Supply chain digitization and the journey forward

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How supply chain leaders are investing in new technology for the future of predictive supply chains

When it comes to digitization, everyone's at a different stage in their journey. Most companies have already started to utilize digital methods for one or more tasks within their operations. However, a majority of organizations still rely on manual documentation when tracking shipments. In fact, research conducted with ABI Research revealed that nearly 70% still rely on spreadsheets, worksheets and paper driver logs as part of their shipment tracking processes.

But as we all know, manual processes are outdated and tedious. They are prone to human error and can hinder an operation's visibility and potential growth. Additionally, supply chain leaders recognize the power of tech-enabled data analytics to cut costs (69%), integrate data across disparate systems (70%) and drive a competitive advantage (63%). So, what's standing in the way of wider spread tech implementation?

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On behalf of HERE, ABI Research surveyed fleet management and supply chain leaders to discover their top challenges, priorities and objectives. The respondents hail from Asia, Europe and North America and are from various industries including manufacturing, retail/ wholesale, general freight and last mile delivery, food production and passenger transit, among several others.

The biggest barriers to tech implementation

Cost, finding the right partners or suppliers and knowing where to begin are the top three barriers industry leaders named when it comes to tech implementation. In this eBook, we'll discuss how to overcome these challenges and start embracing digitalization.

45%
Cost

39%
Identifying the right partners or suppliers

31%
Knowing where to start

29%
Calculating ROI

26%
Possible disruption to existing process/service

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What are your fleet and supply chain challenges?

Survey respondents mentioned prompt service, costs, staffing complexities and workflow automation as their top concerns (table 1). Many of these challenges can be addressed with better visibility and a smarter, more predictive supply chain. But, as we can see, 40% of respondents claim end-to-end visibility is a challenge and 35% have trouble with predictive analytics.

In fact, when it comes to the most significant gaps to improved supply chain visibility (table 2), predictive analytics is the number one answer (61%).

Most of the respondents recognize the value in data, analytics and predictive technologies. Looking at the current technology in use, 56% utilize predictive ETAs, 52% have implemented some form of warehouse management system and 49% have implemented track and trace technology (table 3). These are decent numbers, but increasingly complex supply chains and changing consumer expectations require further adoption.
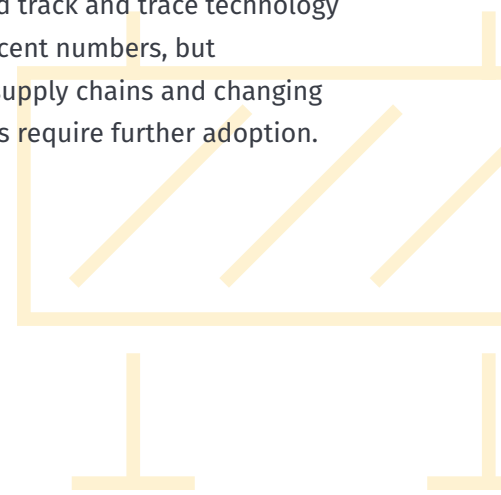
TABLE 1

Current key fleet and supply chain challenges

Prompt service/delivery issues:	55%
Costs:	54%
Operational/staffing complexities:	49%
Workflow automation:	47%
Accurate analytics:	46%
End-to-end visibility:	40%
Predictive analytics:	35%
Stakeholder collaboration:	33%

