DispatchTrack

How Is AI Impacting Last Mile Delivery Experience?



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Introduction

How Will AI Impact Last Mile Logistics?

AI has garnered more coverage than any other new technology in the past few years—but current deployments of it cover the entire spectrum from life-changing to wildly unnecessary. On the one hand, two of the 2024 Nobel prize winners (the prizes for Physics and Chemistry) went to researchers who were leveraging AI to tackle complex problems in protein folding and artificial neural networks.

On the other hand, you have McDonalds, who had to cancel their deployment of AI-assisted drive-thru ordering last year because the system was riddled with errors. In one instance, it wouldn't stop adding chicken nuggets to a patron's order and ultimately tried to saddle them with an order of more than 200 nuggets.

If you're not well versed in the area, it can be tough to separate fact from fiction and hype from reality. Unfortunately, ignoring AI has become a luxury—this technology is already making its impact felt in the world of logistics, and it'll only become more prevalent in the next several years.

That's why we've put together this guide. We've been tracking the development of AI-powered technology in logistics—specifically in the last mile—for many years now. We're here to give an overview of how AI is impacting the sector and what applications for it you can expect to see in the near future.

In this guide, you'll learn:

- How this technology has evolved and how the logistics space can take advantage of it
- How AI and machine learning can improve route optimization and customer experience
- The difference between reality and hype when it comes to AI
- Next steps for businesses that want to take greater advantage of this technology.



FAST FACTS



From 2023 To 2024

Business Investments In Generative AI Increased By 500%,

(Source)



45% Of Supply Chain Leaders

Say They Have Wide Scale Adoption Of AI In Their Technology. Another 11% Say AI Is Critical.

(Source)



58 Percent Of Logistics Companies

Expect AI To Become Widely Used And Take Over Tasks Like Route Optimization.

(Source)



The Top 2 Business Objectives For Using AI

Are Operational Efficiency (39%) And Improved Customer Experience (38%)

(Source)

02

Artificial Intelligence: A Primer

The emergence of large language models like Open AI's ChatGPT and Google's Bard have brought a lot of visibility to AI in the last few years, but much of the coverage of these technologies hasn't done much to clarify what people really mean when they talk about AI.

One of the earliest definitions we have for artificial intelligence is "the science and engineering of making intelligent machines," which should show just how broad a field it is. It includes everything from teaching computers to play chess and go, to developing "computer vision" for facial recognition and autonomous vehicles, to large language models used to generate text such as ChatGPT.

As you read about AI applications, you'll also come across the concept of **"machine learning."** Stanford's Institute for Human-Centered AI describes machine learning as the subset of AI research "studying how computer agents can improve their perception, knowledge, thinking, or actions based on experience or data." For practical purposes, this usually means models trained on large amounts of data to suss out particular kinds of insights (e.g. whether an email is spam or not). Deep learning is a subset of machine learning for using artificial neural networks to process data more effectively.



> **"AI will enhance work.** AI will give managers and staff more usable information faster"
>
> **Charles Edwards**
> Supply Chain Management Review

03

AI Use Cases in Last Mile Logistics

Most of the hype around AI that you might see in the newspapers is about the prospect of general AI—i.e. something that can adapt to any number of tasks in the way that human intelligence does. For most business use cases, however, we're going to be more interested in "narrow" AI, which AI designed to excel at a specific task or function.

For logistics, those potential functions are myriad. In many cases, it's enough to train machine learning algorithms on large, logistics-related datasets in order to provide capabilities that significantly augment the human planners and managers that they empower. Here are just a few of the most promising areas.



Customer experience

A chatbot that leverages natural language processing (the kind of technology that ChatGPT and similar tools rely on) can help boost efficiency and streamline customer experience in the last mile—if you're deliberate about the way you deploy it.

