[music]

-The challenge there is not visibility.

The challenge is the cost of delivery.

Cost needs to be controlled.

-When you click the button

on your computer,

it says I'm confirming the order.

That's when the clock starts rolling.

[music]

-Oh, love it.

Yes. Want it, need it.

Favorite.

Come back for you later.

We've all bought something online.

It's inevitable.

Need new shoes?

You got it.

How about a new gaming system?

On the way.

Maybe a four-story cat palace?

Yes.

Oddly specific.

Also, yes but it's all achievable,

thanks to global supply chains.

However,

any order can be affected

by numerous obstacles along the chain.

Many of the most complicated

obstacles occurred

during the final stretch,

or what logistics pros called

the last mile.

Rain, sandstorms, the zombie apocalypse.

Dramatic, I know,
but our deliveries go through a lot

while covering the last mile.

Buckle up,
because we're about to go the extra mile

in last-mile logistics

in this episode of Jobs Of Tomorrow.

[music]

Since shopping online and receiving orders
on a regular basis is the new normal,

we hardly spare a thought
for the delivery process.

All we care about is getting
our new laptop, video game,

or headphones ASAP,
but it's not always so easy.

For example, let's say you're on the hunt

for some stunning LED lights
for your sweet gamer setup.

You find it, add it to your cart,

and purchase. What's next?

Well, the first mile starts
when your lights are shipped

from a manufacturer's facility
or distribution center.

This process continues
until the middle mile,

then your item is shipped
to a distribution or fulfillment hub.

From there,
the last mile comes to fruition

during delivery from the warehouse
to your front door.

Those are a lot of steps.

-First mile is really from manufacturer

all the way to the distribution center.

How do we optimize that cost and time
and everything else associated with it?

From distribution centers to either stores
or other distribution centers,

it's the middle mile piece.

The last mile piece,
what you keep hearing about is

the last distribution center
or the warehouse in the network,

coming to your home,
and in between that travel is

the last mile piece.

That is a very costly proposition
for all retailers and manufacturers.

The reason why it gains more attention

is because we haven't necessarily
figured out fully

how best to reduce cost in there.

-Amazon really set the bar
for last-mile deliveries.

Receive your order in one day or less
and free delivery?

That's some serious wizardry.

With companies like Amazon paving the way,
what effect does that have

on how supply chain pros approached
last-mile delivery?

-There's two main metrics that we look at:
click to ship and click to delivery.

Click to ship is when you click the button
on your computer

that says I'm confirming the order.

That's when the clock starts rolling
and how fast can you ship it?

Click to ship.

Click to delivery is the same thing.

You click the button to order
the product online.

Does it arrive on my doorstep?

The only way that you can shorten
that delivery time is to have

more distribution centers closer
to the population center.

-That feels familiar.

I suppose when I order pizza
from the nearest pizza place,

it gets to me faster,

but how is this translating
to non-edible packages?

-Now what you're seeing
is a more metro e-commerce centers

to where before in Atlanta
you would not expect

to see distribution centers
within the perimeter of Atlanta.

Today, that's the case
because the orders go

to those metro e-commerce centers,
they actually get picked up and packed,

go into a delivery van,
and then literally within six hours

of you clicking the button is now
at your doorstep.

You're starting to see a lot
of those e-commerce centers pop up

in the metro areas.

-More distribution and e-commerce centers
are popping up worldwide.

That means more opportunities
for lightning-fast deliveries.

However, according to Kathy

from American Logistics Aid Network,

there are more serious issues
that supply chains are tackling.

-ALAN or American Logistics Aid Network is
a nonprofit organization

that really exists
to connect supply chain resources

with the needs that occur
after a disaster.

For example, organizations
that are working

in disaster areas need to get supplies
to help survivors.

They need to bring food and water
and medical supplies and shelter

and all of those things

and everything that they need has to come
from somewhere.

They have to have their own supply chain,
they have to have their own logistics.

Well, ALAN is that link

between the non-profit community
and to the supply chain industry.

-This isn't the first time we've seen
supply chains come together

in an Avenger-style team-up.

Let me set the scene.

A village hidden away
in a deep African jungle,

far removed from major hospitals
in nearby cities.

That's where many medical supply
chains deal with restraints.

From lack of infrastructure
to limited resources and funding.

A small boat arrives.

There's a refreshingly familiar sight:
a bottle of Coca-Cola.

This iconic brand has managed
to penetrate even the most remote corners

of the continent,
thanks to a wide supply chain network.

Now, you may say, wow,
it's easier to get a Coke than medicine.

Maybe they should somehow
help get medical supplies there.

Cue Project Last Mile.

This innovative partnership
between the Coca-Cola Company,

the Global Fund,
the Bill and Melinda Gates Foundation,

USAID, and PEPFAR is a game changer
in the world of public health.

By transferring knowledge and expertise
in supply chain management

and strategic marketing
to public health sectors in Africa,

Project Last Mile is bringing medicine
and equipment to those in desperate need.

-You'll have roads that are impassable
because of debris,

trees are down, bridges are out.

