Trakm8
Data driven insights

AI Optimisation

Revolutionising Last Mile Delivery for Supermarkets

trakm8.com

Executive Summary

AI-driven optimisation and route planning are transforming supermarket fleet operations. AI optimisation addresses the critical challenges of escalating costs, inefficiencies, and customer satisfaction by reducing fuel and labour expenses, enhancing delivery speed and accuracy, and minimising environmental impact.

Trakm8's advanced solutions exemplify this innovation, offering scalable, sustainable, and cost-effective strategies that improve fleet performance, meet customer expectations, and align with environmental goals, solidifying their expertise in the sector.

Introduction to Last Mile Delivery Challenges

Challenges Supermarkets Face with Last Mile Delivery

Last mile delivery, the final step in getting goods from a distribution centre to the customer, is crucial for supermarkets, especially with the growing demand for home delivery of perishable goods. Supermarkets face unique challenges such as:

Customer Expectations
Customers demand precise delivery windows, expecting their groceries to arrive fresh and on time.

Rising Costs
Increased fuel prices, labour costs, and a shortage of drivers put financial strain on operations.

Operational Inefficiencies
Without AI, route planning often leads to inefficiencies, stressing drivers with tight schedules, causing them to rush deliveries, which negatively impacts the customer experience.

Impact on Customer Satisfaction
Poor delivery experiences, such as late arrivals or rushed interactions, can erode customer loyalty, driving them to competitors.

By addressing these challenges with AI optimisation, supermarkets can improve operational efficiency, reduce costs, and enhance customer satisfaction, ensuring a competitive edge in the market.

The Role of AI in Last Mile

In the dynamic landscape of last mile delivery, the year 2024 heralds a transformative era driven by AI solutions. As the demand for efficient, sustainable, and cost-effective delivery services continues to rise, flexible and scalable algorithms are emerging as the driving force behind the reshaping of traditional approaches to fleet management.

AI Optimisation Explained

AI optimisation leverages advanced algorithms to make delivery routes more efficient and cost-effective. By processing real-time data, AI takes into account factors like traffic and delivery windows, adjusting routes in real time to ensure timely deliveries, reduced fuel consumption, and lower operational costs.

Managing Delivery Variables

AI manages delivery challenges by processing live data. For example, it allows adjustments to routes based on traffic changes, ensuring that drivers avoid delays and reach customers on time. For example, if there is a large sporting event taking place in the area map edits can be made to account for this. This minimises disruptions, improves customer satisfaction, and reduces driver stress.

Enhanced Efficiency and Cost Reduction

AI significantly improves fleet efficiency by optimising delivery routes to reduce mileage and fuel use, leading to lower costs and a smaller environmental footprint. It also streamlines operations, allowing supermarkets to handle more deliveries with the same resources, thus maximising fleet utilisation.

Enhanced Decision-Making

AI supports better decision-making by providing insights into fleet performance. It helps managers allocate resources more effectively, anticipate potential issues before they arise, and continuously refine delivery strategies to align with business goals.

Transforming Supermarket Operations

With AI, supermarkets can efficiently manage complex delivery scenarios, such as optimising thousands of orders across multiple depots in real time. This boosts efficiency, increases delivery capacity, and enhances overall customer satisfaction.

Key Takeaways

By using AI for last mile delivery, supermarkets can cut costs, improve driver well-being, make smarter decisions, and exceed customer expectations.

This is the future of grocery delivery, and it's happening now with Trakm8.

Trakm8's Slot Booking & AI Optimisation Solution for Supermarkets

AI optimisation for last mile delivery begins as soon as a customer books a delivery slot. The AI algorithm evaluates the best possible delivery options based on factors like the customer's location, the items ordered, and available delivery resources. It determines the ideal vehicle, checks its capacity, and assigns the right driver, while also deciding the store or depot the items will come from.

In more complex scenarios, such as those involving multiple stores and depots, the AI manages thousands of orders simultaneously, optimising routes in real time to ensure maximum efficiency. This involves minimising "miles per drop" and "minutes per drop," reducing costs, emissions, and delivery times.

The AI runs on a powerful, cloud-based computing environment, allowing it to handle vast amounts of data and make split-second decisions. It continuously refines delivery plans, shifting orders between depots to achieve the most efficient outcome, even under challenging conditions like road closures or high traffic.

Ultimately, this process not only ensures that deliveries are made on time but also improves overall operational efficiency, reduces driver stress, and enhances customer satisfaction by providing more accurate and timely deliveries.

