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CASE STUDY · MARLUC SYNOPSIS

# UPS ORION route optimisation

IMPLEMENTED 2012–2016, WITH UPGRADES TO 2020 · TRANSPORT AND LOGISTICS · UNITED STATES · BAND C · CLAIMED ONLY

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UPS built ORION, a route optimisation system that sets the order of stops for each US delivery driver every day. It reached about 55,000 US drivers by 2016. UPS reports savings of $300 million to more than $400 million a year and about 100 million fewer miles driven a year. The figures are UPS's own.

**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Facts and figures are as reported by the sources listed below, which may be incomplete, self-reported or out of date.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 optimisation: a proprietary meta-heuristic optimisation system, described by UPS in 2020 as using advanced algorithms, AI and machine learning.

Implemented: 2012–2016, with upgrades to 2020.  Grade: band C, Process change, Claimed only.

Headline result, as reported: About 100 million miles and 10 million gallons of fuel saved a year, by UPS's account

## 1 · The case

The facts, as reported by the 6 sources listed at the end. Where a source is silent, the field says "Not reported".

### Organisation

UPS. US parcel delivery and logistics company. More than 434,000 employees at the end of 2016 and about 460,000 by its 2025 annual filing. Canvas block: 4. Operations and process. Also 6. Data and technology, 5. People and skills.

### Business challenge

The challenge. A UPS driver makes about 120 stops on a typical route, and the possible delivery orders are virtually infinite, Transport Topics reported. UPS said eliminating one mile per driver per day is worth $50 million a year, and trimming one minute is worth $14.6 million.

How it was addressed. UPS began modernising its pickup and delivery operations in 2003 and

### Who implemented it

In-house (In-house): UPS: developed and deployed ORION through its corporate engineering and operations research teams.
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: ORION, ORION Dynamic Optimization.

Where it was built in: Sets the daily stop order for UPS delivery drivers, using telematics data and customised maps; by 2020 used on more than 66,000 routes in the United States, Canada and Europe.

### What changed

Before: drivers worked out the order of their stops. After: ORION sets a daily stop order for each US driver, recalculated during the day from 2020, and drivers may deviate where they see a better option. [1] [2] [3] [4] [5] [6]

### What it cost

More than $295 million to build and deploy, per the 2017 paper by UPS staff.

### What it saved

By UPS's account: a reduction of 6 to 8 miles driven per route by early 2015; more than $400 million a year in cost savings and avoidance by 2016; about 100 million miles and 10 million gallons of fuel a year since first deployment, per the 2020 release. The 2017 paper gives expected savings of $300 million to $400 million a year and 100,000 tons less CO2 a year. [1] [2] [3] [4] [5] [6]

### Governance and control

UPS's corporate engineering team developed ORION, and its chief information officer spoke for it publicly. Drivers are encouraged to override the stop order where they can do better. UPS says it changed management practices so that users and executives would accept the system.
Independent assurance of the savings: Not reported.

**S2 · Accountable owner · Claimed**
Developed by UPS's corporate engineering team; UPS's chief information officer spoke for ORION when it won the Edelman Award. [3]

**A1 · Safe use · Not reported**
Not reported.

**A2 · Human in the loop · Claimed**
UPS encourages drivers to use their own judgement where they can improve on the pre-calculated order, per Transport Topics. [3]

**A3 · Monitoring and assurance · Claimed**
UPS reports miles, fuel and cost savings in releases and annual reports; no independent check of the figures is reported. [2] [4]

**A4 · Vendor AI · Not reported**
No outside AI vendor is named; UPS describes ORION as proprietary. [5]

**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 per route, by UPS's account: 6 to 8 miles per route by early 2015.

– Miles held almost flat while delivery stops grew 4.4% in 2016, per UPS's annual report.

– A platform UPS kept extending, with in-day re-routing announced in 2020.

DID NOT

– Until the 2020 upgrade, the route was static once the driver left in the morning, per Transport Topics.

– ORION used the same algorithm for all routes across very different areas, so UPS still relied on drivers to spot better options, per Transport Topics.

