BLOCKCHAIN FOR
SUPPLY CHAIN

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IN THIS WHITEPAPER

INTRODUCTION

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Blockchain technology is revolutionizing industries. The technology is capable of allowing trustworthy data to be exchanged between two parties in any supply chain system, without the intervention of any intermediaries. This allows for peer-to-peer sharing of data with authenticity like never before.

A quote from Bank of England says:

"It [blockchain] is a technology that allows people who don't know each other to trust a shared record of events.

So, let us get to the bottom of this to understand why blockchain is necessary for the supply chain market. In this article, we're going to focus on these things:

1. Quick (very quick) understanding of blockchain for supply chain
2. Importance of peer-to-peer communication in supply chain
3. Let's talk about Smart Contracts for supply chain
4. How blockchain can improve supply chain
5. Challenges and the actual implementation

UNDERSTANDING
BLOCKCHAIN FOR SUPPLY CHAIN

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Let's start with the name. We think blockchain is the perfect name for a technology like this, where information is moved in between parties in blocks, and forms a chain of custody of those blocks. The information that are passed as blocks are recorded in a distributed ledger across parties to verify the authenticity of this information. Whenever there is a new transaction happening in the system, the ledger is updated across all the peers and verified again for the authenticity of that information.

This entire process creates a chain of custody. Thus enabling the two trading parties to trust each other more. With blockchain, issues like counterfeit materials is near impossible, since the authenticity is verified at every single step from the manufacturer to the supplier to the end-customer.

With blockchain, people know who they are doing business with, what they are selling and how much are they selling with essential information, thats recorded in each blocks. These can be in the form of a certificate, that follows a chain of custody.

This amount of transplant information for above will change the way materials are moved from one place to the other. And from the experience working with our customers we have seen this happen in front of our eyes.

PEER-TO-PEER COMMUNICATION
IN SUPPLY CHAIN

PEER-TO-PEER COMMUNICATION IN SUPPLY CHAIN

A customer who we worked with, had a very interesting and crucial business problem to solve. That was counterfeit materials being supplied to their customers. Whenever they manufactured their material, the suppliers from all over the world bought them to re-sell it to their customers. But the problem here was, the suppliers (some of them) went rogue, and sold an off-market replica of this exact same product as the manufacturer, but with low quality and pricing. This enabled the rogue suppliers to make huge profit margins, but the manufacturers were taking a huge hit on their reputation.

This happened because there was no way for the end-customer to track the chain of custody of the item. They could not authenticate the originality of the product from anyone else other than the supplier themselves. Companies are losing billions of dollars every year because of this particular problem.

What if, there is a way for the end-user to know where the item is coming from, and the manufacturer to know, where each supplier is selling their item to? This would change everything. This particular model literally ensembles the importance of a peer-to-peer communication between two trading parties, even though there are suppliers (who might be very essential for manufacturing companies) who are in the middle.

With blockchain, suppliers will have no way to tamper the incoming information, and the end-customer has all the authentic information they would need for the money they are paying.

SMART CONTRACTS
IN SUPPLY CHAIN

SMART CONTRACTS IN SUPPLY CHAIN

When working with one of the largest manufacturers of oil pipes, we found the complexity of each and every contract that goes into the system before they could sell an inch of pipe. The stack at both the buyer and the manufacturer are very high. This is complex.

Typically, a contract could focus on the change of ownership, credit letters, payment terms, contingencies and much more than what I could think of at this point. But then, what if, there was a way for you to eliminate most of the complex things and put it in a system that could validate these things?

This is where the Smart Contracts come into picture.

"Smart Contracts eliminate the complexity in the current contacting system for the supply chain industry.

Smart Contract is nothing but a piece of code that enforces two parties to agree on a set of rules and actions before they could transact. And the validity of this agreement is again monitored by others in the system automatically.

Whenever there is an update required to these Smart Contracts, you just have to push the delta update to the code, and that will do the trick here.

Since Smart Contracts are super flexible and programmable, this enables easier, less time consuming trading between two entities.

TO REMEMBER: It is not easy at this point to write a product ready Smart Contract code. We suggest you to work only with the experts to write these Smart Contracts for your blockchain implementation.

BLOCKCHAIN'S EFFECT
ON SUPPLY CHAIN

BLOCKCHAIN'S EFFECT ON SUPPLY CHAIN

Before I could talk about the possibilities of using Blockchain for Supply Chain, here are the problems majority of the supply chain market is facing today:

1. Counterfeit Grey Market Products
2. Low transparency among traders about the origin of a product
3. Compliance visibility
4. Time it takes to create and close a contract

When done right, blockchain has the potential to address these four problems the supply chain industry is facing right now. Companies can improve their transparency using hashes that are passed with the chain of custody. The time it takes to close on a contract can be reduced using Smart Contracts and the possibility of selling something from the grey market can be reduced to a huge extent.

High-value goods like pipes, or large industrial equipments can reduce the risk of being cheated using blockchain. A heart-breaking study by Organization for Economic Co-operation and Development states that the industry is losing around $450 billion every year in counterfeit products. This is a huge number which can make or break any business.

With blockchain, companies can know where the parts of their finished products have come from and verify the authenticity of the product ultimately. This enables the end-market customers to have trust in whatever they are buying from the manufacturer.

IMPLEMENTING BLOCKCHAIN
FOR YOUR SUPPLY CHAIN

IMPLEMENTING BLOCKCHAIN FOR YOUR SUPPLY CHAIN

Though blockchain is a very good technology that can solve some critical business problems today, it could see some resistance. Since the technology relies on trust and authorization from multiple parties, it can only work to its fullest extent if all of your suppliers and peers can implement your blockchain solution for processing your items.

It's not just that. But there are some more problems that need addressing before your blockchain solution goes live:

1. Scalability
2. Integration
3. Security
4. Effort

Scalability: For blockchain to scale properly, you need to work with experts in the industry. They need to know how to scale-in or scale-out a blockchain application for your organization.

Integration: Once we solve the scalability problem, people are going to find integrating blockchain technologies into their existing workflow difficult. They are going to need time, effort and money to do this.

Security: Security is one big risk factor if your architecture is not well thought through. Companies will be concerned about their sensitive data exposure to other peers in the chain.

Effort: Architecting, creating and implementing blockchain for supply chain is not very simple. It is a mammoth task that companies and partners should work through.

WHAT'S NEXT

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Will blockchain change everything in supply chain? The simple answer is: We don't know that yet.

We don't know the answers to what other fields Blockchain can be of huge importance and create a revolution.

The ones who invest early in blockchain's lifespan is going to see the fruit early. They are the ones who will set the standards for blockchain in supply chain as well. And they will be the ones taking the first step to find the next big thing in blockchain.

If you have some thoughts about blockchain for supply chain, drop us an email (business@skcript.com).

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Skcript is a global technology & design consulting company, working with customers in over 17 countries. With an unparalleled experience, extensive attention to detail and a highly technical team, Skcript extends its experience across 12 industries. The company makes huge investments in R&D under the Skcript NEXT program to deliver high-performance business solutions for our customers. Skcript has its home page at www.skcript.com

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