LamdenCaseStudy

Reinventing Trade Finance with Blockchain and Smart Contracts

Lamden applies distributed ledger technology to create previously unfeasible efficiency in business processes.

We focus on the point where distributed systems technology and business process automation intersect to deliver solutions to previously unsolvable problems. We use the LEAN philosophy to create the most minimalistic solution possible.

Our team is made up of PhD qualified experts in the fields of economics and distributed systems technology. This allows us to propose and implement the best business solutions for your specific processes and needs. To accomplish this, we utilize a state-of-the-art custom blockchain system that delivers high throughput against a rich, smart-contracting environment. Our system has a modular design that allows us to apply extensions and modifications to meet your specific needs quickly, simply, and most importantly, while maintaining cost-effectiveness.

It all starts with a discovery and analysis period where we'll evaluate your current processes and propose technology-enabled optimizations that will help to increase your bottom line. From there, we'll fully implement, support, and manage the solution.

Our Approach to Trade Finance

Trade finance is a $9 trillion industry. Any small inefficiencies in the system such as an extra day of processing, waiting for a sign-off, or a few more hours waiting for a response, compound to become massive losses in revenue and potential profit.

Most inefficiencies are due to manual processing and approval of repetitive, standardized forms. When multiple parties are required to sign off on a transaction, the time it takes to approve that transaction skyrockets.

Our software can digitize these otherwise complex contractual agreements and approval processes, creating a single workflow that utilizes the power of smart contracts on a distributed ledger.

This has the benefits of centralizing all necessary interaction within the business agreements and digitizing each stage of the overall contract approval which, in turn, leads to both massive savings and increased work throughput.

One example of this in the trade finance sector is the letter of credit contract process.

In international trade, two parties from potentially non-reputable jurisdictions or companies need to conduct a business transaction. Rather than trusting each other, each party elects a bank to represent them on either side of the transaction, creating an interaction that is indirect in nature and inherently inefficient.

The banks serve as liaisons between the parties to gather proof that the seller has shipped the goods and the buyer has remitted payment in response, even though the goods have not yet been delivered. This allows for faster international trade by reducing the time needed for shipping, customs processing, etc.

Generally, the seller gives their bank a bill of lading, showing that they have shipped their goods. The bank verifies this for authenticity and then remits payment to the seller when the documentation is verified as legitimate.

Bills of lading and other supporting documents are often sent via post services and physically signed off upon by bank representatives. The process of shipping the documents alone can take days.

The compliance process of an average cross-border trade transaction generates several pounds of paper mailed back and forth between parties, taking weeks. Of the 170 billion business invoices sent each year, less than 10% are truly digital.

Shipping-giant Maersk estimates that this process accounts for 20% of the entire shipping procedure, including the physical shipping costs.

In a single instance, Maersk found that refrigerated shipments between East Africa and Europe required a whopping 20 different people and organizations along with 200 unique interactions and communications for a single transaction.

Think about the time it takes for a single shipment of this caliber to be manually confirmed and apply that across the entire world of international trade. The numbers add up fast – and this is the status quo.

