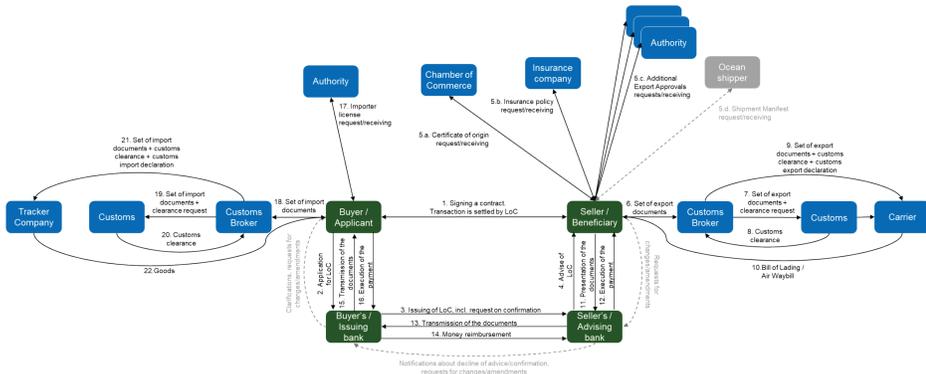


Digital Letters of Credit

Improvement of International Trade by Distributed Ledger Technology

M.Sc. Anatolii Vovk (with supervisor Prof. Dr. Torsten Niechoj)

Letter of Credit. Current State



Own illustration based on Bergami, 2009; Bishop, 2004; Dolan, 1996; Jack et al., 2009; Längerich, 2009; Sherlock & Reuvid, 2008

Case Study 1: Ocean Shipping in International Trade

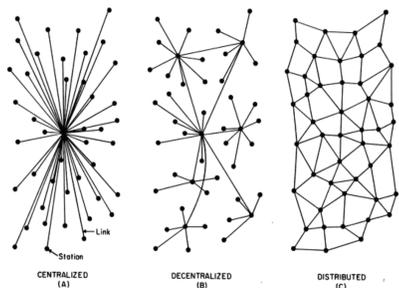
Ocean Shipping is one of the parts of International trade that quite often is secured with the help of Letters of Credits. However, the current ocean shipping process is inefficient and expensive due to a lot of manual work and paper-based documentation (Central document – Bill of Lading), different IT systems and complex communication.

A Proof of Concept by SAP aimed at leveraging of DLT to substitute BoL paper forms by an electronic process including the possibility of a digital transfer of ownership.

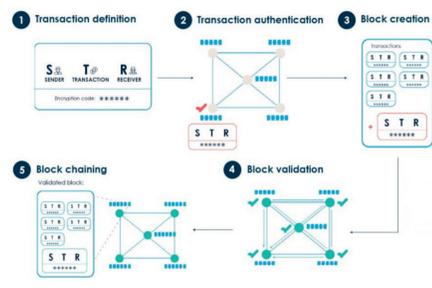
Outcome: Use of DLT for international trade processes leads to a number of benefits:

- clear and transparent process
- almost real-time data exchange instead of time consuming gathering and presenting of paper documents
- reduction of transaction costs for printing, insuring and sending of paper documents via air post
- higher level of defense against fraud

Distributed Ledger Technology



Source:(Baran, 1964)



Source: Froystad & Holm (2015, p.10)

Case Study 2: Cross-Border Payments

Nowadays, Cross-Border Payments that enable international trade are time consuming and expensive due to their dependency on the network of intermediaries, i.e. corresponding banks.

Ripple proposes a new model of international payments based on DLT. In 2016, the first international blockchain payment from Canada to Germany was executed as result of a cooperation of ATB Financial, SAP and Ripple.

Outcome: A DLT-based model of cross-border payments increases efficiency:

- it reduces complexity
- it improves the liquidity of banks
- it reduces fees for banks/customers
- it improves customer experience

DLT Benefits. Interview Quotes

"...nowadays you very often have complex practices and processes that are caused by information silos in different industries and blockchain really helps or provides a very effective tool for companies to share data in a trustful and transparent environment, so you can break up those data silos... You can also parallelize processes, because you don't have a step approach, where one party has to hand in the document and then another party has hand in a document, but you have a distributed ledger, where all the participants can look at and thus you can really get can parallelize steps, because all the parties that would need information to execute the processes, can access them (documents) at this moment as the information has been shared in a distributed ledger at the same moment, so you can really then speed up and parallelize things."

Business Development Specialist, SAP Innovation Center Network, SAP SE

"DLT can help in finding common sense about the terms and conditions and about the Incoterms applicable etc... If they have one source or single source of truth on the DLT, which they can always refer back to during the process and also compare the data they receive to, I think that can make their lives easier."

Refinancing product specialist, Products & Innovation Industry Cloud & Custom Development, Financial Services, SAP SE

"...bottom line, if you be part of a digitized network with multiple parties which can then connect in a secure way and share validated and temper proof data – this automatically leads to a process optimization making it quick and easy to do business. This means direct cost savings as well as a more secured environment to do business in."

Global Solution Manager for Innovation for Financial Services, SAP SE

Case Study 3: Blockchain for the Autonomous Province of South Tyrol

A significant part of documents required in international trade is provided by governmental authorities. Interaction with those authorities is often associated with bureaucracy, paperwork, time-wasting and nerve-wracking obligations and additional fees for the intermediaries involved.

Südtiroler Informatik AG involving SAP decided to leverage DLT to improve existing administrative procedures in the autonomous province of South Tyrol, switching from paper to digital immutable records.