Key Features

Dynamic Rerouting
The AI adapts routes in real-time, considering traffic conditions, road closures, and other variables to ensure timely deliveries.

Load Optimisation
Ensures each vehicle is fully utilised without exceeding capacity, reducing the number of trips and lowering both costs and environmental impact.

Regional and Multi-Depot Optimisation
Trakm8's AI manages thousands of orders across multiple stores and depots, optimising the transfer of goods between locations to achieve the best outcome. This feature also enables collaborative delivery resource sharing among stores, improving overall efficiency.

Scenario Planning and Comprehensive Constraint Mode
Allows supermarkets to experiment with different delivery scenarios, ensuring adherence to business rules such as working hours, shift patterns, and vehicle constraints. This flexibility helps in adapting to changes and planning for various eventualities.

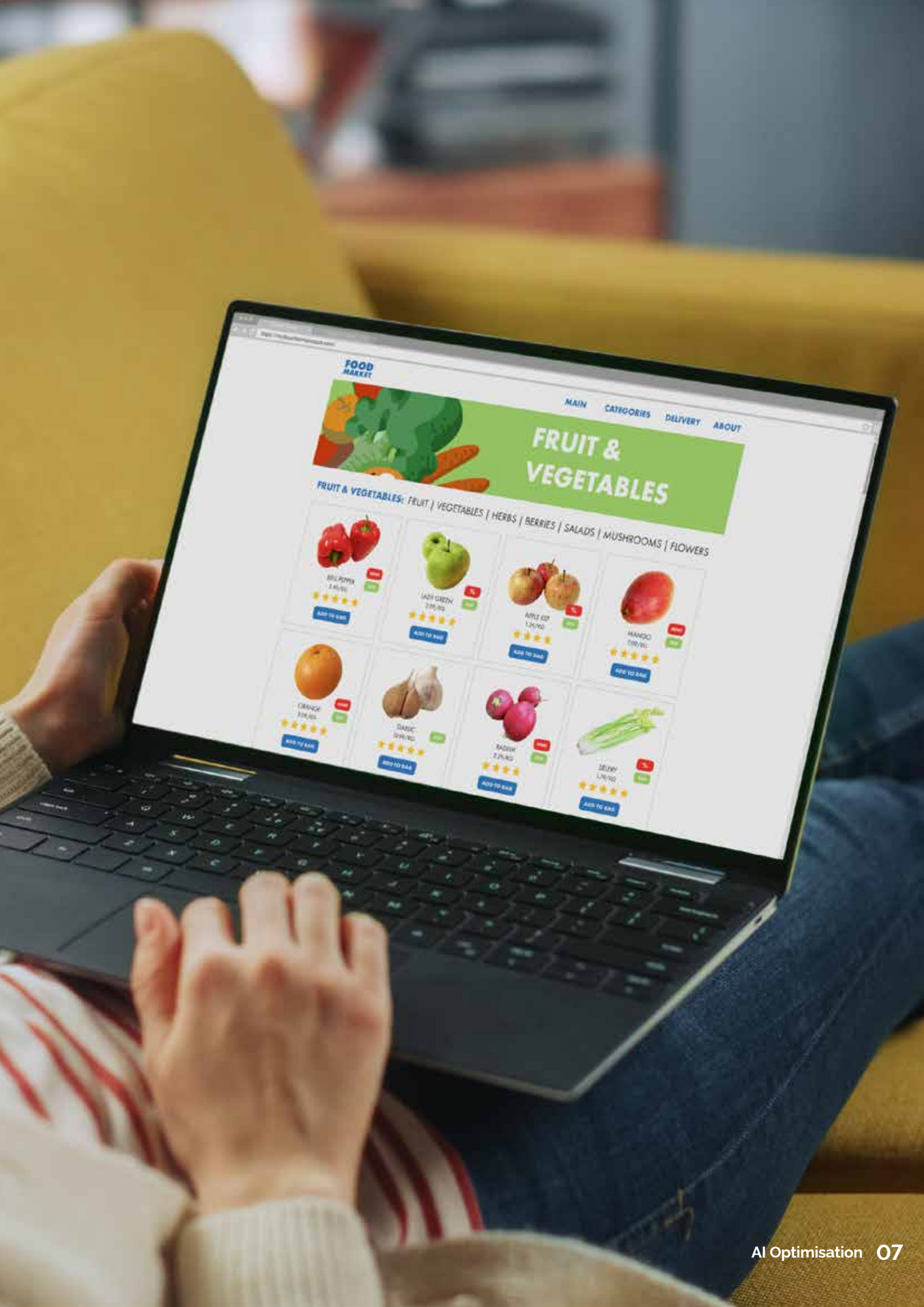
Grouped Deliveries and Shift Optimisation
The AI optimises driver walking distance and speed, and fills delivery schedules to maximise revenue without compromising efficiency. Shift locking allows for quick vehicle dispatch, especially useful for same-day delivery needs.