UNPROVEN

– The savings figures have not been independently audited in any source found.

– Results of the 2020 Dynamic Optimization rollout: Not reported.

– Current results: UPS's Form 10-K for 2025 does not name ORION.

### Timeline

2003 UPS starts modernising pickup and delivery planning [1]

2012 UPS begins implementing ORION after ten years of development [2]

Mar 2015 UPS accelerates rollout to about 70% of planned US routes in 2015 [2]

Apr 2016 ORION wins the INFORMS Franz Edelman Award [3]

2016 First phase of US deployment completed; UPS reports more than $400 million a year in savings and avoidance [4]

Jan 2020 UPS announces Dynamic Optimization to re-route drivers during the day [5]

2026 Form 10-K for 2025 says UPS is increasing its use of AI in operations [6]

## 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). Route planning for almost all US delivery drivers was redesigned around the system; changes to roles or structure are not reported.

A redesigned delivery planning process: software now sets the stop order across almost all US routes, and drivers may deviate where they see a better option. The savings are UPS's own figures. ORION is mainly classical optimisation; UPS has described it as using AI and machine learning since 2020.

### The SEAM view and lessons learnt

ORION shows how long large-scale optimisation can take: about ten years of development, then four years of rollout. UPS treated user and executive acceptance as part of the work and left drivers room to override the system. For a larger organisation, the transferable point is to plan for adoption as carefully as for the algorithm, and to measure savings against a baseline everyone accepts.

1. Plan for adoption by drivers and managers from the start.
2. Give front-line staff a clear way to override the system.
3. Publish the method behind savings figures as well as the totals.

### Evidence

Score 2 of 4. Self-reported: figures come from UPS releases, annual reports and a paper by UPS staff; the 2016 Edelman Award, reported by Transport Topics, is external recognition of the work.

Evaluation method. Self-reported company figures: annual reports, press releases and a 2017 practice paper by UPS staff in Interfaces, an INFORMS journal.

Sources disagree. UPS's 2016 annual report says ORION was generating more than $400 million a year in savings and avoidance; the 2017 paper by UPS staff says it is expected to save $300 million to $400 million a year. The 2017 paper describes ORION as a meta-heuristic optimisation system; UPS's 2020 release says it uses advanced algorithms, artificial intelligence and machine learning.

Status. Ongoing as far as reported: the latest ORION-specific source found is the January 2020 Dynamic Optimization release. UPS's Form 10-K for 2025 says it is increasing its use of AI to optimise operations, without naming ORION.

## 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/ups-orion-route-optimisation


[1] IDEAS/RePEc: Holland et al., "UPS Optimizes Delivery Routes", Interfaces 47(1), 2017 (abstract)
https://ideas.repec.org/a/inm/orinte/v47y2017i1p8-23.html

[2] Sustainable Brands: UPS release, UPS accelerates use of routing optimization software to reduce 100 million miles driven (March 2015)
https://sustainablebrands.com/read/ups-accelerates-use-of-routing-optimization-software-to-reduce-100-million-miles-driven

[3] Transport Topics: UPS routing program ORION helps drivers trim miles, reduce costs (August 2016)
https://ttnews.com/articles/ups-routing-program-orion-helps-drivers-trim-miles-reduce-costs

[4] UPS: 2016 Annual Report
https://investors.ups.com/_assets/_fdbe2d2207d866d7c496ce2522c6893f/ups/db/1110/9449/annual_report/UPS_2016_Annual_Report-processed.pdf

[5] UPS release via GlobeNewswire (ResearchPool): UPS to enhance ORION with continuous delivery route optimization (January 2020)
https://app.researchpool.com/provider/globenewswire/ups-ups-to-enhance-orion-with-continuous-delivery-route-optimization

[6] UPS: Form 10-K for the fiscal year ended 31 December 2025
https://investors.ups.com/sec-filings/all-sec-filings/content/0001628280-26-008432/0001628280-26-008432.pdf

UPS website: https://www.ups.com



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