provide immediate access to this trustworthy data. The main objectives are facilitating trade, reducing the costs of operating expenses, and increasing the efficiency and endurance against fraud.

## Digitization of supply chain stock exchanges

Logistics is a complex ecosystem that unites multiple stakeholders, such as:

- Importers/exporters
- logistics and shipping companies
- credit agencies
- insurance companies
- port managers
- customs administrators
- national and international authorities
- customs.

This number of sides involved in the supply chains refers to high transaction throughput as well as a wide variety of shared documents. The majority of these documents were created and processed manually. Decentralized ledger-based applications can provide a robust and modification-resistant record of a trading history by storing data on traded data in allowed blockchains so stakeholders can access past transactions and related documents, such as import and export customs clearance and consignment (or a document issued by a carrier agency) in real time to confirm receipt of the shipment.

## Implementation of trademarks and property rights

### Use case description

Blockchain can be used to limit forgery in international trade, to store evidence of authenticity, certificates of trademarks, and other information that identifies the product, and to access it securely. Such solutions are often applied to prevent fraud in markets such as medicines, diamonds, art objects, luxury and other complex commodities. In other words, they will be useful for any asset whose value depends on their originality.

This traceability solution requires tagging with a specific label containing information about a product that is scanned with a specific application to verify its authenticity. End consumers, authorities and other stakeholders can then check if the product is original. There already are a number of companies that have offered blockchain based anti-fraud traceability solutions over the past few years. Everledger, for example, began with a blockchain-based platform to verify the authenticity of diamonds, but later expanded its service to wines, art objects, high-ends and even insurance.

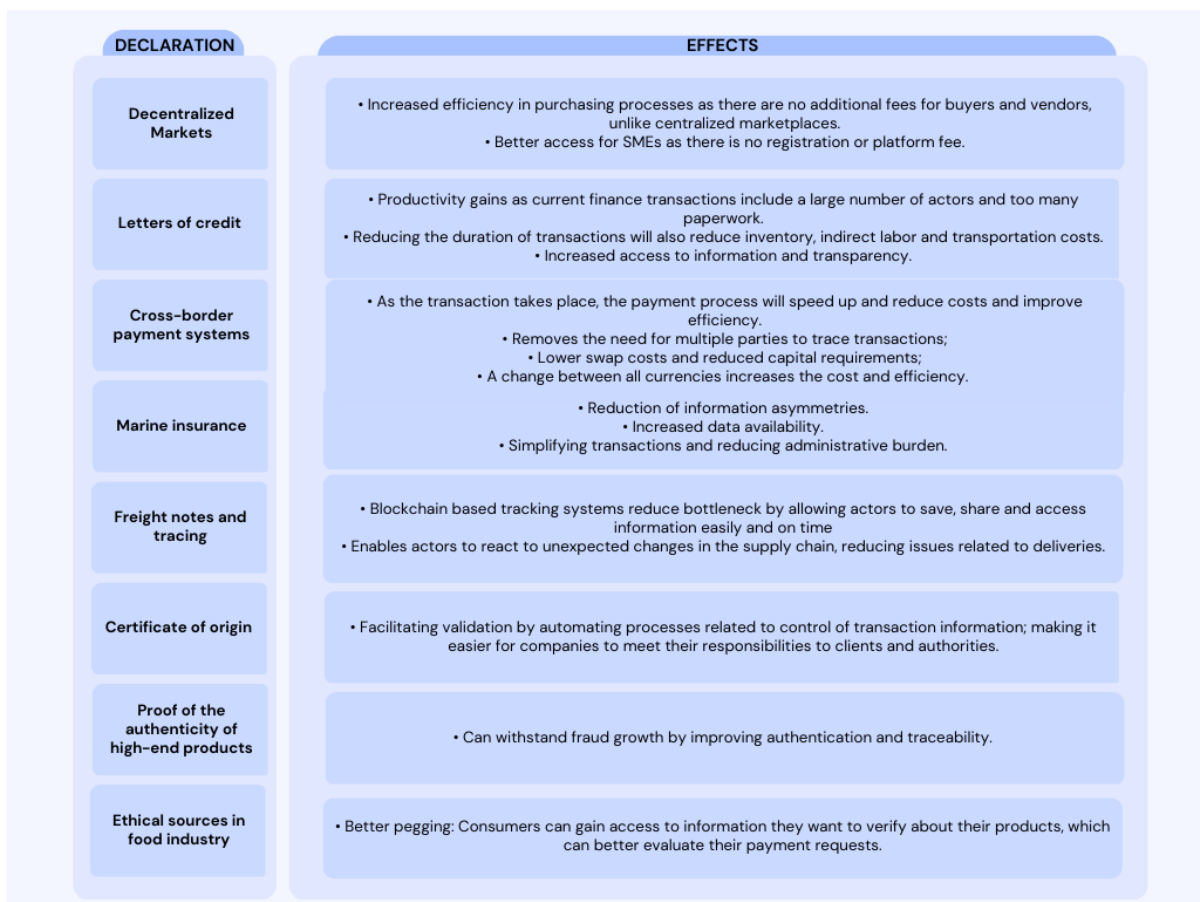
## Providing additional traceability and transparency in trade

