

Institute of Supply Chain Management, University of St. Gallen (ISCM-HSG)

Blockchain Can Solve the Pain Points of Trade and Supply Chain Finance

Fintechs (like Bolero, CRX or Lighthouse) have been massively stirring up the financial services sector in the past years. All markets are now being transformed by the new business models arising out of developments in information technology; blockchain is one of these new technologies. Blockchain has the power to transform decentralised ledgers as a tool to record, enable and secure an enormous range of transactions. It has no central authority; instead, it uses a shared record of information distributed over a vast network of users. This way, blockchain can deliver a new kind of trust to trade and supply chain finance.

Biggest pain points with the traditional trade process

To understand how blockchain tackles the pain points of trade and supply chain finance, one has to understand the current-state process. As shown in Figure 1, the first step in the process is the establishment of the payment terms between the importer and the exporter via a financial agreement. This financial agreement includes details on the quantity of goods sold, price and delivery time. The import bank receives a copy of the financial agreement for review. It then reviews this agreement and provides the financials on behalf of the importer to a correspondent bank, which serves as a bridge-builder to the export bank. The export bank hands the financing details to the exporter, which then initiates the shipment. Several physical and/or manual inspections take place while the goods pass through customs of both the exporting and importing country. Upon arrival at the final destination, the import bank receives a receipt notification from the importer. The import bank then initiates the payment to the export bank through the correspondent bank.

These are the points of the current process:

- Delayed timeline and payment due to multiple intermediaries and manual contract execution;
- Additional risk through exporters using invoices to achieve short-term financing from multiple banks;
- Interface and data verification issues due to multiple platforms and media discontinuities;
- Risky pre- and at-shipment inventory financing **due to limited quality of available data.**

The future of blockchain-based trade process with SCF

In the blockchain-enabled trade finance process (see Figure 2), the financial agreement is shared with the import bank via a smart contract. After reviewing the agreement, the letter of credit (LoC) is drafted and submitted to the export bank for approval. Once the LoC is approved, the parties generate a smart contract incorporating the conditions and terms of the LoC. After the exporter has digitally signed the LoC via the smart contract, the shipment is initiated. Import and export country customs are passed as the agents provide digital signatures as approval. When the importer digitally acknowledges the receipt of the goods, the import bank **initiates the payment to the export bank through a smart contract.**

Inventory finance is currently only common in the post-shipment phase due to a high-risk for banks in the pre- and at-shipment phase. With the help of blockchain, the overall data quality could be improved, leading to a lower risk and therefore enabling pre- and at-shipment inventory finance. The blockchain-enabled inventory finance could close the time gap between financing and remuneration of the produced goods. →



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About Erik Hofmann, Dominik Roeck and Philipp Wetzel: **Prof. Dr. Erik Hofmann** is Director of the ISCM-HSG and a permanent lecturer and professor.

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About ISCM-HSG: The Institute of Supply Chain Management at the University of St. Gallen follows a systematically oriented approach to foster a distinct practical benefit for industrial, retail and logistics companies. Current research includes SCF, digital innovation in SCM, purchasing performance measurement, and supply chain strategy and governance.

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This is how it works: the software platform behind a blockchain-based inventory finance solution issues digital proprietary certificates (“tokens”) of the assets financed. This funds the production assets of the producer. Lenders that possess the tokens can claim a non-repayment. **A cash outflow occurs only at the end of the sales cycle.**

Advantages of the blockchain-based solution:

- Real-time review of financial documents and decentralised contract execution reduces the time and resources to initiate and proceed the shipment;
- Access to invoices on DLT allow for a transparent and real-time view into subsequent short-term financing;
- **Disintermediation makes correspondent bank obsolete;**
- Buyer-led blockchain-based SCF facilitates reverse factoring, as all parties **can track both location and ownership of the goods;**
- Blockchain fosters transparency and data quality, which enable pre- and at-shipment financing on a large scale.

No doubt, blockchain-enabled trade and SCF bear an impressive upside in terms of transparency and speed across the supply chain. Important enablers for the application of this new technology are increased transparency in trade finance agreements among stakeholders, interoperability of platforms through technology and aligned regulatory guidance and legal frameworks. Despite a growing number of startups and well-established big players like BASF, Maersk, Port of Rotterdam, DHL, or Panalpina, that offer blockchain-based solutions, the DTL still sees a niched commercial deployment but promises to change the way corporations and individuals exchange value and information over the blockchain, **allowing unprecedented levels of collaboration.**