



Chemical

This use case demonstrates how Qnum Analytics can increase a chemical company's profit by reducing unnecessary stock write-offs. Qnum Analytics' OI platform helps companies achieve this by minimising blind spots in the internal materials handling processes to provide real-time stock visibility enabling the proactive control of stock discrepancies avoiding month-end stock write-offs surprises.

Overview

Due to the additional financial burden that the COVID-19 pandemic brought onto a well-known bulk chemical producer, they were exploring opportunities to reduce the profit leakage points in the business and to help deliver financial security for the long term. The area of Stock Management was identified as an area where there was significant profit leakage (stock write-offs), which was caused by discrepancies between the Producer's stock level on the financial records and the independent physical stock survey results conducted at the end of each quarter.

The producer had invested significant time and resources in attempts to resolve the stock discrepancies and challenges. Investments in various scanner survey systems from different providers had yielded more frustration with inconsistent physical stock measurements produced and devices malfunctioning periodically.

Qnum Analytics was asked to survey the producer's processes and highlight the impact of material handling blind spots and stock survey inconsistencies that were contributing to their persistent stock variance challenges.

Results

The OI Platform, which is a Software-as-a-Service (SaaS) platform designed to provide real-time stock visibility, continuous stock reconciliation, and the AI-driven identification and elimination of process inefficiencies was implemented for a 2-month proof of concept.

Bottom-line impact:

- 90% reduction in inventory variances
 - a.Bag count system balances compared with physical count of the surveyor limiting conversion error
 - b.Internal transfers accounted for the large cause of variances. The producer did not realise how much material was changing internally.
- Potential write-off savings for the quarter = \$212,360
- Timing of accurate stock level insights moved from monthly to at the end of every shift which resulted in improved decision-making information for the management team.



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Approach

1. The bulk chemical producer enlisted the assistance of Qnum Analytics in isolating the root cause of variances and provide the means to control write-off losses moving forward.



2. The approach taken was to conduct a 2-month paid Proof of Concept (POC) of Qnum's OI Platform to uncover the source of discrepancies and leverage the Machine Learning algorithms to:

- a. Drive more accurate tracking & measurement
- b. Enable continuous reconciliation
- c. Optimise inventory management practices to eliminate inefficiencies and maximise profitability



3. At the end of the POC the stock count results from Qnum's OI Platform approach were compared to the traditional inventory accounting systems currently being used (i.e., the ERP and Adjusted Movement Schedule) and then both were then compared to the independent stock survey results to get a comparative analysis of the magnitude of discrepancies between the 3 inventory surveys.

Concluding remarks:

The following stock challenges were identified as the root cause of the stock reconciliation frustrations:

- Stock measurement assumptions applied by the independent surveyor exposed the risk of undervaluation of stock because the ERP system does not carry a bag count balance that can be compared consistently with the stock count to avoid conversion errors (bag to tonnage).
- Limited reconciliation of discrepancies between invoice weight and actual weight of stock received resulted in an inflated stock value on the financial records as well as meaning that the supplier was paid for raw materials that the Chemical producer was not receiving in the first place.
- Internal material handling mechanisms (conveyors, mobile conveyors, hoppers, silos) produce a significant amount of spillage which may not be accurately accounted for on the financial records and overlooked by the independent survey.