### Use case description

Information about sensitive products, such as diamonds or medicines, cannot be shared with the help of blockchain. General data, such as the origin and composition of goods, or steps monitored along the supply chain, can also be accessed by final consumers, importers and authorities through solutions that run on the blockchain.

This use case focuses more on providing additional information to the end consumer, although in practice it is mostly similar to the application and regulation of trademarks. One such practice has emerged at retail and especially in the largest supermarket chains such as Wal-Mart in the United States and Carrefour in Europe; companies allow consumers to learn more about a product stored in the blockchain, and importers can easily track the status and location of food products. Companies, institutions, or individuals may track the status of the agreement, terminate if requested, or proceed to the next phase of the agreement with multi sign technology through CopeTract.





## Advantages and Benefits of CopeTract

The prolonged preparation and review period for payments with letters of credit will be reduced to minutes, even seconds, thanks to the CopeTract.

Moving paper documents with items alongside speed, providing check-out procedures during the national and international goods movement, brings another workload to the carrier. The documents kept on CopeTract removes paper transport as well as the requirement for load.

The errors/losses made in documents create additional costs to the exporter. In addition, it is virtually impossible to keep track of who has received the printed documents and at what points the physical copies are produced. This causes the business data to be shared with third parties without permission from the companies. The traceability and transparency of blockchain technology make it easier to keep up with. It is also a source of increased security through the inability to make copies and the inability to access data by third parties.



The procurement system is another characteristic. Under this feature, users who are authorized to execute the contract but want to delegate and have someone else sign it can select a proxy holder and sign the contract through the own wallet of the proxy.

Under the contract, the coverage of the insurance is determined, options are proposed by different insurance companies after the approval of the buyer and vendor, and then insurance is provided with respect to the terms of the agreement.

Problems with marine insurance (described in the blockchain section of marine insurance) disappear with the use of CopeTract's blockade system and thanks to firms providing control of property in international trade.

Brokers can reduce administrative fees and focus more on customer care.

Insurance companies can quickly manage risks to ensure that all premiums and requests are paid faster than traditional paper procedures.

Importers, exporters and shipping companies can reduce their own risks, so that all potential losses can be met on time.

Makes it easier for a vendor to find new clients.

Cross-border payments supported by blockchain can bring significant benefits to businesses and consumers by reducing the processing costs of international payments. The use of blockchain may also allow reducing delays in the approximation of payment information.

The basic benefit of smart contracts for transactions compared to traditional transactions is related to potential cost and time economies for the opposing parties. International trade agreements are usually on paper and involve many mediators. All this creates extra costs and takes a decently long time to execute the overall contract. With smart contracts that you can do through CopeTract, you can save huge amounts of both time and cost.