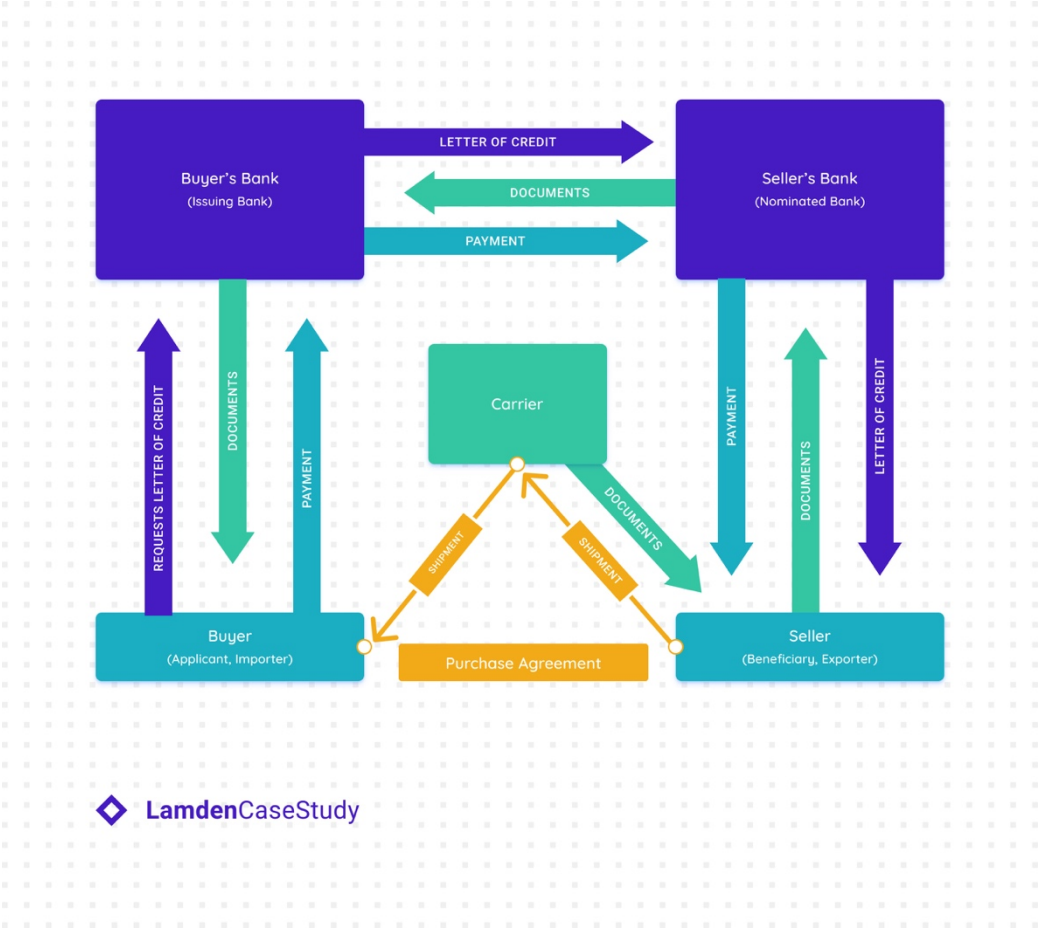
This is why many firms actually opt out of a secure transaction using a letter of credit and choose 'open account terms.' Open account terms force the seller of the goods to ship them prior to payment without the legally binding guarantee of payment from the buyer’s bank.

This means that the seller has no other option than to trust that they will receive payment. They are at the mercy of the buyer. Almost 80% of all trade volume is now conducted on open account terms.

Ironically, suppliers choose this option because the amount of time they save allows for more goods to be shipped and more money to be made. This, however, makes conducting business with new and untrusted parties less attractive, which decreases competition.

Smart contracts can automate the letter of credit system so that suppliers do not have to choose profit over security.

Traditional Letter of Credit Process



Digitizing Trade Finance with Blockchain

In a traditional trade transaction, documents are transferred between participating parties by post, fax, or email attachments. Because of the lack of trust, more documents are required before the transaction is verified, which causes more work during the verification process.

More legal documents are required as well, and they usually go through slower shipping methods. Automating, securing, and digitizing this process brings efficiencies to both sides of the procedure.

The traditional letter of credit is delivered to the seller as proof that payment has been secured by an escrow agent, allowing the shipment to be initiated. After the shipment is delivered to the carrier, proof of shipment is then processed by the banks and checked by their inspectors. After the seller's bank confirms the documents, they need to be delivered to the buyer's bank and to the buyer together with the confirmation required to initiate final payment. Several entities and specialists are involved in different regions, exchanging documents by e-mail in the best case scenario. Manual processing, human errors, distrust,

additional checks and confirmations, different time-zones, and delays connected with national holidays make this process extremely slow and ineffective.

Despite all the inherent inefficiencies of trade finance and the letter of credit, the right technology could dramatically change everything. The traditional system relies on numerous documents being checked by several parties and transferred between entities before any payment is executed. However, one major inefficiency is the result of delays and numerous simple operations that could be easily automated using the right technology.

In our proposed system, the letter of credit smart contract would be initiated once the purchase agreement for the goods is signed and the parties have selected their representative banks. The buyer's bank in this case would be the 'lead' negotiator, hosting the smart contract software.