You have to deal
with just those infrastructure challenges.

[music]

-As you've seen,
the last mile reaches farther

than we imagined.

There are people
like Kathy Fulton making positive changes

in the wake of disasters with the help
of numerous supply chain networks.

We've also seen challenges associated
with e-commerce deliveries.

When it comes to the last mile,

the biggest ones seem to be availability

and cost.

Now, I know that I've paid probably

more than my fair share
on expensive delivery fees,

and the reasons for that are numerous.

Oh, what might those be?

Well, I'm glad you asked.

-Over the last three years in particular,

because of COVID-related delays,

a lot of the products
have been stuck either on containers

and big vessels,
in big shipping containers,

or they're stuck waiting to be unloaded,
et cetera.

That visibility piece is

the biggest challenge

within that first mile and middle mile.

The last mile,

by that time, you already know
you're so close to home

where the delivery needs to be,
or even a business

where the delivery needs to be.

The challenge there is not visibility,
the challenge is the cost of delivery.

That cost needs to be controlled.

-COVID happened and stores shut down.

The only way people could get the products
they needed no matter what it was,

toilet paper, toothpaste,

bars to eat, they ordered it online.

Now your online sales went way up.

-That's a fair point.

During the pandemic, I, like anyone else,
flocked to places like Amazon,

whether it was for everyday essentials,
or one of many, many pandemic buys,

it's like the skateboard.

Now, well, easy access to goods may seem

like a positive thing.

There are still a lot of issues
that supply chains are running into.

-Last mile in disaster is so different
because you have

the effects of the disaster itself.

You'll have roads that are impassable
because of debris,

trees are down, bridges are out.

You have to deal
with those infrastructure challenges.

Then you also have to think about, are
the people who used to be in that location

are they still there or have
they moved somewhere else?

Are they in a shelter now?

Have they gone to stay with friends
and family?

Those evacuation components make
that last-mile.

Figuring out where the last-mile
is now makes it even more challenging.

I live in Central Florida.

Last fall,
we had Hurricane Ian that affected

the southwestern part of the state.

Because power was out,
because of the winds and the water,

a lot of people lost the food

in their homes.

They didn't have access to safe,
reliable meals.

ALAN was able to work
with several different organizations

to help support those families.

-It would appear that teamwork really
can make the dream work.

With so many organizations lending
a helping hand, there's no end

to the promising possibilities.

-ALAN

is very fortunate with the network
of organizations we work with.

They span everything
from the major industry associations

that represent general supply chain,
that represent equipment,

that represent transportation.

That's where the problem-solving happens.

Who is the right organization?

Who's the right company?

Who has the right equipment?

Who's in the right geography,
who has the right capabilities

at any point in time?

-In a lot of ways, the last mile seems
a true underdog story.

With all the costs, labor shortages,
and even natural disasters standing

in the way, it's impressive to see

how supply chain professionals are facing
those challenges.

-Everybody wants their stuff as soon
as they click the button

and that really is the Amazon effect.

Amazon started that a few years ago
with prime shipping.

If you get Prime and you order it,
then we'll guarantee it's going

to be there within two days or less.

Now that Amazon has done that,
every other retailer out there

is basically doing the same model.

-There's a lot of challenges
with transportation in terms

of meeting service levels.

Customers are very demanding
when they're shipping different loads

and they have certain delivery windows
that need to be met.

There's also availability.

Are you going to find capacity

on certain lanes?

Then in terms of last-mile deliveries
as well,

if you're making last-mile deliveries,
that cost service trade-off.

You can get your goods
to a customer next day,

it will just cost you a lot.

-Some of the delivery charges associated
with orders typically cover things

like operating the van or the cost
of labor,

but elements like the threat of roadwork,
weather delays,

or inaccessible delivery routes can impact
the overall process.

Sounds like a lot to handle, right?

Imagine having to deliver packages
to opposite ends of the city

during a snowstorm
or a nasty rush hour traffic jam.

-It's still a challenge.

If you live in a residential neighborhood
and someone's coming by and they only

have one or two deliveries on your street,
what is that price point, right?

-Isaac Newton once said something
along the lines of, for every reaction,

there's an equal and opposite reaction.

Well, in the case of the supply chain,

with every challenge,
comes the opportunity

for a possible solution.

-Any type of technology that you get,
whether it be an AMR,

a good-to-person system,
auto store type system,

it's really trying to automate
the travel distance perspective

where the person is not actually doing
that travel distance.

If you can imagine, if you reduce 75%
of a person's travel time,

then that increases
their throughput.

Solutions like a robot making a delivery
have been tested,

a drone making a delivery
have been tested,

but we haven't necessarily seen
full scale deployment

of that nature for a variety of reasons.

Safety reasons, airspace related reasons.

The true and tested method still continues
to be

a delivery van coming to your home
or a business and making a delivery.

Much like parcel carriers like UPS, FedEx,
and others have done for years.

-You may be thinking
there's no saving grace in sight.

Thankfully, many professionals
have some tricks up their sleeves.

-We have solutions which optimize
throughout the entire journey of an order,

if you will.