Water, sulfate, sodium, sulfite, craft process, caustic soda, silicate and fatty acids, electricity, tree consumption and greenhouse gas emissions used in paper production around the world are greatly reduced in case of digitalization of contracts.

More than 70% of the world's businesses say they will go bankrupt in three weeks if they lose their printed documents due to fire or a natural disaster such as floods and so on. Therefore, digitization of contracts and documents used is of particular importance.

With multiple contracts or two-sided contracts, many different agencies will be able to contract with each other over CopeTract to save time and transportation costs.



With money transfers sent on time, reliance in trade will grow and your risk of fraud will decrease.

It will save time in the legal field due to its certificatory in legal problems. Also if a problem occurs with the rules of the CopeTract's terms of use, there will be a reduction in the court process due to the fact that the terms of use will be met if the parties agree to terms of use at first.

Since CopeTract's contract system uses Stable cryptocurrencies (such as Tether Gold, USDT), it also eliminates any instabilities or problems that may arise from a further exchange in trade.

As the shipping process can involve a large number of stakeholders in the contract (thanks to the multiple-contract system), it will not only relieve the parties that produce and approve documents, but also facilitate the tracking of the shipping companies and increase their income.

Intergovernmental platforms based on blockchain can optimize traditional administrative on paper processes through the blockchain that CopeTract provides to the government, introduce better transparency into intergovernmental trade relations, and help determine and prevent fraud and other malicious activities in trade at international level.

In logistics, the output-based software can be used to automate payments as soon as the terms of the sales agreement are executed.

Real-time access to all relevant information by all participants in international trade processes can reduce administrative costs.

Asset tracking provides better transparency and can help prevent shipment delays.

Shipping companies can minimize shipping costs by optimizing capacity for loads.

Blockchain solutions against fraud can help producers maintain product value that is strongly associated with its unique identity. In this context, blockchain technology will help prevent counterfeits (providing a unique identifier stored in a secure database) and track product transfer across the supply chain.

Given the traces of goods in the blockchain along the supply chain and the transactions stored, retailers can verify if the purchased products are genuine. Furthermore, the validated background of each product will help consumers determine the authenticity of the products.

In addition, consumers may benefit from being more precise in purchasing genuine products, which are especially reassuring for products that are critical (medicine) or products that are traditionally priced in high prices (luxury).

By using CopeTract for cancellation of payments in e-commerce or contracts to be executed in e-commerce, both refund and forwarding can be made faster, also the processes in contracts and invoices to be made in e-commerce can be more organized and more affordable.