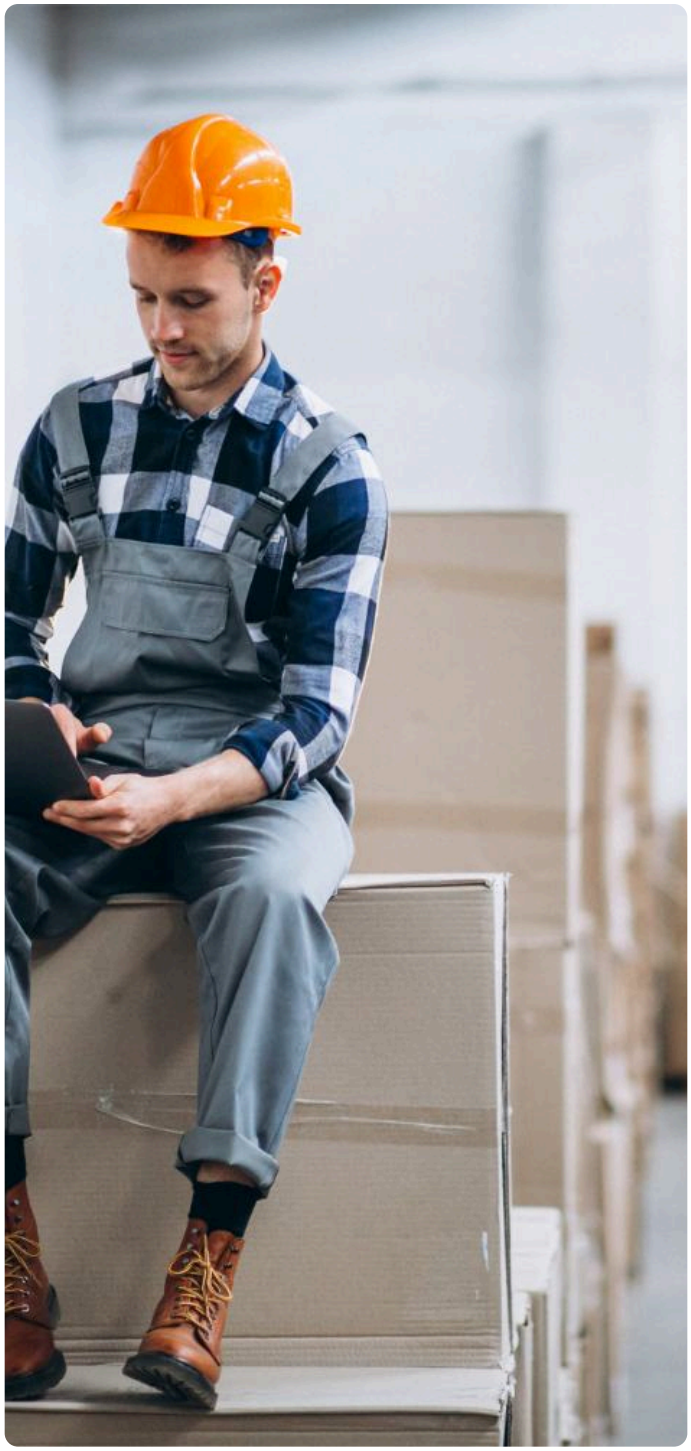
For starters, the technology needs to really work; your customers are going to be upset if the AI hallucinations and promises something that your actual operations can't deliver. By the same token, if it can't resolve their inquiries at all, they're going to get frustrated, call you up, and take out their frustration on the sales or customer service team.

When it comes to leveraging AI for customer experience improvements, it's crucial to think about the ways that technology can and can't make life easier for your customers. Some platforms will try to sell you on the idea that your customers would rather interact with an AI-powered chatbot than a human being—but that simply isn't true. The current state of AI technology can make chatbots a valuable tool, but they have to be deployed in a way that really makes life easier for both customers and associates.

What might that look like in practice? Probably not too different from the chatbot technology you're picturing—the trick will be to make sure that it's integrated into a larger customer experience program.

Customers should be receiving regular updates from your team about delivery schedules, ETAs, and more, and they should have the option of reaching directly out to the team with any questions. Here, AI can work as a front line for getting the customer an answer more quickly. Rather than waiting on a human to respond, the customer can ask their question and either receive a response in a conversational manner or be routed to a human being who can help with the answer. This reduces the volume of customer inquiries that members of your team have to deal with, giving them more time to help resolve situations that really require human touch.

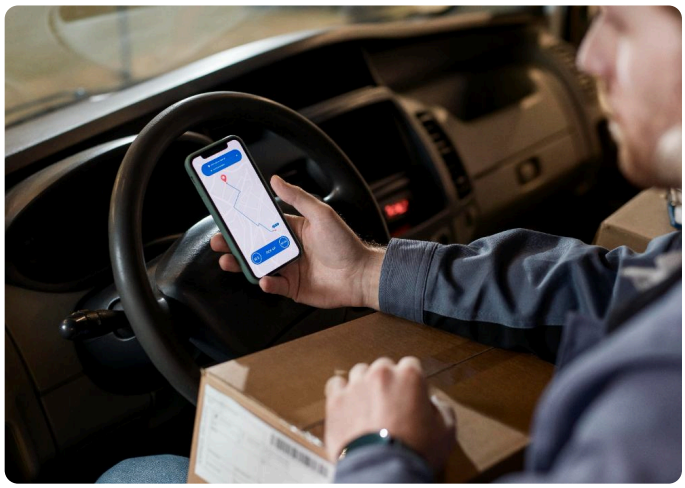
AI-powered functionality can also help suggest responses in two-way communication channels between customers and dispatchers or drivers, speeding up responses and streamlining the process. Again, none of these are a substitute for clear, consistent communication or actual human intervention when needed—but they can help your customers feel like they're being taken care of while making sure you're able to focus on what matters.



