

ON THE RIGHT

WITH PARCEL VOLUMES BOOMING AND CONSUMERS DEMANDING FASTER, MORE FLEXIBLE AND TRANSPARENT DELIVERIES, DEPLOYING THE RIGHT ROUTE OPTIMIZATION TOOLS HAS NEVER BEEN MORE IMPORTANT FOR LOGISTICS COMPANIES LOOKING TO IMPROVE LAST-MILE EFFICIENCY, REDUCE COSTS AND MINIMIZE THEIR IMPACT ON THE ENVIRONMENT. BY **HELEN NORMAN**



LOCATION
58.35.22



7.3 mi.

PATH

DESTINATION
78.24.13

According to Insider Intelligence, last-mile delivery costs account for around 50% of the total cost of shipping. With the rise of free shipping, same-day delivery and customer preferences for home delivery, plus fast-growing e-commerce volumes, it has become more important than ever for delivery companies to optimize their last mile.

A 2020 survey by Statista also highlighted the cost to retailers of getting the last mile wrong. According to the survey, in the US the average cost per failed delivery to retailers stood at about US\$17.20. The same survey showed that a failed delivery in the UK cost £11.60 (US\$14.20). This cost may seem small, but when you consider the volumes of parcels delivered by some delivery companies – DPD UK delivers around 400 million parcels per year, for example – it's easy to see how these figures can escalate.

Fluctuating volumes

Getting the last mile right comes down to several factors, such as driver performance and vehicle reliability, but one of the most important is effective route optimization. This can determine the best routes and ensure operators can efficiently handle volume fluctuations. The latter has been particularly important during the global pandemic.

"Supply patterns throughout the pandemic have been constantly fluctuating and the need to react with dynamic scheduling as opposed to the usual fixed routes that were manually planned has increased investments in route optimization substantially," comments Simon Mardle, senior director of supply chain transformation at Capgemini. "Carriers' needs have also changed due to the pandemic. Rising e-commerce volumes, an increased focus on sustainability, rising fuel and labor costs, a shortage of resources and changing consumer habits from three- to five-day delivery windows to next- or same-day

ROUTE OPTIMIZATION



“AN EFFECTIVE, SCALABLE AND INTUITIVE ROUTE OPTIMIZATION SOLUTION WAS EXTREMELY IMPORTANT”

Tim Jones, DPD UK

tracked delivery – all make it even more vital to have route planning technology to plan the most optimal journey for customers. This can often mean not going for the most cost-effective solution but instead prioritizing speed, sustainability and flexibility, alongside efficiency.”

Route optimization solutions have transformed in recent years, from simple route planning software to “comprehensive, commercial vehicle-specific route planning and navigation solutions that provide a wide variety of advanced features and integrations”, according to Andrew Nowell, sales manager at Trimble Maps. Features highlighted by Nowell include scenario planning, optimized driver and vehicle types, delivery and collection flexibility and reporting.

Trimble Maps has recently partnered with Yodel to integrate new routing technology into the delivery company’s proprietary driver application. The aim of the partnership is to support Yodel in dealing with fast growing delivery volumes, which rose by almost 35% year-on-year in the run-up to Christmas 2021.

The new tech used by Yodel has given drivers an average of 20 extra minutes each day through better route optimization, increasing driver productivity, according to Trimble. At the same time, the technology has enabled Yodel to communicate accurate delivery time windows to Xpect service customers 98.77% of the time, improving customer satisfaction.

“Our commercial map data contains information specific to commercial vehicles, such as roadway allowances, bridge heights, weight and load restrictions,” Nowell explains. “In addition, it has several other benefits for parcel carriers, such as network scenario planning to model and test the impact of fluctuating customer demand; linking time of order and next-day route design; and an algorithm that uses definable constraints such as time windows, capacity of vehicles, order to equipment matching and several others to ensure the solution can be executed by the fleet.”

Carl Moore, COO at Yodel, adds, “Our partnership with Trimble Maps has been key to our success. Having worked closely together for 14 years, we have been able to coordinate on the development of the technology and ensure it is seamlessly implemented across our network. We look forward to the future of this partnership to continue to provide a flexible and effective delivery service.”

Yodel communicates accurate delivery time windows to Xpect service customers **98.77%** of the time



TOP TIPS

Our industry experts share their advice on how to get the best out of route optimization investments

Andrew Nowell, Trimble Maps: "Ensure that you are set up for scaling. Your system and technology might be suited for the demands of today, but you should be prepared for how to scale up when it comes to peak season, or unexpected changes in consumer behavior."

Tim Jones, DPD UK: "Don't just leap into big investments in new products and technologies. Start small and test extensively to ensure the solution meets your commercial and operational requirements. Once you are sure they are right for your business you can then roll them out in an efficient way."

Simon Mardle, Capgemini: "Gain buy-in from the existing route planners in the company. Often, clients implement a route planning software without first going through an adequate change management and training process to gain this buy-in and build confidence among their planners. Also, from a technology perspective, be clear on the role of the route planning tool."