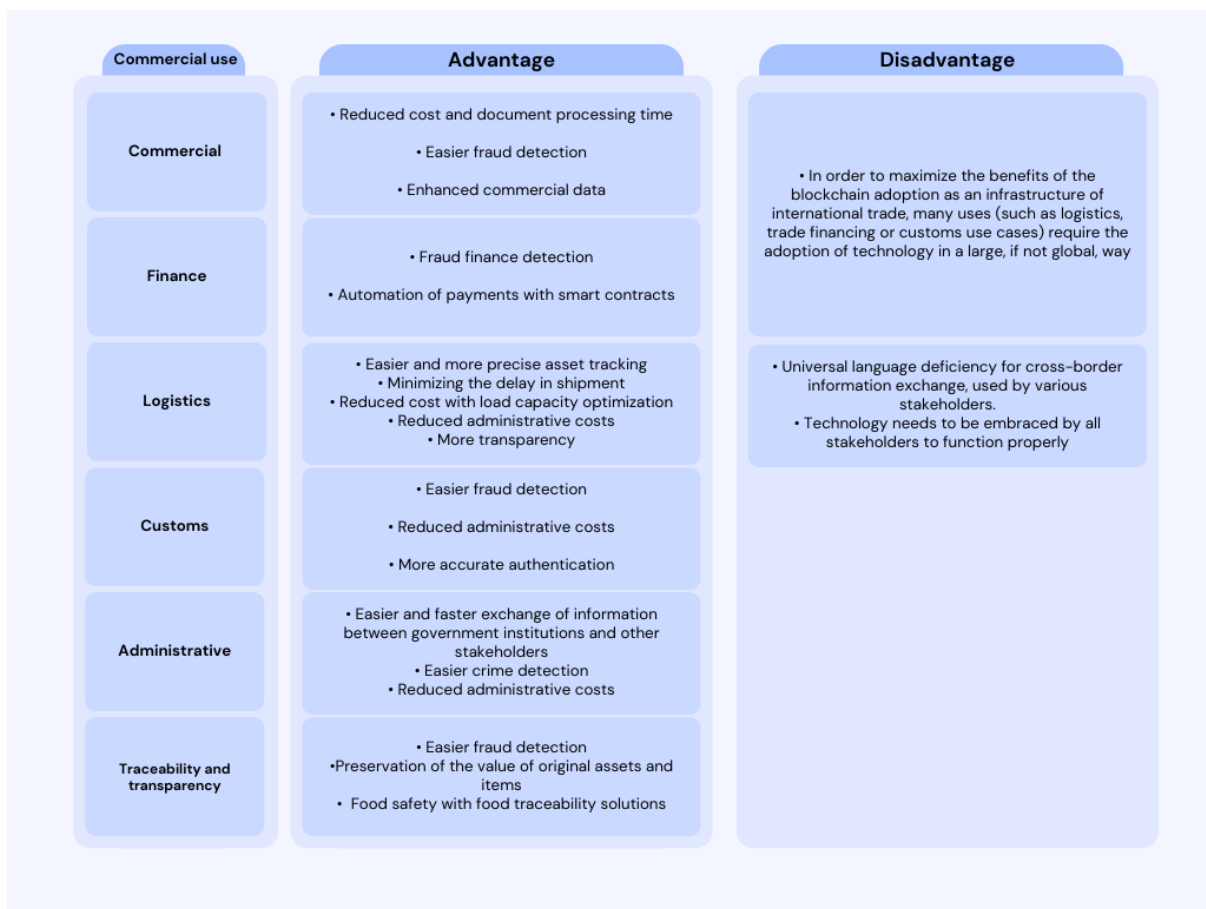
## What are the issues?

Data standardization problem: Although customs, shipping companies, ports, and banks in the world are all operating under certain agreed-upon rules, documents and data on them are not standard. This causes difficulties in data flow, communication, and implementation of smart contracts. However, work is being done by international organizations such as the International Chamber of Commerce and the Digital Container Transportation Association.

Establishing concrete political proposals to create a working group on common understanding with the Treasury and the Ministry of Treasury and Finance, the Ministry of Commerce, the Ministry of Industry and Technology, the Ministry of Transportation, the CBRT, the Banks Association of Türkiye, and the BRSA, and the BCTR.

Lack of common standards is another major potential obstacle to the embracement of the blockchain in cases of international trade use.

To maximize the benefits of the embracement of the blockchain as an infrastructure of international trade, many uses (such as logistics, trade financing or customs use cases) require the adoption of technology in a large, if not global, way.



## Blockchain value proposition for international trade

To understand expectations of the benefits of blockchain technologies in international trade, we propose a map of the value proposition of the blockchain on international trade. To fully understand these expectations, it is important to recognize that some of them are not specific to blockchain technology and that the overall benefits of the adoption of digital technologies and/or tracking technologies are substantial.

### Benefits of digitization

Initial benefits set out for the adoption of blockchains in the case of international trade usage are often linked to the benefits of any digital technology: potential extra profits linked to the reduction of paperwork and increased automation. Many of the benefits offered in blockchain adoption scenarios, and particularly the increasing speed and decreasing costs, are not specific to blockchain technology, but to digital technologies. In several cases, international trade processes are still largely based on documents and paper: bills of lading, letter of credit, customs documents, etc. Embracing a digital equivalence to this paper-based process will enable the process to be accelerated (reduced transmission durations, reduced failures, automation of the process and analysis) and reduced cost (along with processing of documents, lowering personal cost).