Order Transfer Support
Fully supports regional and inter-store order transfers, optimising resource allocation across different locations to manage high volumes and complex delivery networks effectively.

Integration with Existing Systems
Trakm8's AI optimisation seamlessly integrates with existing systems, enhancing their functionality without disrupting current operations. This capability allows supermarkets to leverage AI technology without the need for a complete overhaul of their existing infrastructure.

Impact on Operations and Customer Satisfaction
By continuously refining delivery plans and optimising routes, Trakm8's AI ensures on-time deliveries, reduces operational costs, and minimises driver stress. The result is a more efficient and sustainable delivery process that enhances customer satisfaction and loyalty.

In summary, Trakm8's AI optimisation offers a comprehensive solution to the challenges of last mile delivery for supermarkets. It combines advanced technology with practical features tailored to the needs of supermarket fleets, ensuring significant improvements in efficiency, cost reduction, and overall customer experience.


FOOD MARKET
MAIN
CATEGORIES
DELIVERY
ABOUT
FRUIT & VEGETABLES
FRUIT & VEGETABLES: FRUIT | VEGETABLES | HERBS | BERRIES | SALADS | MUSHROOMS | FLOWERS

Key Benefits

Meeting the Challenge of Rising Costs
Supermarkets face escalating costs in last mile delivery, a challenge that AI Fleet Optimisation effectively addresses. By leveraging advanced algorithms, AI ensures a balance between consumer demands and cost management, leading to significant savings in fuel and labour.

Commitment to Sustainable Deliveries
AI-driven solutions also emphasise sustainability, optimising delivery routes to reduce mileage, lower CO_2 emissions, and support eco-friendly practices, aligning delivery operations with environmental goals.

Enhancing Customer Experience
AI Optimisation improves customer satisfaction by offering flexible delivery slots and optimising schedules. This reduces delivery failures, ensuring timely fulfilment and a superior customer experience.

Tangible Benefits for Fleet Management
Adopting AI technology offers numerous benefits, including reductions in total fleet mileage, the ability to handle more orders without adding shifts or vehicles, and overall operational cost savings.

Efficiency and Cost Reduction
AI's real-time route optimisation minimises unnecessary mileage, significantly lowering fuel costs and contributing to a greener future. Additionally, automated planning reduces labour costs by optimising workforce utilisation, eliminating inefficiencies, and scaling operations seamlessly without additional resources.

Improving Miles per Drop
AI excels at enhancing delivery efficiency by optimising routes to increase the number of deliveries per trip. This reduces overall mileage and boosts delivery productivity, ensuring faster and more efficient service.

Enhancing Driver Job Satisfaction
AI-driven route optimisation alleviates driver stress by providing better, more efficient routes. This results in less pressure to meet tight schedules, reducing the temptation for speeding and promoting a safer, more relaxed work environment.

Key Takeaways

AI Fleet Optimisation is poised to redefine last mile delivery standards. By driving cost savings, enhancing sustainability, and improving both customer and driver experiences, these advanced solutions are set to play a crucial role in the future of supermarket delivery operations.


esc
delete
tab
caps lock
return
shift
control

Trakm8's AI Optimisation Case Studies

Supermarket 1

Trakm8 provides the slot booking and optimisation algorithm that plans the vehicles schedule, the loading and the order of the drops. This service is provided through our elastic APIs to integrate into Supermarket 1 platform.

Supermarket 1 are booking home deliveries online up to three weeks in advance and is also about to launch same day ordering online with us.

