go for

big data & logistics

how to use data to optimize your last mile delivery approach

deliver better

contents

introduction

the last mile isn't one size fits all

Every logistics professional knows that supply chains aren't the same. Logistics requirements

are different depending on what you're delivering. And every merchant has a unique delivery profile that affects last mile efficiency.

The problem is, up until now, no one has been able to optimize these factors at scale. Big data has changed that. Data has provided greater visibility into the last mile delivery process. You can now examine every aspect of a single delivery — or look at thousands of orders in aggregate. This gives insight into the unique delivery characteristics that drive efficiencies and service.

> **One of the most underutilized assets in the industry is the high volume of data that supply chains generate on a daily basis.**
>
> – Artificial Intelligence in Logistics. IBM & DHL, 2018

Data has also shown how critical last mile delivery is to the customer experience. This added visibility can help you communicate functionality and manage customer expectations.

These insights can help you make better decisions about resources, and encourage innovation.

In this report we'll look at:

- four ways big data can help you pinpoint inefficiencies in last mile delivery
- how you can optimize the last mile based on your unique delivery profile
- seven KPIs you should start tracking todayhave to follow suit

using data to reduce delivery times

Delivering orders quickly can be the difference between making a sale and losing one. And supply chain professionals are feeling the pressure.

The route a driver takes can have a significant impact on the time and cost of your delivery.

But manually optimizing routes can be challenging. There are a ton of factors to consider — from driver availability to traffic, delivery windows, and vehicle capacity. That's where big data comes in.

Using your supply chain data, auto-dispatch technology can automatically generate an optimal route. Algorithms optimize routes based on a variety of business rules and detailed constraints. This helps reduce delays and ensure drivers make the most efficient trip possible. With the right supply and demand, we see reductions of empty miles in the range of 30-40%.*

other controllable delays

Route optimization plays a huge role in navigating traffic congestion and delays. But it's only part of the picture.

Many factors can affect delivery speed — such as pickup and drop-off congestion, time of day surges, and delivery distance. Data can highlight deviations that help pinpoint delays in real-time.

For example, let's look at some data from an example store: Joe's Hardware. Looking at Figure I, you can see pickup is taking longer than you might expect. Aligning fulfillment timelines with last mile pickup is critical to achieving customer expectations. So Joe's Hardware could then start an inquiry at the store level to find out why pickups are being delayed. Then they could put in place new processes (such as designated parking for drivers, prepping orders in advance, or priority lines for drivers) to make the process more seamless.

FIGURE I Joe's Hardware Delivery Time by Stage

* What you need to know about empty miles in trucking. Convoy.

using data to increase predictability

Big data solutions collect otherwise siloed data in one place. You can then apply technology like AI and machine learning to find efficiencies at scale.

This added visibility leads to greater predictability.

spend forecasts

Forecasting is easier when you can see a historical record of your delivery volume and costs. Volume predictability also enables a proactive approach to capacity, instead of reactive.

