

REPORT

What route optimization to meet the challenges of the parcel delivery industry?



Parcel delivery, an ever-changing market

Parcel delivery is a transport service that moves parcels or goods from the sender to the recipient within a short period of time. It requires the carrier to make at least one stop at a platform for the goods to be sorted before being delivered.

It is an industry under pressure: the delivery times customers expect keep shrinking, parcel volumes keep rising with e-commerce, and the pressure on transport costs remains high. These shifts make the way routes and resources are organized particularly strategic.

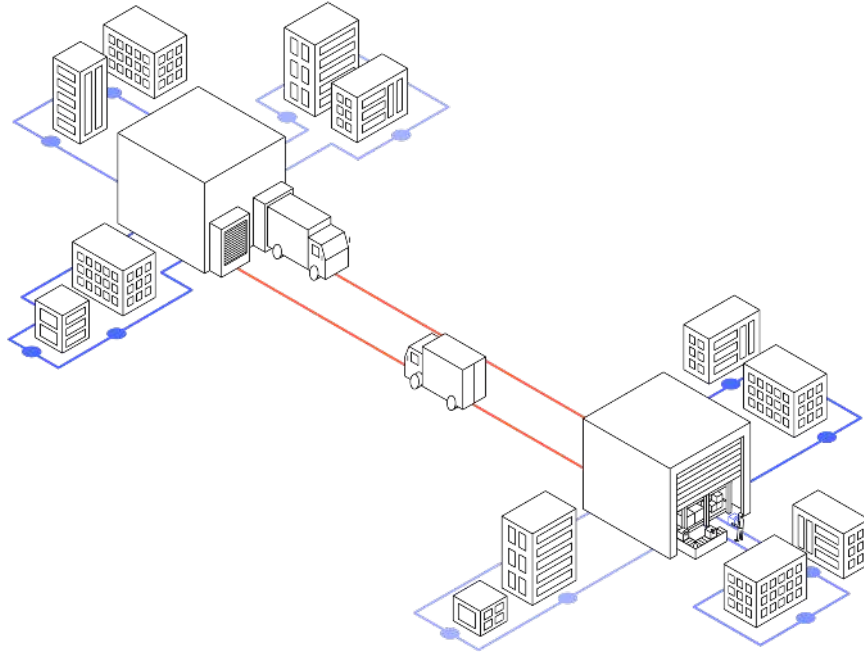
Different types of parcel delivery for different transport needs

The industry covers several formats, which differ mainly in the weight of the parcels carried and the delivery time promised.

TYPE	PARCEL WEIGHT	DELIVERY TIME	SPECIFICITY
Conventional	30 kg – 3 t	24–48 hours	Heavy parcels or pallets, often several units per shipment
Single-parcel	< 30 kg	24–48 hours	A single light parcel per shipment, same lead time as conventional
Fast	< 30 kg	Max. 24 hours	Same parcel size as single-parcel, but a shorter lead time
Express	< 30 kg	Under 24 hours	The shortest lead time, often with a guaranteed time slot

A network structure to cover the territory

To reduce delivery times and increase productivity, parcel delivery companies rely on a network structure that combines grouping, sorting and parcel routing.



Hauling

The drivers maintain a link between several branches of the network in order to quickly deliver long-distance shipments.