4,000 tonnes of Co_2 emissions saved

17% Improvement in miles per drop

£15 million saving across fuel and labour costs

170-200K fewer miles per week

2,850
home delivery vehicles

1,400+
stores

90,000
deliveries per day

10,000
drivers

Results

- Trakm8 surpassed Supermarket 1 optimisation expectations, nearly doubling the anticipated performance.
- Trakm8 replaced Oracle's routing solution, achieving a **17%** improvement in miles per drop, leading to significant savings in emissions, fuel, and costs.
- Increased order volume without adding more shifts or vans, aligning with growth.
- Projected annual savings of £15 million across fuel and labour costs.
- Vans drive **170-200k** fewer miles per week.
- Released Christmas delivery slots **5 weeks** earlier.
- Extended delivery slot booking windows from **2 to 4 weeks**.
- Enabled Supermarket 1 to launch same-day online ordering soon.

Chief Product and Analytics Officer Testimonial

The launch of a new grocery routing platform, with the Trakm8 optimisation algorithm at its core, has been transformational for our grocery home delivery business. The platform has delivered business savings that support our Save to Invest strategy and has also directly benefited our customers offering them more flexibility and choice in when they get their deliveries. The platform is the foundational layer on which we will build upon to deliver more business and customer value.

Trakm8's AI Optimisation Case Studies

Supermarket 2

Trakm8 manages slot booking, vehicle loading, and routing schedule optimisation, providing front-end software and apps for data management. It seamlessly integrates with Supermarket 2's tills, online ordering, and customer management systems.

Supermarket 2 accepts home delivery bookings both in advance (up to two weeks) and on the same day, both online and in-store at the till. Trakm8's software and algorithms play a crucial role in planning vehicle selection, loading, and delivery order.

Trakm8 helped Supermarket 2 launch optimised home delivery

Achieved a 20%+ improvement in vehicle fuel costs

1,600
home delivery vehicles

600
stores

40,000
deliveries per day

5,400
drivers

Results

- Trakm8 helped Supermarket 2 launch optimised home delivery.
- Achieved a **20%+ improvement** in vehicle fuel costs.
- A second-generation solution is being rolled out using Trakm8's latest optimisation algorithm and slot booking solution and this is modelled to reduce vehicle fuel cost by a further **10%**.
- Trakm8 also supplies telematics and camera systems that are built on the same software platform allowing deeper integration of data with optimisation and one platform for full fleet management.

Driver & Store Feedback Testimonial

I've done 4 shifts on the new system and I am well impressed so far, well done. Driver with over 20 years service.

Cracking bit of kit this new scheduler, till ops no longer shouting asking what's available to use as it's on the tills, drivers not running around to load vans as the runs are all pit stopped in temperature controlled chambers, scheduler all set up.

FAQ's

Question: How does this information get sent to the driver and are there cut off times?

Answer: Yes, the process typically involves a cutoff time, although the specific timing may vary depending on the organisation's operational preferences. What we are witnessing here is a highly detailed algorithm and an API designed to address a specific challenge. In practice, organisations often have customers with multiple daily cutoff times, like one customer with two deadlines, one at 11 am and another at 11 pm. When it's time to make these cutoffs, the organisation selects a plan from the continuous stream of plans generated by the algorithm. This chosen plan is then dispatched to the driver responsible for collecting and loading the goods onto the vehicle. The plan also contains comprehensive instructions for the driver, including details on their route, timing, and their expected tasks, such as when they should return. This information ensures smooth and efficient operations.

Question: Has the Optimisation algorithm allowed grocery retailers to provide more slot bookings for their customers?

Answer: Absolutely, the optimisation algorithm has allowed grocery retailers to offer more slot bookings to their customers. Through the slot booking feature, customers are provided with a range of time slots for their shopping deliveries. Behind the scenes, the algorithm plays a crucial role in enhancing efficiency. It accomplishes this by compressing drive times, smartly reordering the sequence of deliveries for other customers, and ensuring that deliveries within the constraints of the chosen time slot are as efficient as possible. This strategic optimisation not only benefits individual customers but also opens up more time slots, allowing additional customers to access these services.

Question: How does optimisation affect the job of the driver?

Answer: The impact of optimisation on the driver's role is notable. While the driver may indeed have more tasks to handle, the advantage for them is a significantly improved driving experience. The routes are more logically structured, making the drive smoother and more enjoyable. This, in turn, leads to happier and more satisfied drivers. The positive driver experience contributes to reduced turnover among driver staff, as they are now equipped with achievable routes and experience less stress. This not only benefits their job satisfaction but can also have positive physical and mental health effects.