TABLE 2

Most significant gaps to improved supply chain visibility
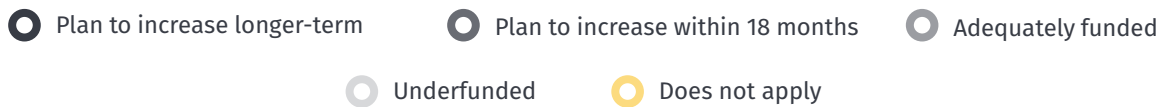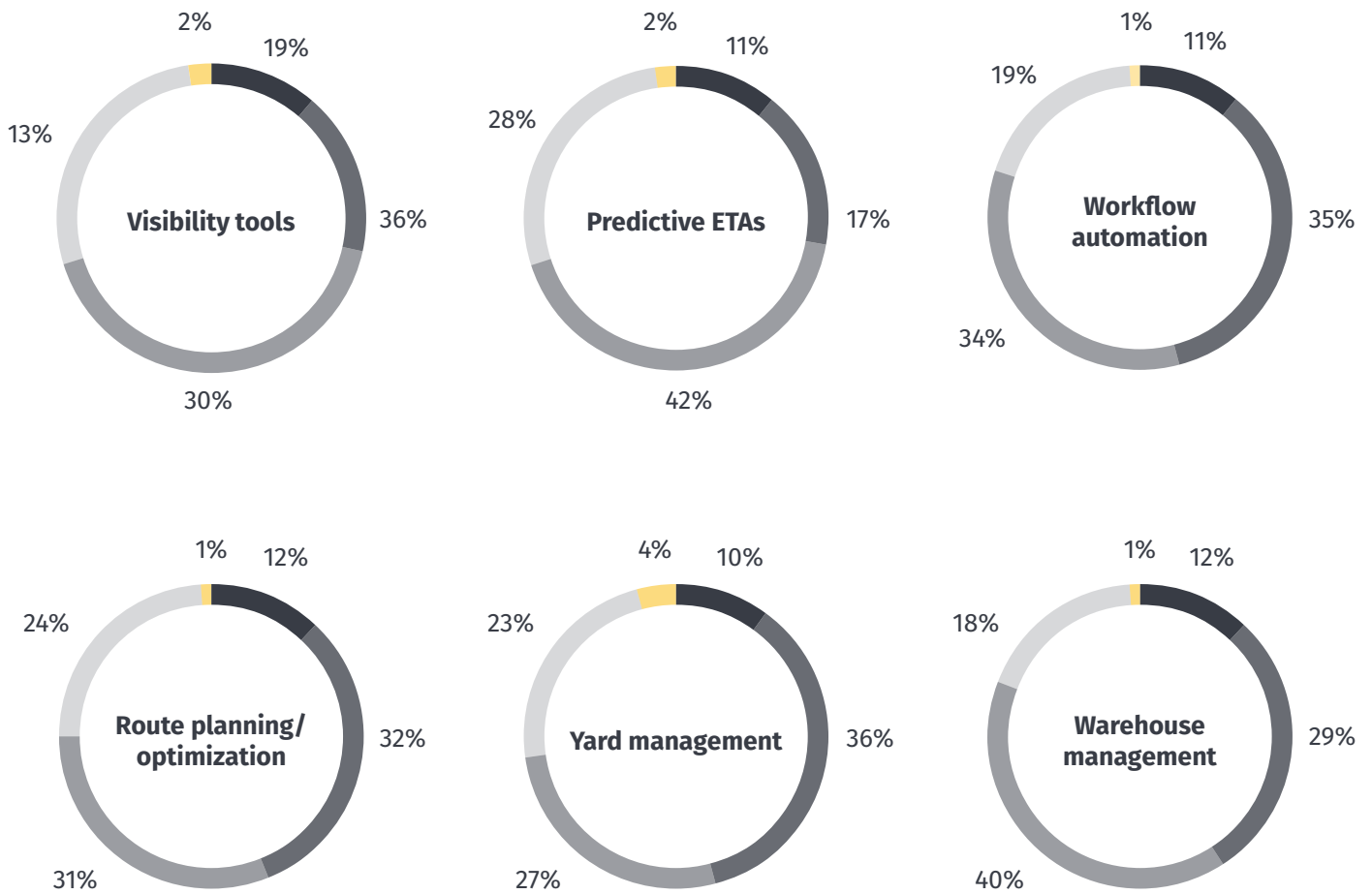
Predictive analytics:	61%
Actionable insights from edge devices (trackers, sensors, etc):	54%
Available funding:	48%
Macroeconomic uncertainty:	46%
Stakeholder collaboration:	39%
Other:	9%

TABLE 3

Technologies implemented in organizations' supply chains

Predictive ETAs	56%
Warehouse management:	52%
Track and trace:	49%
Workflow automation:	47%
Route planning/optimization:	42%
Yard management:	39%

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Estimated investment levels to improve visibility …

Visibility tools
- 2%
- 19%
- 36%
- 30%
- 13%

Predictive ETAs
- 2%
- 11%
- 17%
- 42%
- 28%

Workflow automation
- 1%
- 11%
- 35%
- 34%
- 19%

Route planning/ optimization
- 1%
- 12%
- 32%
- 31%
- 24%

Yard management
- 4%
- 10%
- 36%
- 27%
- 23%

Warehouse management
- 1%
- 12%
- 29%
- 40%
- 18%

Legend:
- Plan to increase longer-term
- Plan to increase within 18 months
- Adequately funded
- Underfunded
- Does not apply

What this means for you

Do you recognize similar challenges in your organization? Hopefully, you see some things you're already doing, and others are on your technology roadmap. Wherever you are in your digitization journey, experts at Amazon Web Services (AWS) and HERE are diving deeper into predictive technology and how it can help you solve some of your top challenges.

No organization can instantly jump from completely manual processes to being 100% fully predictive, but there are many stepping stones along the way that can increase efficiency, accuracy and cost savings.

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Three areas of focus

Dr. Manish Govil, Global Segment Lead for supply chain at AWS, says the three areas shippers, retailers and logistics providers should focus on when it comes to running an effective supply chain are the following:

Customer expectations

Customers want their deliveries faster than ever before. They also want to know what's happening every step of the journey and, if changes occur, they want real-time visibility and proactive communication.

Decision-making

Supply chain leaders must pivot from being reactionary to being proactive. They need to quickly detect any deviation and assess the impact it will have on other parts of the supply chain, as well as customer commitments. Additionally, they should reevaluate their processes and teams to make better decisions faster.

Disruptions

There's been no shortage of supply chain disruptions in recent years. From a global pandemic to labor and supply shortages, there have been several challenges, to say the least. These disruptions impact delivery times, prices, supply and productivity, meaning supply chains must become as resilient as possible to stay successful and competitive.