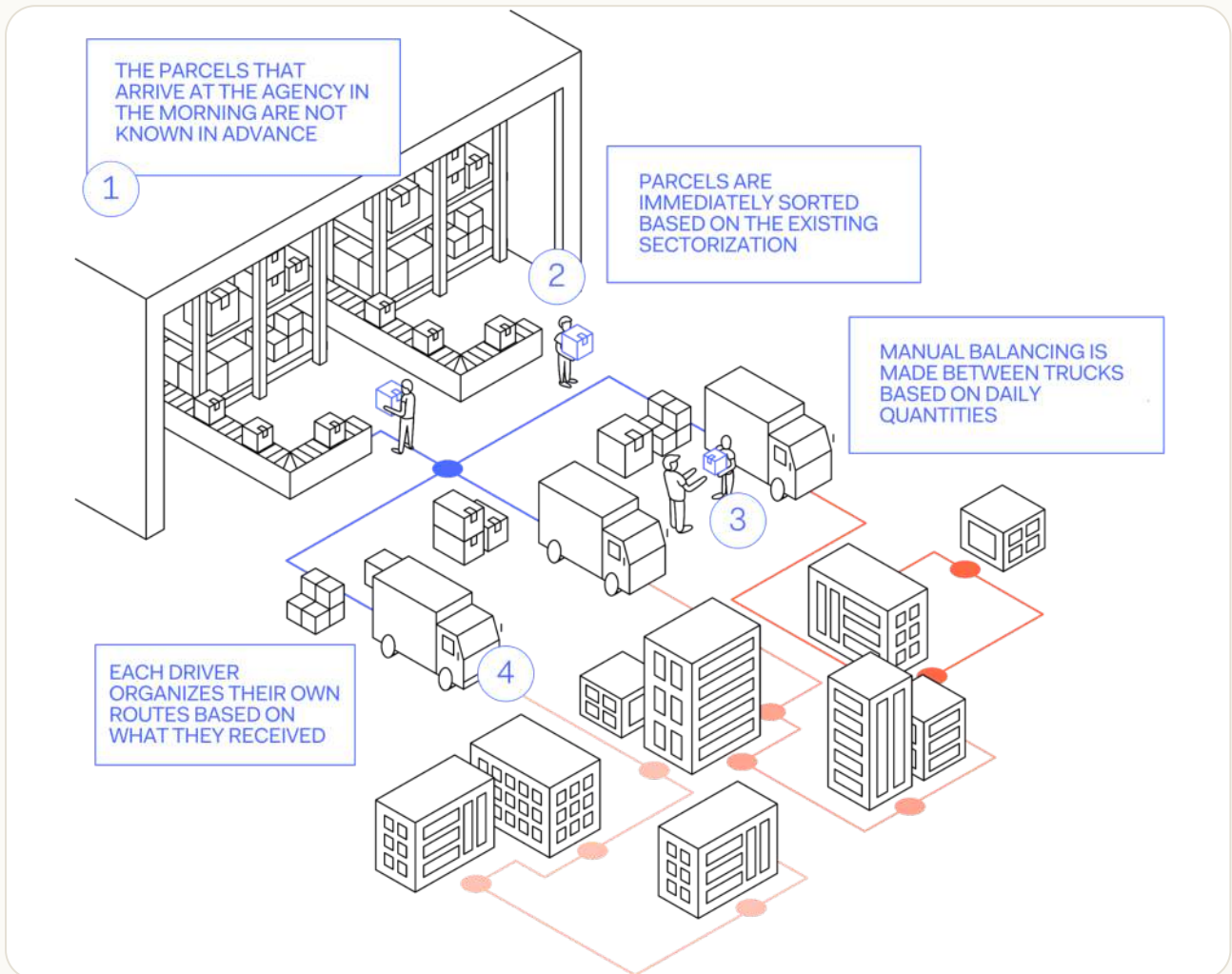
Delivery routes

The drivers deliver the parcels to the final recipients and use the opportunity to make pick-up tours.

An extensive distribution network and an efficient cooperation of the flows between the platforms are crucial: a poor network means parcels arriving at the branch too late to be sorted and delivered the same day, or under-filled hauling trucks that push up the cost per parcel carried.

A complex last mile to manage

Every day, a branch receives several hundred, sometimes several thousand parcels that it has to distribute among its drivers. Each of them can deliver more than a hundred parcels a day during the peak season at the end of the year.



Within such a short time window, purely manual balancing becomes hard to carry out reliably, day after day.

With volumes changing every morning and parcels unknown in advance, the split relies largely on the experience of the teams. In this context, route optimization becomes a relevant lever, provided it is adapted to the specific constraints of the industry.

