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How analytics helped a global CPG company cut down on logistics and distribution emissions

Abstract

The emissions from global logistics and distribution operations can significantly impact the environment. So, when one of the world's largest CPG firms decided it needed to cut down its carbon footprint, Infosys BPM leveraged the power of analytics for an efficient logistics solution, reducing its client's annual greenhouse gas emissions globally.

The client

Infosys BPM's client is one of the world's largest consumer goods companies with a global footprint across over 190 countries and over 400 household name brands.

A drive to cut out the carbon

On a journey to become carbon neutral by 2030, the client was seeking to cut carbon emissions from its logistics and distribution activities while transporting goods from the manufacturing sites to warehouses and customers. This required selecting the right logistics mode based on integrated insights from sales and logistics related emission reports

Wanting to leverage the power of analytics to drive sustainable logistics decisions, the client tasked Infosys BPM with applying its expertise to develop a solution that would accurately track, analyze, and report out carbon emission metrics. The solution would also need to monitor the energy consumption at warehouses relating to inbound and outbound transportation and warehousing activities and generate suitable insights that would help reduce the company's carbon footprint.



Exploring the constraints

Infosys BPM deployed a team of digital transformation experts to study the client's processes and identify related challenges. The team quickly discovered that the client's systems lacked drill-downs and reporting granularity to assess high

pockets of carbon emissions. Further, multiple sources of data including sales reports, logistics reports, and facilities reports were spread out across different databases. Because of this, the client lacked a synthesized view to influence key

logistics and facilities decisions in near real-time. Lastly, the client utilized manual data collation processes which were prone to inconsistencies and led to a long lead time for report generation.

Building an engine for insights

Having studied the client's challenges in depth, the team set to work building a sustainability and carbon footprint reporting solution in four stages as detailed below.

- **Process mapping and data source identification:** The team first worked on surveying all the client's data sources for CO2 emissions. This involved mapping the value chain and listing all the in-scope activities that contributed to — or potentially could contribute to — carbon emissions and identifying their corresponding data sources. The team then built a system to automatically ingest on a pre-scheduled basis all relevant logistics data from these sources including purchase orders, demand, inventory levels, shipment lanes, route distances, transportation mode, and vehicle type.
- **Data enrichment:** This stage of the solution aimed to provide a reliable source of data for statutory reporting

purposes. The team built a flexible and scalable validation engine to define and deploy various business rules for lane emissions. Also, the data captured from the client's disparate data sources were standardized and harmonized, and then purpose-built artificial intelligence and machine learning algorithms helped contextualize the data for enterprise relevance.

- **Visibility and insights:** To provide the client with in-execution visibility, the team developed deep insight dashboards. The dashboards had robust visualization capabilities to provide the client with actionable business insights on CO2 hotspots at different hierarchy levels such as regions or divisions, and the ability to perform real-time slicing and dicing. The dashboards could also be programmed to send out alerts and notifications to various stakeholders.

The team also worked on a reporting strategy taking into consideration

various factors such as the criticality of reports, auditing requirements, reporting frequency, and governance mechanisms. Towards this, team members developed a rules-based workflow and included a library of built-in templates.

- **Predictive analytics:** In this final stage, the team worked on designing KPI's, identifying lynchpin KPIs and SLAs that would help track and measure the performance of the highly automated reporting and analytics infrastructure. Their solution also utilized predictive and lane haul analytics to optimize logistics routes for reduced emissions, project CO2 footprints at future dates, and carry out what-if scenario modeling.

In sum, the sustainability and CO2 footprint reporting solution was loaded with powerful reporting automation, end-to-end visibility, and a comprehensive decision command center.

Driving towards a greener world

Once deployed, Infosys BPM's solution delivered deep insights into the root causes of high emissions and provided analytics-based lane and vehicle recommendations for higher utilization. Using these the client was able to study influencing factors and take the needed corrective actions. This improved fleet utilization to over 90% while also reducing the carbon footprint per ton moved.

The recommendations also influenced the client to explore alternate fuels, electric vehicles, and intermodal solutions to improve operational efficiency and reduce carbon emissions further. All these measures improved the overall efficiency of the logistics operations, reducing the client's annual greenhouse gas emissions by ~6% globally.

In addition, the solution's auto-updating dashboards provided synchronized sustainability reports across all business units and functions, and the accurate, effortless, and timely reporting gave the client the ability to manage compliance better. Furthermore, the transparency into actuals versus targets through gap analysis with granular level drill downs enabled better audit reporting.

The bottom line: because eco-efficiency isn't just about reducing the environmental footprint but also makes good business sense in the long term, the sum of benefits gained by the client is yet to be completely tallied.



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