If you as a consumer ordered something,
wherever it's coming from,

it has a first mile component associated
with it.

It has middle mile component,
it has last-mile.

Our claim to fame is we optimize
the entire process.

-From a technology standpoint,
we are piloting

these different technologies,
automated drivers and remote drivers.

These are things we're keeping an eye on.

[music]

-We were just getting into how companies
have been optimizing last-mile logistics

for consumers.

If we're lucky, maybe we can learn

more about how these optimizations
can shape the industry's future.

-Where we focus on is optimizing
the route from,

let's say, post office to your home.

You can take various routes to get
to your home

or post office to a business.

There are various routes you can take.

How less of a time it takes,
how less of a distance you can travel.

That part is what we optimize

from the last-mile perspective.

Last few years,
we have been using machine learning

and artificial intelligence.

Machine learning piece is
also discussing models being tested for,

what's the best time to reach
the destination

based on historical trends.

Imagine you're going on Google Maps
or Apple Maps and it gives you prediction.

That prediction is
based on certain assumptions.

Those assumptions,
we also have mastered over a number

of years in similar way to reduce
the total time taken.

That's really our secret sauce.

-The secret sauce seems to take the form
of technological innovations meant

to streamline the last-mile process.

By using AI
and other machine learning capabilities,

companies can predict roots
based on hard data.

The result: sped up delivery times,
reduced obstacles,

and decreased delivery costs.

-Let's just pick a shoe company.

Their manufacturing could be
in Southeast Asia.

From there, they're bringing products
into various countries

where they're selling it.

What's the best way to get
the container loaded at the point

of origin?
The load plan itself

as well as the point of origin
of that container,

all the way to where the destination port
of entry is,

whether that could be United States,
could be Canada, could be UK,

could be anywhere, right?

Modeling that and testing out
various other ports of entry.

That's your one way
to look at it from the first mile.

When you start looking

at this particular example,

how many different ways
you can model this,

how many different scenarios you can build

and test it out?

Most of our clients are impressed
with the depth of the solution,

the results coming out
of the optimization,

and the amount of data and the variables
you add in the mix and the speed

of the algorithms and the solution
doesn't slow down.

-You're telling me that AI algorithms
can spot solutions to help make

the last-mile run more smoothly?

Mind-blowing.

How does this affect the workers?

I mentioned before,
the price of delivery is often influenced

by labor costs.

So how are new technologies helping?

-Pre-pandemic,
the labor was getting in short supply

and obviously,
COVID pushed that labor shortage

over the edge.

Now there's not enough people and wages
are going up.

The big thing that's going on today is
how do you mitigate that?

You need the robotics,
you need the automation,

you need the technology,
but you also need the engineers to be able

to design it and implement it.

-Automation is playing a big role
in the industry.

It makes sense that it would find its way
into the last-mile,

whether it's with drones or robots.

-From a technology standpoint,
we are piloting

these different technologies,
automated drivers and remote drivers.

These are things we're keeping an eye on.

-Automated vehicles on the road
are not too far off from becoming

our new reality.

We're slowly seeing companies roll out
robots designed to make deliveries right

from the sidewalk.

Amazon Scout and Postmates Serve are
just two examples.

Imagine this, you just ordered
a late birthday gift for a friend.

It says it should be there in two days
and just in time,

you think to yourself.

Here's the thing: with all the obstacles
that pop up during the last-mile,

you can't know for sure
that you will get it in time

unless you have
a trusty autonomous delivery robot.

Not only can it avoid traffic buildup,
but a whole fleet can deliver packages

all over town.

The best part, you're likely
to get your products as scheduled.

Now, that's an intriguing prospect.

In fact, we're already seeing

autonomous robots

in supply chain environments.

-If you have a peak season,
then you can almost rent extra AMRs,

extra bots for two months to get
you through your peak season.

They basically come in, you uncrate them,
you hit the go button,

they learn from each other,
and then they're off and running.

There's very little time to get them up
to speed.

-As you can see,
technological innovations like AMRs, AKA,

Autonomous Mobile Robots,

aren't meant
to replace human warehouse workers.

They're here to help make
the last mile easier.

-Then when your peak season's down
or goes away,

and you basically create the robot up
and you ship it back,

and so they're able to flex up
and flex down to the demand, especially

from a peak season perspective.
AMRs are definitely in the mix.

-The last mile delivery,
it's something that for e-fulfillment

to work,
it has to be done extremely economically.

Because it's just grown so much,
there are just so many options out there.

-There you have it.

The future of the last mile ahead of us.

While there may be a stockpile
of concerns regarding e-commerce delivery,

we can actually rest easy knowing
that there are solutions in the works.

[whirring noise]

From upgrading supply chain networks
to introducing AI software

and even creating autonomous
delivery robots,

we're placing the future of delivery
in the hands of supply chain programmers,

engineers, and innovators alike.

I can confidently say I'm excited
for what comes next.

Thanks for watching.

I'm your host, Kristin Marand,
and we'll see you on the next episode

as we explore the Jobs Of Tomorrow.

[music].