Business characteristics that are incompatible with conventional route optimization

1

Just-in-time processes

Parcels arrive continuously at the warehouse: unloading, scanning and sorting are all carried out simultaneously. The entire process can take up to two hours. It is therefore impossible to wait until every parcel has been scanned before starting to sort them.

WHAT IT MEANS IN PRACTICE

This rules out the use of a static route optimization software, which would require having all the data before launching the calculations.

2

The transport partners manage their territory autonomously

Responsible for deliveries and pick-ups on a defined territory, the subcontractors are free to create their own delivery routes, without having any kind of management process forced upon them by the client. Contractually, there is no hierarchical relationship between the delivery drivers and the parcel delivery company.

WHAT IT MEANS IN PRACTICE

If it is not possible to modify the routes operated by the drivers every day, overall and daily route optimization is not relevant and can hardly be implemented.

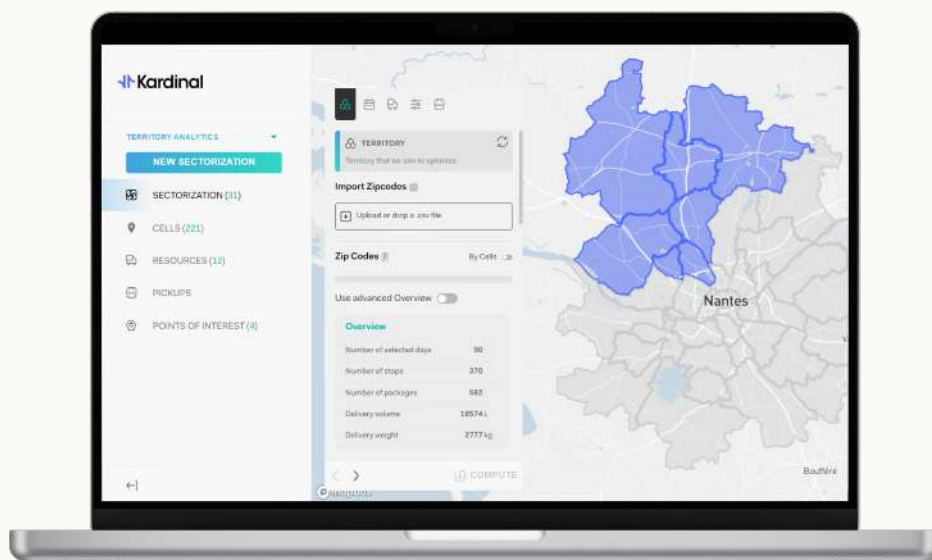
THE RIGHT LEVEL OF OPTIMIZATION

These two constraints do not mean optimization is impossible, but that it has to apply at a different level.

Since individual routes are largely beyond the client's control, the lever sits one level higher: in the way the territory is divided into sectors and the resources (vehicles, drivers) are sized upfront.

The TAO solution to meet the challenges of parcel delivery

Kardinal has developed **Territory Analytics & Optimization (TAO)**, a strategic sectorization solution dedicated to the parcel delivery industry, designed to act on the territorial split rather than on the drivers' individual routes.



Audit

Add your current territorial sectorization in the tool to assess its performance and review past periods.



Optimize

Use the tool to divide your area into sectors and adjust your resources as accurately as possible, based on your historical data.



Refine

Edit your sectorization manually to refine the sectors and test the impact of local modifications.



Act

Monitor your operations in real time on a map, identify daily key issues, readjust your sectors and anticipate the need for additional resources.



Track

Review past operations, identify sectors under pressure and changes in your business activity.



Compare

Simulate changes in your activity, prepare for peak periods or run adjustments in your vehicle fleet (electric vehicles, cargo bikes, etc.).



Ten years of logistics optimization, within reach.

Kardinal supports logistics players in the digitization and optimization of their transport operations.

Kardinal provides solutions dedicated to performance optimization and decision support, for more efficient, more agile and more sustainable logistics.

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