This can be accomplished using both a decentralized control system (such as blockchain) and a centralized control system (such as a central database). The expected benefit of the blockchain in this case will be to facilitate digitization, offering a digital infrastructure that can be trusted mainly by the ecosystem.

### Decentralized control

The uncentralized control of block chain technologies is the main differentiator between blockchains and other decentralized data storage technologies. The decentralized control brought about by the blockchains can potentially reduce costs, helping to reduce the number of brokers and third parties involved in the trade exchange. But most importantly, it is seen as a tool for promoting cooperation and increasing confidence among the actors of the commercial ecosystem. In international trade, trading partners look for safe and fast transactions to ensure the exchange of goods and services. This requires the establishment of mutual trust and complex relations. The ability of the blockchain to transfer trust to algorithms has led to expectations that it could benefit the global trade ecosystem.

### Economic overview

Widespread adoption requires not only technical functionality, but also the economy of the proposed blockchain solution to generate benefits for its potential users. Blockchain technology can deliver these benefits because of the potential it has: 1) reducing validation costs and 2) network costs. The first one is due to the lower costs of reviewing transaction information, and the second is due to the unawareness of the need for the intermediary. In brief, the blockchain can eliminate the rent issued by actors who are currently behaving as trusted intermediaries. However these benefits come with costs. In general, decentralization is connected with three main costs:

- 1) Waste of resources
- 2) Scalability issue
- 3) Inefficient network impacts

These costs should be weighed against the benefit of increased competition when evaluating the economic impact. Furthermore, the full benefits relate to the creation of a completely decentralized environment, but such a large-scale environment requires large computational power; therefore, many existing pilots are mainly made with permitted blockchains in smaller reconciliations, which are easier to organize. With Ethereum 2.0, issues of scalability, resource waste, and inefficient network impact have largely dispersed. Although technology is splendid in the ownership transfer, it cannot guarantee the transfer of title. For this reason, central establishments, such as state institutions, may continue to be essential for sanctions and audits.

### Social Overview

Like all ingoing technologies, the blockchain has social effects. Increased use of blockchain can create winners and losers, due to a potentially unequal access to blockchain technology or an unequal distribution of costs and benefits for the embracement of blockchain among different social groups. Just as the blockchain solution reduces barriers to entry for small companies and manufacturers to international trade and therefore acts as a force for participation, it can also act as an obstacle. This depends on the actors who have the resources to participate in technology, from know-how to internet access.



The challenge lies in closing the digital gap between developing and developed countries, but only when the blockchain is being acquired among actors on the same market. However, in situations blockchain serves to reduce the administrative burden (e.g., trade finance, trade-related insurance, customs controls) it can reduce the costs of providing these services and thus the fees charged to economic operators. These benefits will depend less on the digital readiness of individual companies or countries.

In addition, blockchain may have social effects on where there are inappropriate validation processes. For example, technology is expected to facilitate communication and validation of ethical and social claims in business transactions. Even though this has great potential to support sustainable commerce, it must be backed up by an offline validation process that provides reliability for shared information. Blockchain can facilitate fair trade as long as this verification process is in effect and links online information to offline processes.

When the agreements with CopeTract have social problems as they relate directly to the individuals and the law, these problems will be resolved with the law or terms of use on CopeTract.

