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CASE STUDY · MARLUC SYNOPSIS

Walmart AI route and load planning

IMPLEMENTED BY 2023, STILL IN USE IN 2025 · RETAIL AND HOSPITALITY · UNITED STATES · BAND C · CLAIMED ONLY

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Walmart built in-house software that plans truck routes, trailer loads and return pickups across its supply chain. By Walmart's account it eliminated 30 million unnecessary miles and avoided 94 million pounds of CO2. The work won the 2023 INFORMS Franz Edelman Award, and in 2024 Walmart began selling the tool to other businesses.

ABOUT THIS SYNOPSIS

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Facts and figures are as reported by the sources listed below, which may be incomplete, self-reported or out of date. Check the original source before relying on any figure.

The impact band, proof marker and SEAM view are MarLuc's opinion. The organisation is not a MarLuc client and has not reviewed or endorsed this synopsis. Names and trademarks belong to their owners.

NOTICE WORDING LAST UPDATED 16 NOVEMBER 2026

AT A GLANCE

AI and automation used: Route and load optimisation software, described by Walmart as AI-powered; INFORMS describes the work as operations research.

Implemented: By 2023, still in use in 2025. Grade: band C, Process change, Claimed only.

Headline result, as reported: 30 million unnecessary miles eliminated and 94 million pounds of CO2 avoided, by Walmart's account

1 · The case

The facts, as reported by the 5 sources listed at the end. Where a source is silent, the field says "Not reported".

Organisation

Walmart. US-based retailer with more than 10,500 stores in 19 countries, fiscal 2024 revenue of $648 billion and about 2.1 million associates, by its March 2024 release. Canvas block: 4. Operations and process. Also 6. Data and technology.

Business challenge

The challenge. Walmart said it had used AI for years to make its supply chain more efficient, reduce emissions and make sure the items customers want are available where and when they want them.

Who implemented it

In-house (In-house): Walmart Global Tech: built Route Optimization and runs it in Walmart's supply chain.
In-house (In-house): Walmart Commerce Technologies: sells the tool to other businesses as software as a service.
No outside implementation partner is named in the sources opened.

Technology (SEAM pillar E)

SEAM types: T8 Predictive / ML models. Deployment: Not reported. Vendors and products: Route Optimization, Load Planner, Dispatcher System.

Where it was built in: Walmart's truck network and private fleet: route planning, trailer loading and backhaul planning; sold to other businesses as software as a service through Walmart Commerce Technologies from March 2024.

What changed

Before: Not reported in the sources opened. After: software plans truck routes, trailer loads and return pickups, and Walmart says private fleet drivers follow routes planned around their hours, location and availability. [1] [2] [3] [4] [5]

What it cost

Not reported

What it saved

By Walmart's account: 30 million unnecessary miles eliminated, 94 million pounds of CO2 avoided and 110,000 inefficient paths bypassed. Cost savings: Not reported in the sources opened. [1] [2] [3] [4] [5]

Governance and control

Walmart Global Tech built and runs the tool; its chief operating officer announced the commercial launch. Walmart says it tests new technology at a smaller scale and gathers feedback before rolling it out across the company. Review of planned routes by people before dispatch: Not reported in the sources opened.

S2 · Accountable owner · Claimed
Walmart Global Tech built the tool; its chief operating officer announced the commercial launch, and Walmart's senior vice president of supply chain technology describes its use. [1] [5]

A1 · Safe use · Not reported
Not reported.

A2 · Human in the loop · Not reported
Not reported.

A3 · Monitoring and assurance · Claimed
Walmart says it tests new technology at a smaller scale and assesses feedback before rolling it out to the entire company. [5]

A4 · Vendor AI · Not reported
No outside AI vendor is named; Walmart describes the tool as its own custom technology. [1]

A5 · Agent controls · Not reported
Not reported.

A6 · Standards and regulation · Not reported
Not reported.

What worked, what did not, what is unproven

WORKED

- Fewer miles and lower emissions, by Walmart's account.
- External recognition: the 2023 INFORMS Franz Edelman Award.
- Walmart judged the tool ready to sell to other businesses in 2024.

DID NOT

- Not reported.

UNPROVEN

- The period, baseline and method behind the 30 million miles figure.
- Cost savings for Walmart: Not reported in the sources opened.
- Results for outside businesses using the commercial version: Not reported.

Timeline

Apr 2023 INFORMS awards Walmart the Franz Edelman Award for truck routing and load planning [2]

Mar 2024 Walmart reports 30 million miles eliminated and starts selling Route Optimization to other businesses [1]

Jul 2025 Walmart describes Load Planner and its Dispatcher System in use in its private fleet [4]

Oct 2025 Supply chain technology lead describes routing models in use [5]

2 · Grade and SEAM assessment

MarLuc's opinion, made on the evidence above. How cases are graded: marluc.co.uk/case-studies/how-we-rate

Level of change and impact

Claimed: Not applicable. Grade: C, Process change. Proof: Claimed only. Level of change: Process change.

Process change (Level 2, band C). Truck route and load planning was redesigned around

The SEAM view and lessons learnt

Walmart's routing work is a mature, mainly optimisation-based system that it now sells to others. The evidence is Walmart's own, backed by an industry award. For a larger organisation, the transferable points are to plan routes, loads and return trips together, and to state the period and baseline behind headline figures so they can be compared.

1. Test new models at small scale before rolling them out.
2. Plan routes, loads and return trips together.
3. State the period and baseline behind any savings figure.

Evidence

Score 1 of 4. Self-reported: Walmart's own figures without a stated period or baseline; the INFORMS Edelman Award is external recognition of the work.

Evaluation method. Self-reported company figures with no stated period or baseline; external recognition through the INFORMS Edelman Award.

Sources disagree. Walmart and CDO Magazine describe Route Optimization as AI-powered; INFORMS describes the award-winning work as operations research, and Walmart's own supply chain technology lead describes adaptive large neighbourhood search models.

Status. Ongoing: Walmart described Load Planner and its Dispatcher System in use in its private fleet in July 2025, and its routing models in October 2025.

3 · Original sources

Read these in full. To challenge a fact or a grade, use the contact form at marluc.co.uk or the link on https://marluc.co.uk/case-studies/walmart-route-and-load-optimisation

[1] Walmart: Walmart Commerce Technologies launches AI-powered logistics product (March 2024)
https://corporate.walmart.com/news/2024/03/14/walmart-commerce-technologies-launches-ai-powered-logistics-product

[2] INFORMS Connect: Walmart awarded the 2023 INFORMS Edelman Award (April 2023)
https://connect.informs.org/discussion/operations-research-enhances-retail-truck-routing-and-load-planning-walmart-awarded-the-2023-informs-edelman-award

[3] CDO Magazine: Walmart launches AI-powered logistics tool Route Optimization (March 2024)
https://www.cdomagazine.tech/aiml/walmart-launches-ai-powered-logistics-tool-route-optimization

[4] Walmart: Retail, Rewired (July 2025)
https://corporate.walmart.com/news/2025/07/24/retail-rewired

[5] Retail Dive: 4 ways Walmart is scaling AI to unify its supply chain (October 2025)
https://www.retaildive.com/news/4-walmart-supply-chain-ai-uses/802279/

Walmart website: https://corporate.walmart.com

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