From there, the buyer's bank confirms its guarantee to pay for the goods by either debiting money from the buyer or approving credit. This confirmation would then be logged into the digital ledger and the payment held in escrow. The seller can now verify that the funds are being guaranteed by a bank and feel secure to go ahead with shipment.

By utilizing new banking APIs such as Silvergate's system[1], or the new European Union digital banking initiative[2], we can write software that reacts to incoming ACH and SWIFT payments, automatically triggering smart contract and blockchain actions based on tagged information, incoming amounts, sender's account number, and more.

The seller then initiates the shipment and acquires a bill of lading from the carrier. This information is added to the smart contract and made available on the buyer's side via a data entry or document digitization workflow.

The banks then verify this information. If the information is not correct, or to the standard of the letter of credit, the seller is notified, and the smart contract stays in a pending state until adequate proof is provided.

The buyer gives approval once the proper proof is provided and the funds are released from escrow. A payment request is added to the buyer's bank's payment queue automatically, where it can be processed normally just like any other bank payment.

This differs from the current system drastically. Currently, every point of communication between the parties can take several days to process. For example, the turn-around time between the seller receiving their bill of lading and sending it to their bank representative who must then send it to the buyer's bank representative can take several days.

With our smart contracting system, parties are notified immediately via email and given a web interface to interact with the smart contract. Documents are stored in encrypted file storage and made available to only the four participating parties. All transactions yield cryptographic proofs to mathematically certify that each party

has performed a certain digital action, much like a digital receipt.

The result is a trade finance process that takes just hours instead of the seven days to a month it currently takes.

Our blockchain solution allows constructing specific smart contracts easily and with flexible terms, literally digitizing any letter of credit. Human input remains where it's needed and smart contracts automate everything else, which is more than 90% of the documenting process. This approach dramatically boosts efficiency by streamlining processes, saving time, and reducing the cost of transactions.

The introduction of smart contracts allows the parties to pre-define criteria and actions along with the triggers that initiate document transfers and payment processes. While one manual checkpoint remains – validation of shipping confirmation and other supporting documents – this checkpoint becomes the only manual step in the entire process.

Increased Security and Trust

Using blockchain as the document storage and delivery medium also reduces the risks that are so notorious with international trade finance. While the traditional process is subject to fraud, falsified and lost documents, or different parties using different versions of the same document, this is not the case with blockchain.

With a blockchain solution, each party can easily store, process, share, and access documents and their terms, including the contract and letter of credit, while simultaneously enjoying the ability to check their validity with all other parties. While each entity could use its own data storage, an indelible audit trail provides traceability and immutability by putting records in to the blockchain and verifying them within the network using a decentralized consensus. Participating entities could save on manual verification and compliance costs while reducing the risk of fraud by ensuring that each transaction is recorded in the distributed ledger sequentially and indefinitely.

Additionally, a blockchain solution allows data to be simultaneously transparent and private. Each party can select which part of a document is to be shared, and with which party, while independent verification provides proof to all entities without disclosing the full contents of the document. Private documentation and terms remain in private storage, fully secured and encrypted.

The buyer and seller are also ensured that the payment is processed according to the pre-defined agreement, as it relies on a smart contract, not on someone's goodwill or any other possible circumstances.

Beyond Trade Finance

Most of the inefficiencies of trade finance and the letter of credit system are due to simple operations that could be easily automated with the right technology.

