

# **Artificial Intelligence Role in Automation of Trade Document Examination Under Letter of Credit Process**

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## **Abstract**

Artificial Intelligence (AI) through Machine Learning (ML) along with Natural Language Processing (NLP) and Optical Character Recognition (OCR) technologies can read and understand texts, then extract important information from a document and check its compliance with other documents or set of laws or rules under predefined parameters which allows the system to interpret data and take decisions. Fintechs have developed AI-based software to take the checking role as a replacement for the current highly manual process of document examination under trade letter of credit (LC) process, which is time-consuming, labor-intensive, and requires skilled and experienced staff to examine the documents for compliance with the terms and conditions of the LC and applicable rules. This paper reports our preliminary studies in using AI and ML in document checking and examination. Specifically, we conducted experiments to compare AI and deep learning results with human checking experts' results. Our findings showed a significant reduction in errors and processing times using this automation and an increase in operational efficiency and optimization of resources. AI-based solution does not mean digitization as human intervention is still required for discrepancies articulated by the automated checks, but it is an important automation step that can assist in the development of hybrid solutions aligning paper to digital toward complete digitization of the trade process under the supply chain.

## **Keywords**

Artificial Intelligence, Machine Learning, Trade finance, Letter of Credit, Document Examination

## **Biography / Biographies**

**Munaf Assaad Khalil** is Currently a researcher and Ph.D. student at the College of Science and Engineering, Hamad Bin Khalifa University (HBKU). He Graduated from College of Science and Engineering, HBKU with Master of Science in Logistics and Supply Chain Management. He received BSc in Banking and Finance at American University of Science and Technology (AUST) 2005. He has 22 years of banking and trade experience and responsible of managing the centralized processing of the Trade Finance transactions encompassing Guarantees for Qatar National Bank (QNB) and its Global Network.

**Dr. Laoucine Kerbache** is currently serving as a Professor and a Founding Faculty Member of the Logistics and Supply Chain Management Program within the Engineering Management and Decision Sciences Division at HBKU and affiliated with HEC Paris, Qatar. For over thirty-five years of academic, research, and consulting activities, he has been very active in his areas of expertise, focusing on modeling and optimization in Operations and Supply Chain Management. He has published over one hundred papers in international journals. He has a PhD, MSc, and BSc in Industrial Engineering and Operations Research from the Mechanical and Industrial Engineering Department, University of Massachusetts, Amherst, USA.