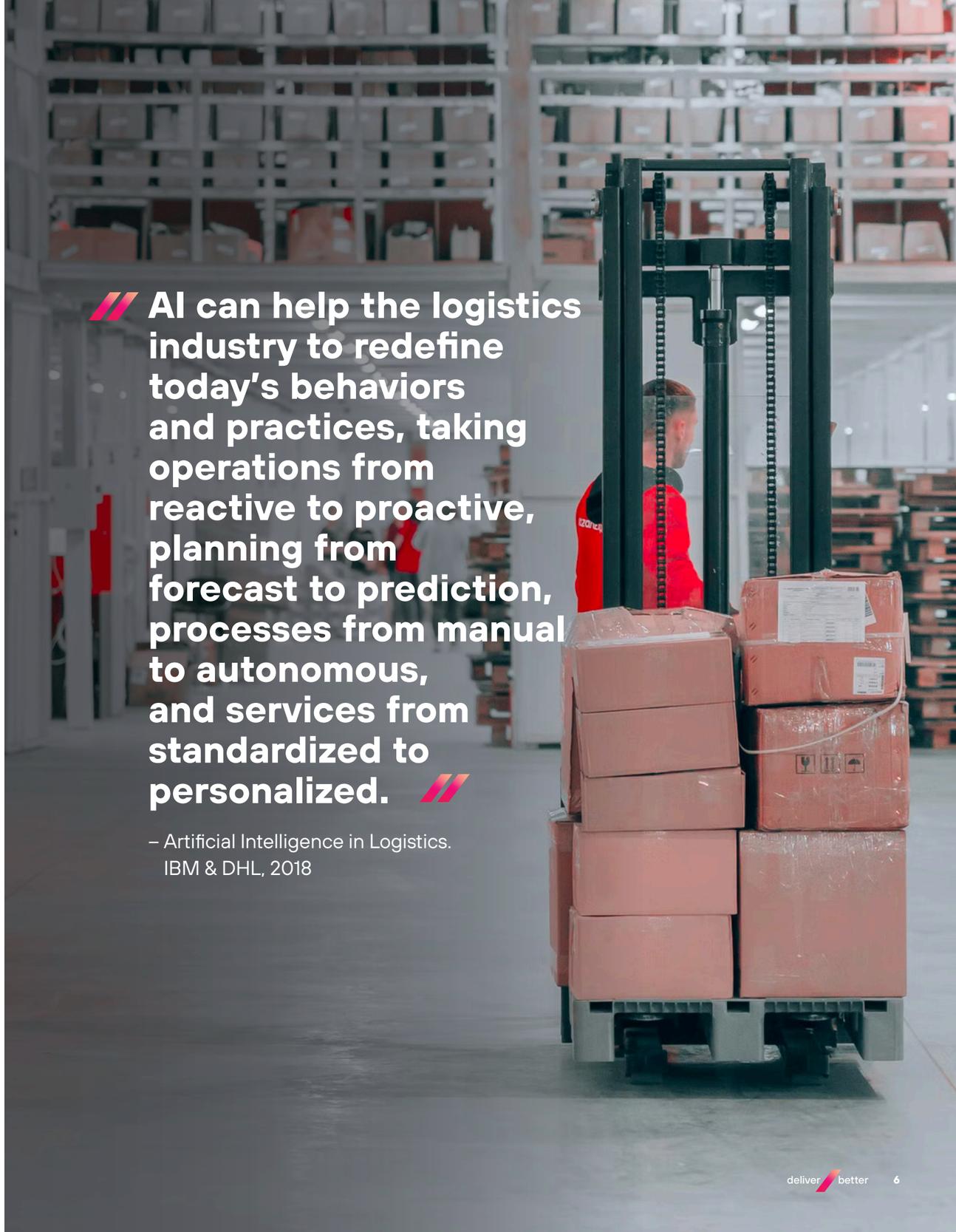
This lets you take control of both your costs and your fleet assets.

real time delivery tracking

Real-time tracking is the new standard for deliveries. Yet 73% of supply chain professionals can't currently provide real-time tracking to customers.*

Providing transparency about delivery ETAs can help manage customer expectations. But it also enables more in-depth reporting, providing greater predictability for logistics professionals.

These reports help you track ETAs and predict delivery speeds with greater accuracy.



* Aligning the Supply Chain in the Age of the Delivery Economy. project44, 2019.

using data to reduce costs

The last mile is one of the most expensive parts of the delivery process. Unlike other stages of transport, the last mile is one-to-many — which isn't as efficient.

But data can help you personalize your last mile approach based on your unique profile. This helps you find cost efficiencies, balance capacity, and reduce empty miles.

Data has also led to the emergence of logistics marketplaces, like gofor. These marketplaces can further reduce costs by co-mingling merchant deliveries. Aggregate data and heatmaps allow marketplaces to see demand trends in real-time. This helps reduce empty miles and allows them to pass on efficiencies to merchants.

making decisions about owned vs outsourced assets

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balancing capacity

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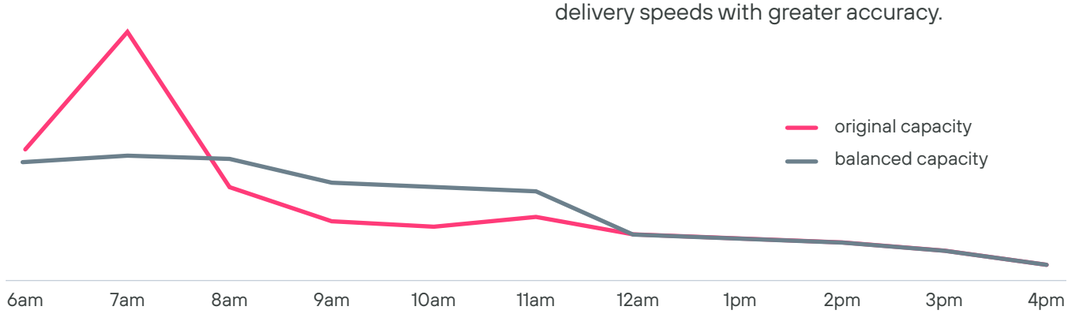

FIGURE II Joe's Hardware Delivery Volume by Hour

using data to inform customer strategy

All the data discussed thus far can not only be used to make your logistics more efficient. It can inform your marketing and customer experience strategies.

Logistics data can create alignment between marketing and the supply chain. It can inform the days, times, vehicles, and service levels you offer to ensure you get the best costs. And it can help manage expectations, leading to happier customers.

> **79% said the supply chain and marketing teams have to collaborate to stay competitive in the future.**
>
> – Aligning the Supply Chain in the Age of the Delivery Economy. project44, 2019

defining predictable SLAs

Big data can bring transparency to your service levels. Predictable performance is critical to customer success and to supply chain execution.