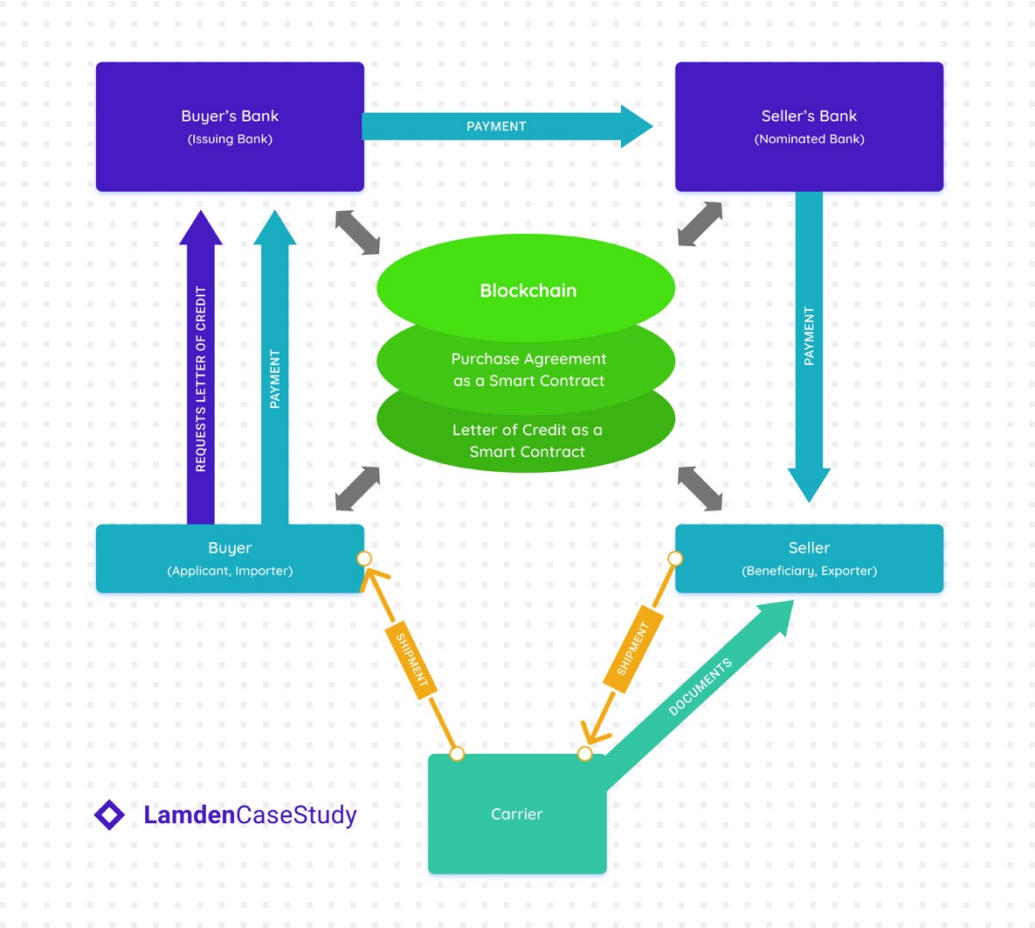
Any process that requires numerous documents to be checked and transferred between several parties in order to initiate a payment or approval

can be automated with our smart contracting system.

With our state-of-the-art software and implementation team, we examine a process and identify exactly where smart contracts can come into the picture. Most of the time, simple technological solutions will lead to dramatic savings. Because our technology is on the cusp of digital ledger technology, we can work with finely detailed processes that were previously impossible to automate and offer solutions that no other firm can.

Our system, beginning with the first line of code, is designed specifically for process automation.

Smart Contract Enabled Trade Finance Process



The Result and the Expectations

During 2018, the World Trade Organization published a 160-page report on the potential of blockchain in revolutionizing international trade, concluding, "If we succeed in creating an ecosystem conducive to the wider development of blockchain, international trade could well look radically different in 10 to 15 years."

Blockchain and smart contracts reduce processing time, eliminate the use of paper, and save money while ensuring transparency, security, and trust. Using blockchain to digitize the letter of credit and other related documents represents a significant improvement opportunity for any entity conducting international trade. Additional transparency and immutability eliminate distrust, establishing a new culture in international business.

While previous solutions were focused on creating numerous centralized trade platforms requiring all participating entities to be on the same proprietary platform, the decentralized nature of blockchain opens new ways of direct collaboration and cost savings, enabling even small companies to benefit from all of the opportunities that digitized trade finance processes provide. Our solution is a unique blockchain platform specifically designed to easily integrate and exchange data with other blockchains. It doesn't limit its users to a closed ecosystem.

We are excited to speak with you more about all of the options we can bring to the table. Please reach out to our team directly via team@lamden.io.

Citations

[1] https://www.silvergatebank.com/api/developer-tools.html
[2] https://ec.europa.eu/info/law/payment-services-psd-2-directive-eu-2015-2366_en