Route optimization

Route optimization is already a complex problem from a mathematical perspective. Calculating all of the possible routes from even a small number of stops can quickly become too time consuming to be practical—especially once you add time window requests into the equation.

Even without AI and machine learning, the power of big data and cloud computing can help you to sift through possible routes much more quickly to find the shortest one in a practical amount of time. Where AI really comes in here is in learning service times and travel times in order to create highly-accurate ETAs for all the stops on your route. Where a human might be able to eyeball drive times and service times based on historical traffic, loads, and other factors, AI can do this with an incredible level of precision, powering a routing process that is more accurate overall and enables you to maximize capacity utilization while still accounting for time window requests.



> "AI's ability to analyze huge volumes of data, understand relationships, **provide visibility into operations, and support better decision** making makes AI a potential game changer. Getting the most out of these solutions is not simply a matter of technology, however; companies must take organizational steps to capture the full value from AI."
>
> - McKinsey

"AI enabled early adopters to **reduce logistics costs** by 15 percent"

(Source)



Other applications in logistics

AI has the power to precisely estimate when a particular truck is going to arrive at a particular delivery site based on the time of day, location, driver, load, service type, and more. This can have a huge impact on logistics operations: not only does it put you in a position to maximize your delivery capacity, it also enables you to improve the customer experience you offer by giving customers shorter delivery windows and arriving on time more consistently.

But ETAs aren't the limit of what AI-powered predictive capabilities can offer. Predicting the likelihood that particular customers will place an order any given week, for instance, is one potential application. Elsewhere in the supply chain, you might see AI deployed to predict future demand, favorable procurement rates, optimal inventory levels, and the impacts of potential logistics network changes.

There's really no limit to the ways that AI could theoretically be used to impact logistics in general and the last mile in particular. But if we restrict ourselves to the kind of "narrow" AI that are currently making their presence felt in the world of logistics, we see a handful of other areas where this kind of technology has a potential role to play:



Supply chain risk management



Smarter production planning



Smart inventory management (e.g. autonomous restocking in warehouses)



Optimizing freight bids



Automating or partially automating back-office processes



Normalizing delivery addresses

Conclusion

How DispatchTrack Leverages AI in Last Mile Optimization

At DispatchTrack, we've been using AI to optimize deliveries for most of our history.

Here's how our platform uses AI and machine learning to help delivery organizations reduce costs and streamline their operations:

Route optimization

Our route optimization engine leverages AI to more accurately predict delivery ETAs based on a host of factors, including drive time, service time, historical traffic patterns, driver speed and skill, load type, vehicle type, and much more. In this way, we're able to achieve 98% accurate ETAs.

This is more than just a nice-to-have. Rather, it feeds back into the routing process to enable you to create efficient routes even in the face of complex parameters. Combine this with the speed and processing power the platform offers (users can generate routes for thousands of stops in seconds), and you do more than just improve time estimates: you can completely transform your route optimization process to boost efficiency, reduce costs, and delight customers.

Customer experience

With so many moving pieces and varying customer inquiries, sometimes it's easier to let AI figure it out–with a natural conversation with the customer. Sometimes it's the middle of the night and there isn't a human being on hand to answer customer queries; but a chatbot is always on and ready to field questions.

That's why DispatchTrack is rolling out its DT Agent for enhanced customer experience.

We enable users to create their own delivery AI agent with their name, branding, style, and tone. This essentially acts as an always-on agent for your business, with the ability to field customer questions in a conversational manner.

Our chatbot can provide customers intelligent, responsive, and automated support in the following areas:

- Providing updated ETAs
- Order details and delivery status
- Adding instructions for businesses and delivery drivers
- Escalate to customer support
- Scheduling and rescheduling orders on the fly
- Capturing customer feedback and surveys on delivery experience

Right now, the chatbot can be deployed via customer text message threads. This adds a new level of convenience and ease for your customers, while decreasing the communication and escalation workload on your team. Customers can get the information they want quickly and easily, and your associates aren't bogged down fielding "where's my order?" calls.

This is just the first evolution. Soon, we'll be able to offer a more built out option where users can "set it and forget it." AI will be able to handle all of the mundane, customer experience-related tasks that crop up during the order fulfillment process, leaving your team to focus on higher-value interactions.

While the most eye-popping impacts of AI may still lie in the future, it's the businesses that lay the groundwork now that will be able to reap the rewards of future advances. By prioritizing digital transformation and laying the groundwork for smarter, more connected IT, logistics operators can put themselves in a position to adapt seamlessly to new technological developments.

By implementing the kinds of AI applications that are already at work in the modern supply chain, you can achieve smarter and more agile operations—all while positioning your technology to get even more intelligent as advances in AI technology continue. **That's why there's never been a more crucial time than now to partner with the right technology providers.**



DispatchTrack

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