Dr Clemens Beckmann, Greenplan: "Try it out, don't read about it! When you are looking for a provider, you should ask for a test calculation and compare it to other providers or your own routes to learn about the quality of these providers. Moreover, stakeholder integration is key. Don't forget that a system change can always bring up resistance in your company. Manage this proactively."

Florian Neuhaus, partner, McKinsey & Company: "It is important to strike the right balance between machine-based daily optimization approaches and the knowledge of workers, such as their knowledge of the delivery area, local peculiarities and their relationships with people in the district."



Sustainability

According to Nowell, three of the main objectives for carriers for route optimization are efficiency, sustainability and driver shortages. Sustainability has been one of the driving forces for DPD UK while investing and improving its route planning solutions. The company, which saw "three years' worth of growth in one year in 2020", according to Tim Jones, director of marketing, communications and sustainability, recruited approximately 6,000 people to handle increasing volumes during the pandemic. DPD also opened 15 depots in 2020 – 10 more than was originally planned.

"The vast majority of the new people were operational staff, including drivers," Jones explains. "Therefore, an effective, scalable, reliable and intuitive route optimization solution was extremely important. Luckily for us, route optimization has always been the cornerstone of what we

ABOVE: DPD is investing in electric vans, which means route optimization must factor in en-route charging

LEFT: Trimble Maps' software is designed to meet the needs of commercial fleets, shippers and delivery logistics companies

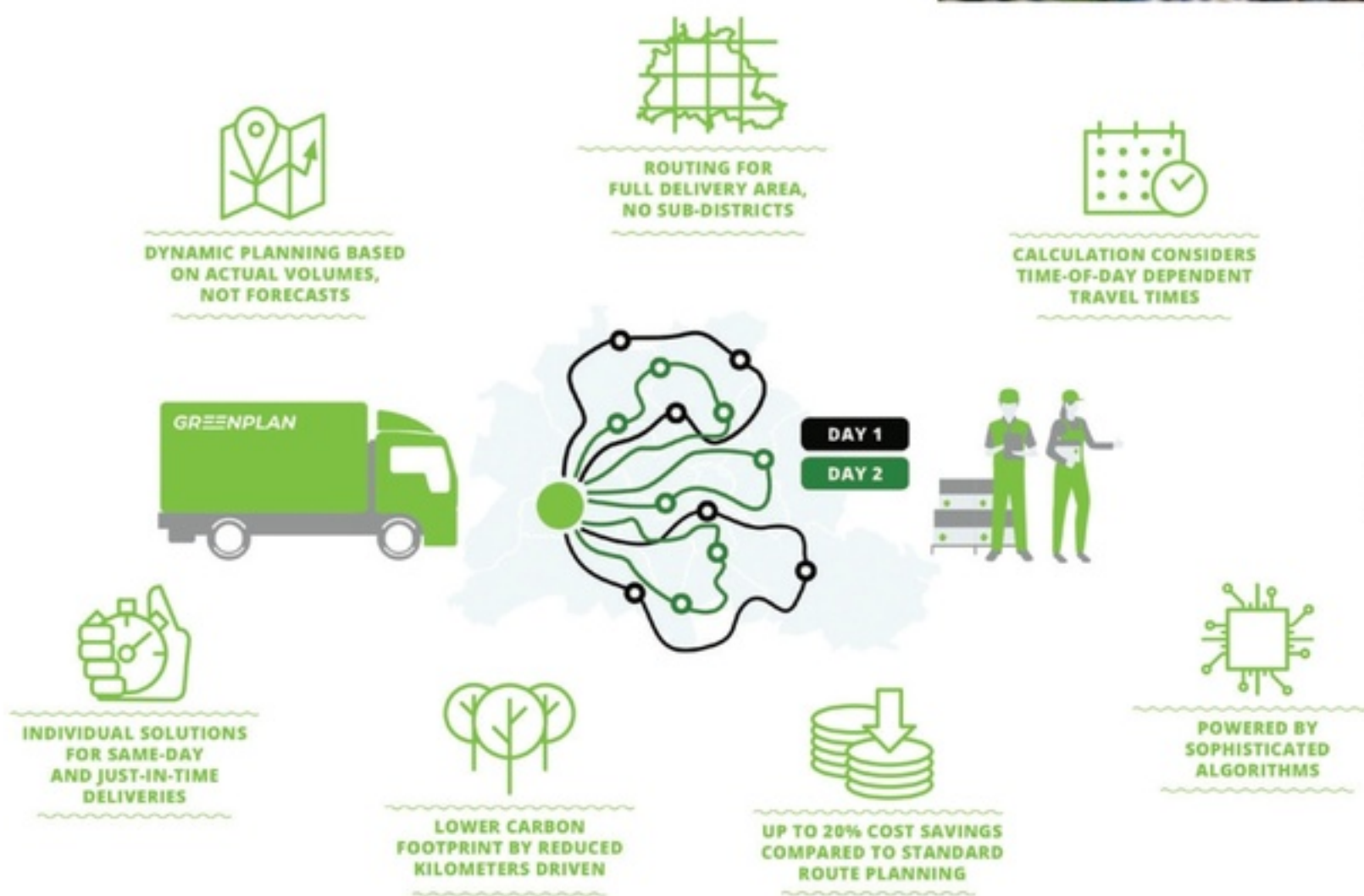
do. This goes right back to 2010 when we launched Predict – the first one-hour delivery time slot offered in the UK."