Outcome: Digital records stored on distributed ledger enable a new structure of the process flow of the approval of documents which leads to the following benefits:

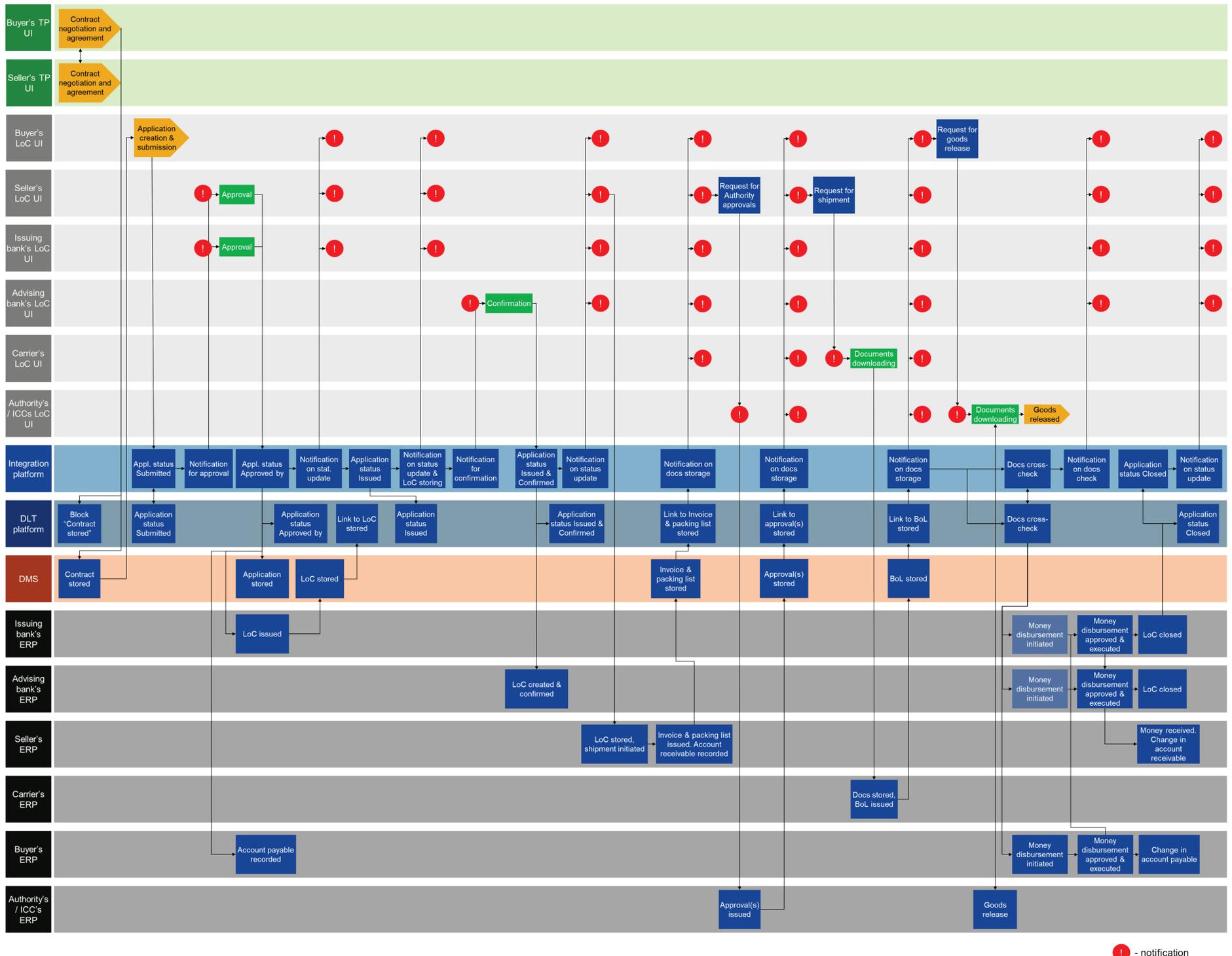
- reduction of complexity and manual efforts
- improvement of customer experience
- reduction of process duration and related expenses

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DLT Based Letter of Credit. Process and Documents Flow



References

Baran, P. (1964). On Distributed Communications Networks. *IEEE Transactions on Communications*, 12(1), 1–9. <https://doi.org/10.1109/TCOM.1964.1088883>

Bergami, R. (2009). UCP 600 rules; changing letter of credit business for international traders? *International Journal of Economics and Business Research*, 1(2), 191. <https://doi.org/10.1504/IJEBR.2009.024018>

Bishop, E. (2004). *Finance of international trade. Essential capital markets*. Amsterdam, London: Elsevier.

Froystad, P., & Holm, J. E. (2015). Blockchain: Powering the Internet of Value. Retrieved from <https://www.evry.com/globalassets/insight/bank2020/bank-2020---blockchain-powering-the-internet-of-value---whitepaper.pdf>

Jack, R., Malek, A., & Quest, D. (2009). *Documentary credits; the law and practice of documentary credits including standby credits and demand guarantees* (4th ed. / by Ali Malek, David Quest). Haywards Heath: Tottel.

Längerich, R. (2009). *Documentary credits in practice* (2. edition). Copenhagen: Nordea.

Peter, C. (2017). A Silver Lining Over Bolzano's Building Authority. Retrieved from <http://news.sap.com/a-silver-lining-over-bolzano-building-authority/>

Raferly, T. (2017). SAP demo of Blockchain based ocean shipping in international trade. Retrieved from https://www.youtube.com/watch?v=HB7ABR_i6AU&feature=youtu.be

Ripple (2016). Live Transaction ATB to Reisebank in 8 Seconds. Retrieved from <https://www.youtube.com/watch?v=bAnHzDEP8GM>

Sherlock, J., & Reuvid, J. (2008). *The handbook of international trade: A guide to the principles and practice of export / consultant editors, Jim Sherlock and Jonathan Reuvid* (2nd ed.). Global market briefings. London: GMB.