Tracking orders from start to finish in real-time shines a bright light on ETA and SLA compliance. And when marketing knows your capabilities on delivery turn time they can communicate with confidence. This aligns customer expectations with delivery realities, leading to happier customers.

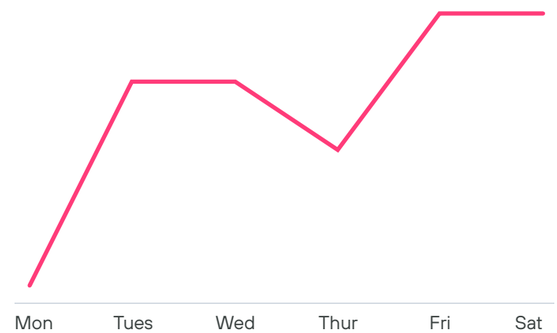

FIGURE III
Joe's Hardware Average Cost Per Delivery by Day of Week

data-backed delivery prices

Tracking your average delivery costs can inform your delivery fees and pricing strategy. Marketing can also offer incentives or varied service offerings to support better delivery costs for the business.

Let's go back to our example company, Joe's Hardware. If you look at Figure III and IV, you can see some of the variables in their average cost per delivery. This helps you understand when, where, why, and how Joe's Hardware gets the optimal cost structure. Using this data, marketing could create campaigns to encourage delivery at times with a lower cost to serve.

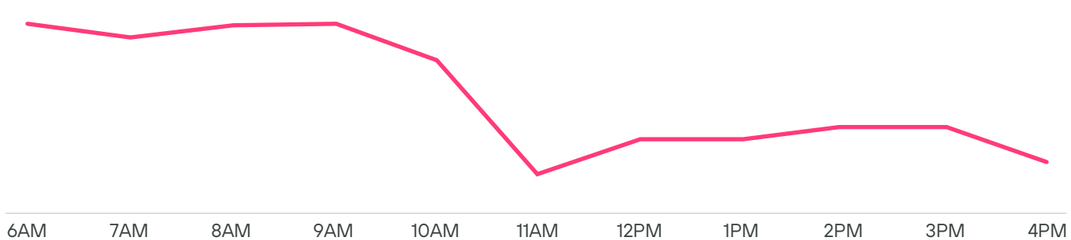

FIGURE IV Joe's Hardware Average Cost Per Delivery by Time of Day

KPIs to track

We've spent a lot of this report talking about applications for big data in logistics. But the most important part of any data strategy is to focus on the data and metrics that matter.

With that in mind, here is a list of basic KPIs that every logistics professional should track:

1. average delivery time
2. average time by delivery stage
3. average delivery distance
4. service level pareto analysis
5. average and running monthly spend
6. average delivery cost
7. monthly costs & volume by vehicle class

average time by delivery stage

Average time by delivery stage can help you pinpoint delays in your last-mile process.

For example, if your drop-off time is longer than average, you might find your drivers are waiting in a queue at customers' warehouses.

You could then try negotiating for priority lines or rescheduling your deliveries.

average delivery time

This gives you a great at-a-glance look at your delivery service levels. With this data you can:

- measure month-over-month to ensure service levels are consistent
- drill down into specific stores or regions to identify inefficiencies
- compare your delivery time against vertical averages to see how you are stacking up against competitors

average delivery distance

If you have multiple stores serving one metro area, this is an important metric to keep an eye on. Customers don't always choose the most efficient store to order products from. You can re-route orders to keep time and costs down.

service level pareto analysis

A Pareto chart helps you analyze your service level and failure rate. Pareto charts show you the percentage of deliveries completed over time. This helps you identify peaks in ordering and opportunities to rebalance capacity.

monthly costs + volume by vehicle class

These metrics help you understand what vehicles you are using most often. This lets you keep an eye on your fleet utilization and make better decisions about owned vs outsourced assets.

average and running monthly spend

These are great at-a-glance KPIs that help you keep an eye on your costs. You can also use these metrics to identify spending peaks in real-time, drilling down by store or region to find inefficiencies.

average delivery cost

Average delivery cost gives you an at a glance look at how much your delivery program is costing you, per transaction. It's a great way to help you identify if you are charging enough for delivery — or to ensure costs are within an approved range for the various services and asset utilization.

conclusion

Every business is unique, and delivery programs are no different.

When unaccounted for these differences can lead to inefficiencies and service fluctuations — even failures. Especially at the speed today's on-demand economy demands. This increases costs and delivery times, affecting your ability to achieve customer expectations.

By leveraging supply chain data, you can identify areas in your delivery process that are underperforming. Then make improvements in real-time.

There are a variety of applications for big data in logistics, from speeding up the delivery process to increasing predictability and reducing costs. But it's important to remember that logistics data can't stay in logistics. Delivery is part of your customer experience. And alignment across your entire business is key to managing customer expectations.

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