Jones was unable to disclose the specific route planning solution used by DPD UK, but he did reveal that it is a "hybrid model" that uses both operational excellence within DPD and some "carefully selected strategic external suppliers".

DPD UK has a clear aim to become the UK's most sustainable parcel delivery company. To help it achieve this, the company is heavily investing in the electrification of its collection and delivery fleet. In May, it revealed that it had signed a deal with Ford for the delivery of 1,000 E-Transit vans this year, taking DPD's electric vehicle (EV) fleet to more than 2,500 in total.

"By the end of 2022 we hope to have around 3,000 all-electric vans in our fleet, and by the end of 2023 we plan to add another 2,000 more – meaning around 40%

ROUTE OPTIMIZATION



Routing technology has given Yodel drivers an average of 20 extra minutes each day

“THE MORE PRECISE THE DATA, THE MORE ACCURATE THE TIME PLANNING AND ETAs WILL BECOME”

Dr Clemens Beckmann, Greenplan

of our fleet will be electric,” says Jones. “This will significantly help us in achieving our net zero target, which we will announce later this year.”

The rollout of electric vehicles adds another challenge to route optimization, according to Jones. “Public-access charging for EVs is not readily available at the moment in the UK, so there are range anxiety concerns on certain routes,” he says. “Therefore, route optimization has become more crucial than ever before. We have used route planning to roll out our electrification program city by city, so when we get to 2023 and that magic 5,000 number of electric vehicles, we will be able to deliver to around 30 of the UK’s biggest towns and cities on all-electric. We are already at 10 cities.”

The importance of data

Sustainability was also one of the key driving forces behind the development of Greenplan’s cloud-based, dynamic route optimization tool. Greenplan was a DHL-owned route planning solution provider up until January of this year, when the current management team carried out a management buyout.

“Greenplan, having its roots in the world’s leading logistics company, DHL, and the renowned Mathematical Institute of the University of Bonn, Germany, has created a superior solution to improve the efficiency and reduce the costs of the transportation industry, and make a big impact in fighting climate change,” says Dr Clemens Beckmann, CEO of Greenplan.



TOP LEFT: Greenplan (CEO Dr Clemens Beckmann is pictured above) provides an algorithm for the complex task of moving goods and people in an efficient and sustainable way

According to Beckmann, dynamic route planning can provide routes with significantly less CO₂ emission and prevent congestion in city centers. “The adaptability of tours with respect to the humans acting in those systems should also, however, never be ignored,” he adds.

Beckmann also highlights the importance of data, such as the correct shipment addresses, handling times and loading parameters, when it comes to route planning. “The more precise this data, the more accurate the time planning and ETAs will become. In addition, this in return results in more accurately planned working hours of employees,” he explains.

Meanwhile, according to Bastian Schilling, business development manager at GIRO, another important aspect is product data. “Sophisticated product-volume forecasts facilitate planning sustainable routes, while daily operative data can be used to adapt the routes efficiently on the day of operations,” he comments. “The sooner data is available, the easier it is to adapt plans while minimizing disruptions in the operative processes.”

GeoRoute’s assistant director, Fanny Waffo, adds that data can also help with developing flexible route planning solutions, which are essential in today’s delivery sector due to fluctuating volumes forcing delivery firms to react quickly. “Having flexible solutions that can adapt to the changing volumes is now a must,” she says. “We have implemented more and more flexible solutions with our clients in recent years to cope with these challenges. Whether it’s solutions like alternate-day delivery models to adapt to the decline in mail volumes, or dynamic route optimization solutions to manage volume variations efficiently, our clients are changing the way they operate the last mile and we’re supporting them every step of the way.”

Chris Long, director of retail operations at Capgemini Invent – Capgemini Group’s innovation house – adds that data can also be used to inform strategic route modeling and ‘what if’ scenarios to plan for different events in a proactive, rather than reactive, way.

“It’s also important to track and then use data in the most meaningful ways,” he continues. “If, for example, a delivery to an address is typically taking longer than the expected drop time or requires a specific vehicle to access, this should be identified and then used in future to plan deliveries to that location instead of relying on human intervention to add/manage rule sets or manually tweak planning criteria. Overall, data is crucial to informing route planning. Without it, route optimization is not possible.” ■