As the simulation progresses, you'll notice a noticeable change in the bubbles; they've grown in size and are now more tightly concentrated in the bottom left corner. This indicates a significant increase in efficiency. The drivers' routes have become much more streamlined, resulting in a more straightforward and logical sequence for them to follow. Not only does this make their driving experience more pleasant, but it also enhances their productivity, enabling them to handle more deliveries (and possibly pickups) in a given timeframe.

This efficiency improvement has a cascading effect. We've observed a remarkable decrease in the turnover of driver staff because they find their work more satisfying. Their ability to navigate efficiently ensures timely deliveries, and they can complete their tasks more swiftly. This not only brings smiles to the customers' faces due to punctual deliveries but also to the drivers, who appreciate the smoother operations. What's truly remarkable is that through this highly efficient optimisation, we're able to deliver more goods at a reduced cost, which is a win for the environment as well.

Question: How does the optimisation algorithm work with existing systems and processes?

Answer: The optimisation algorithm seamlessly integrates with existing systems and processes. It smoothly integrates into various commercial systems, websites, and backend operations. We provide our software, known as Trakm8 Insight, to support many of these tasks.

One interesting aspect is that some of our customers have varying cutoff times throughout the day, which is where real-time optimisation truly shines. The algorithm continuously refines plans as orders are loaded, and it operates without a distinct start or end point. Organisations can select a plan whenever they prefer, with some opting for multiple daily cutoffs when they dispatch drivers or refine plans. Others continuously update their plans, especially when handling a high volume of same-day deliveries or situations where customers purchase in-store and request delivery. Our algorithm supports this dynamic approach.

Furthermore, our optimisation capability extends beyond a single day. While this example focuses on one day, we have the capacity to optimise for multiple days, extending to a week, 28 days, 30 days, or even months ahead. This flexibility ensures that our solution aligns with the specific needs and preferences of our customers.

Question: Does Optimisation allow grocery retailers to open their Christmas booking slots earlier?

Answer: Yes, optimisation enables grocery retailers to open their Christmas booking slots much earlier than usual. This is made possible because our optimisation algorithm can generate plans weeks & months in

advance. It continually works to expand the pool of available slot bookings for customers to choose from, resulting in increased revenue for these retailers.

Question: Can the algorithm be adjusted to suit the customers needs?

Answer: Yes, one of the features of our algorithm lies in its exceptional flexibility. It can adapt to evolving circumstances and new challenges. This adaptability comes to the forefront when dealing with a wide range of factors, such as new constraints or legal changes, particularly those related to alcohol delivery or localised timing restrictions.

Furthermore, our algorithm accommodates specialised products that must be delivered by a particular depot or store. To manage this complexity, we impose constraints to prevent the transfer of such specific product lines between depots. The mix of constraints can be intricate, covering various aspects like driver qualifications, vehicle specifications, load and unload times, and even HGV restrictions related to driver breaks over multiple days. Our algorithm boasts a comprehensive constraint model capable of addressing a diverse set of situations, from daily driver schedules to complex multi-day logistical challenges.

Question: Can you edit the map and routes if something unforeseen happens?

Answer: Our optimisation algorithm is incredibly versatile, capable of handling a wide range of scenarios. It offers customers the ability to perform real-time map editing. This means you can make changes to the underlying map, such as closing roads or adjusting road speeds. So, for instance, if there's a fair, a major sporting event, or roadworks happening that isn't reflected in the map data, you can simply draw a polygon around the affected area, modify road speeds, or close a road. These alterations translate into the slot booking and optimisation processes, enabling you to avoid specific areas or allocate more time to access them. These map edits don't impact the performance of the optimisation. That's because we integrate the changes made by the user directly into the foundational map data. As a result, the optimisation process continues to run smoothly, using the updated data. This ensures that our system remains exceptionally fast and efficient.

Conclusion

Trakm8's AI Optimisation for last mile delivery offers supermarkets a powerful tool to reduce costs, enhance operational efficiency, and improve customer satisfaction. By leveraging advanced algorithms, Trakm8 optimises routes, minimises fuel consumption, and ensures timely deliveries, all while supporting sustainability goals. The solution integrates seamlessly with existing systems, allowing for scalable operations and improved driver well-being.

Transform your supermarket delivery operations with Trakm8's AI Optimisation.

Book a demo today to see how you can achieve significant cost savings and operational excellence.

SCAN ME

To book a demo, simply scan the QR code above or visit:

get.trakm8.com/ai-optimise-demo/

Trakm8

Data driven insights

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