



Enabling Pre-emptive Recommendations for Inventory Waste Reduction using Databricks and Azure Data Factory

INDUSTRY
CPG

CLIENT
**A global Food and
Beverage (F&B)
conglomerate**

TECHNOLOGY
**Databricks with
Pyspark, Azure
Data Factory,
PowerBI**



BUSINESS CHALLENGE

Finished Goods Inventory Waste was an **~\$100M annual problem** for our client, a leading global Food and Beverage (F&B) conglomerate. Their existing systems provided retrospective or backward-looking data and insights on inventory waste metrics, which was not very helpful. Waste was caused predominantly due to products going **stale**, getting **damaged** while in transit or storage, and due to **inventory adjustments**.



BUSINESS OBJECTIVE

The client wanted to reduce Finished Goods Waste across sites. The Finished Goods teams required the ability to **identify** the **root causes of waste** and proactively **make recommendations** to site managers (at Plants, Warehouses, Distribution Centers) on **preventing waste**. They needed a **forward-looking view** of the propensity of inventory to go waste with recommendations for pre-emptive actions to reduce or prevent waste.

C5i'S SOLUTION APPROACH



Leverage cloud computing capabilities to enable data handling automation for facilitating speed to insights.

C5i's solution enabled the client to proactively identify inventory with a high propensity to remain unsold past its expiry date. This required a huge amount of data from different business functions and sources, which would then undergo extraction and transformation processes. We leveraged Azure's Data Factory to take care of Extraction & Loading activities before the data landed into the Data Lake Bronze layer. We used Databricks for data cleansing, implementing quality checks, and running transformations on the data. Lastly, synapse SQL pool was used to serve the data to front-end apps for personas to consume insights.

AI-powered augmented analytics platform, C5i Discovery, was deployed to enable the following:

- Data Aggregation and Insights from multiple datasets – Warehouse, Planning, Transportation, Sales, Shipment, etc.
- ML models bubble up Causal Insights, Anomalies, and Recommendations to reduce inventory waste
- Interactive Platform with live visualizations and What-If analysis for Site Managers to drill down on the data with maximum possible coverage across all the sites and mixing centers

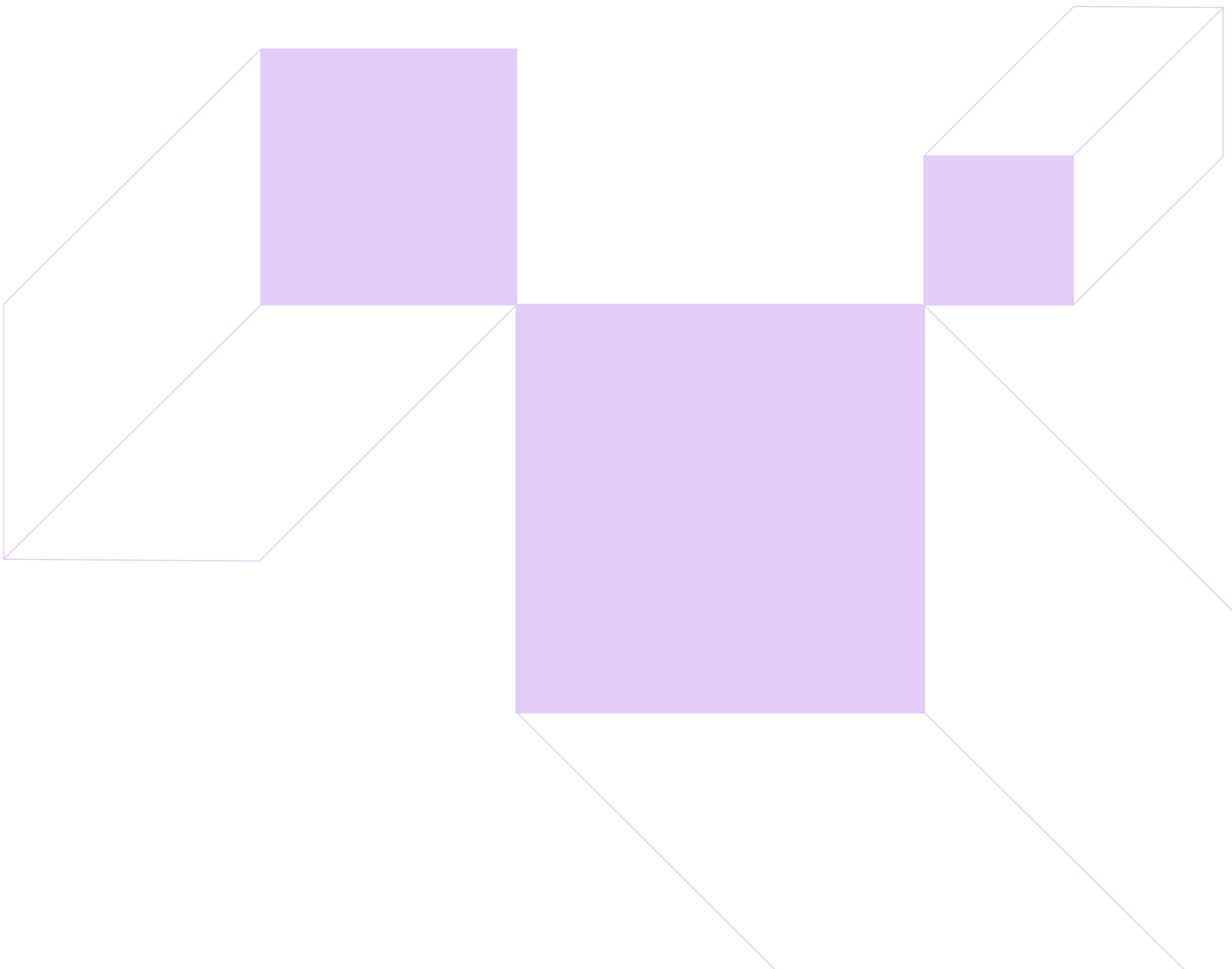


OUTCOMES & BUSINESS IMPACT

The scalable platform helped meet increasing data processing requirements.

C5i provided the client with an end-to-end finished goods waste management tool, deployed on the client's Azure stack platform. This enabled the client to address fluctuating computing and storage requirements while also benefitting from support by Azure for best practices with respect to data handling, processing, and storage. As a result, query processing time reduced by over ~50% and they were able to create a scalable platform that could meet any additional data processing or reporting requirement at a minimal cost.

- 100% adoption by Site Managers across sites where the solution was implemented
- Expansion to integrate additional reasons behind inventory waste to increase impact
- ~30% reduction in waste across Stales and Damages categories with 100% conformance to C5i Discovery's prescriptive recommendations



ABOUT US

C5i is a pure-play AI & Analytics provider that combines the power of human perspective with AI technology to deliver trustworthy intelligence. The company drives value through a comprehensive solution set, integrating multifunctional teams that have technical and business domain expertise with a robust suite of products, solutions, and accelerators tailored for various horizontal and industry-specific use cases. At the core, C5i's focus is to deliver business impact at speed and scale by driving adoption of AI-assisted decision-making.

C5i caters to some of the world's largest enterprises, including many Fortune 500 companies. The company's clients span Technology, Media, and Telecom (TMT), Pharma & Lifesciences, CPG, Retail, Banking, and other sectors. C5i has been recognized by leading industry analysts like Gartner and Forrester for its Analytics and AI capabilities and proprietary AI-based platforms.



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