## Policy Recommendations and Roadmap

- Forming of concrete political proposals to create a working group on common understanding with the Ministry of Treasury and Finance, the Ministry of Commerce, the Ministry of Industry and Technology, the Ministry of Transport and Infrastructure, CBT, the Banks Association of Turkey, BRSA, by the BCTR.
- Opening a special project at the Digital Transformation Office of the Presidency and establishing the final coordination by including the topic of blockchain transformation in supply chains
- Informing all relevant public institutions (the Presidential Office of Finance, Strategy and Budget Chairmanship, SEC, Mint, SDK, TOBB, TÜBİTAK) about blockchain in order to facilitate the access of supply chains to finance, and becoming an active policymaker.
- Initiating the providing of the integration of banks with the General Directorate of Customs, boards of trade, and logistics companies in order to facilitate the finance of supply chains,
- Creating special blockchain awareness and concrete projects for exporting companies in cooperation with leading NGOs (such as TÜSİAD, Türktrade and Exporters' Association),
- Preparation of consonant digital standardization in our country with the world,
- Informing the business world about developments and works by the relevant public institutions by generating reports at regular intervals, creating a basis for reconciliation by receiving feedbacks,



- Development of the API and its integration into e-commerce sites, banks, government agencies,
- Collaborating with insurance companies,
- Doing business with courier companies and businesses that provide financial control in trade,
- Doing business with customs companies,
- Being approved by exporter units,
- Planning organized workshops with active participation of public enterprises,
- Determining the solutions to be produced with the blockchain technology of the established structures and producing outputs within a certain calendar,
- Ensuring active representation of our country in international organizations and carrying out co-operations to implement pilot projects.
- Training of software engineers and workforce who are competent in blockchain technology,
- Organizing training courses to strengthen the understanding of all stakeholders in the ecosystem.

## Technological Values

Given the existence of a blockchain based ecosystem, every stakeholder in the ecosystem can access the data generated as soon as it is written into the blockchain as it will use this non-modifiable distributed ledger/database. With access to data being available to all stakeholders, processes will be able to provide full transparency. The identities of the nodes to be identified in the blockchain network are determined at the network setup stage, and the consortium is built accordingly. This guarantees transparency while also maintaining access control and read/write privileges and data privacy. If manual control of documents is involved, it is possible to complete confirmation of smart contracts and document data immediately by the respective parties, or even fully automate the process so that approval/rejection can be taken place when the data is written to the blockchain. This would put an end to waitings for inspection purposes at ports and customs. Since all document data will be digitized and written to the blockchain, there will be no document loss or document forgery, and the industry will be freed from the burden of administrative sanctions due to these. Blockchain technology produces solutions not only for the data of documents, but also for the physical monitoring of things that are particularly important in processes. Tracking each physical movement of the item will make it traceable for delivery delays and possible property losses. The damage incurred can be reported and redressible, as the parties responsible for these losses can be processed and traced instantaneously in the blockchain.





## Economic and Commercial Values

Each document produced on the existing systems is fed by one another; Since data entry between documents is manual, significant time is spent on data compatibility control. Such systems, whose processes proceed manually, cause loss of time due to human errors and tardiness. With the smart contracts that the block chain uses, the monitor compliance on the data is done as soon as the data is written. This guarantees accuracy as processing times are shortened. In addition to the data compatibility between documents, it is also checked whether the mandatory data is provided, and initiating a transaction with incomplete information is avoided. This prevents customs and other administrative organizations from encountering errors that will cause time loss during checkups. In addition to time losses, there are also losses in documents delivered physically. Losses in mandatory documents lead to administrative sanctions and fines. Transferring this data, rather than the printed document, eliminates the possibility of penal sanction. With the tracking of the movement of the object, the waiting of the vehicle can be traced outside the points it should stop by, which can be reported as causing a disruption. The process of confirming that the item has been received from the dispatcher will be facilitated.

Having instant location knowledge of the item enables logistical service providers to make their business plans more efficient. Shipping and supply chain processes are one of the most appropriate processes for blockchain in terms of operational applicability. The acceleration that will be experienced with the participation of administrative institutions in the blockchain ecosystem will both reduce the costs of the parties to trade and increase the reliance in international trade. Any agency that provides services associated with instant tracking of the item will be aware of when and where they will be needed and will optimize resource management accordingly.

## Social and Environmental Values

End users follow the sustainability efforts of companies and their stance against nature before consumption. The use of paper will be significantly reduced in the introduction of blockchains on shipping, as will the carbon footprint of companies.