Naturally, these three areas are connected. Disruptions can affect decision-making which, in turn, can impact customer experience. But these roadblocks all share a common denominator: a lack of visibility. For example, if a truck needs emergency maintenance, a quick decision could be the difference between another truck in the area taking its load or a significant delay - inevitably impacting the customer's service-level agreement. This type of quick decision-making just can't be made without real-time visibility.

Collaborating to build stronger solutions

AWS and HERE are working to solve location-related challenges for the supply chain and logistics industry across the globe. Together, we bring the power of location services with the leading cloud and IT services to accelerate speed to market and time to value.

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The power of predictive supply chains

Using location to overcome supply chain challenges and become more dynamic and predictive.

Location intelligence allows companies to create a unifying layer of data that cuts across functional silos. It enables enhanced visibility, optimized workflows, quicker decision making and better collaboration and responsiveness. Combining location-powered analytics with operational data helps power a more predictive supply chain.

With a unifying layer of data, supply chain leaders get the insights they need to optimize operations and quickly pivot to meet changing customer expectations.

Looking at Dr. Govil's three areas of focus, here is how we can solve them with better visibility and predictive technology.

1 Customer expectations

Be accurate and easy to work with. Producing more reliable ETAs can build trust and garner satisfaction with customers and partners. Additionally, real-time visibility enables more accurate customer alerts and notifications. With automated updates, you can keep customers in the loop and avoid potential issues and claims down the line.

2 Decision-making

Be proactive and plan ahead. With location as a unifying layer of data, supply chain leaders can leverage machine learning capabilities to identify patterns in their network and transport levels. They can learn from specific routes or trips (i.e., arrival times, deviations, etc.) and then feed that back into their future planning and execution processes.

3 Disruptions

Be resilient. Real-time visibility allows customers to build in a buffer time enabling them to respond quickly and mitigate disruptions. They are also able to review collected data and predict the impact of a given disruption.

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Predictive supply chains are coming. How close is your company?

There are three phases of a company's supply chain evolution: static, dynamic and predictive.

	Implementation sophistication	Value	Real world example
Static	● ○ ○ Easy, but highly susceptible to disruption.	$ $ $ Low: Relies on static data and basic information, doesn't take into account external factors.	A static ETA would be a routing-based, distance and speed estimation. It doesn't consider real-time traffic, truck attributes, port congestion, etc.
Dynamic	● ● ○ Moderate, a combination of real-time data from internal and external sources.	$ $ $ Medium: Increased efficiency and reduced costs via better visibility and workflow automation.	Dynamic processes enable dwell time analytics, real-time alerts, workforce optimization and driver-facing applications.
Predictive	● ● ● Complex, relies on high-quality data for training, testing and maintenance.	$ $ $ High: Automated workflow management and decision-making support replace time-consuming, manual tasks leading to efficiency gains and growth potential.	Automated processes enable load and capacity optimization, warehouse planning and slot booking, multimodal predictive ETAs, risk analytics, carbon footprint reporting and more.

> **"A predictive supply chain is not a destination. It's a journey. The sooner you can get started on that path, the better. We believe in quick experiments and then scaling based on the learnings. You don't realize the power of data you already have, and what you are missing, until you start leveraging your data, finding new insights and discovering gaps."**
>
> Dr. Manish Govil, Global Segment Lead - Supply Chain, AWS

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Asking the expert on predictive supply chain

Bart Coppelmans, the Global Head of Industry Solutions at HERE, answers some of the most frequently asked questions about predictive supply chain.

Why is better visibility so difficult to achieve?

→ **Bart:** Shifting to a data-driven culture has been a slow process for many companies for several reasons. A couple of the biggest challenges are enabling data-driven decision-making and aggregating all the separate sources that data is scattered across, such as different systems and companies. On top of that, companies are lacking skilled data scientists and analysts who can analyze specific data sets.

Once the data is available, you need analytics to provide that crucial context so it can be relevant for your decision-making process. This is where HERE can help connect different stakeholders and data sets. Our core capabilities allow you to blend and aggregate disparate data sets and put them into context with value-added insights for your customers.

How does location data enable predictive supply chains?

→ **Bart:** Location data analytics puts our logistics operation data into context. We add real-world events, alert notifications, machine learning analytics and models to make logistics and supply chain software more predictive.

We then go further to combine different data sources from what we have residing in our platform and combine that with logistics and business operations data. Adding loading times together with traffic data, location services, drive times, truck-specific attributes, weather and so on, helps for more accurate predictions.

How can companies get started on their predictive supply chain journey?

→ **Bart:** The first step is to start implementing a data-driven strategy and approach. So, say your company starts with gathering the data sets. Connecting your assets integrates and then normalizes these data sets from all the different stakeholders. The next step will then be to further enrich this with other data sets. Last is getting onboard with applied analytics and machine learning models to become more predictive.

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Case study: Construction innovation with Holcim

See how HERE and Holcim work together

Did you know? Concrete is more perishable than yogurt. 90 minutes. That's the amount of time building material manufacturer, Holcim, has to deliver and pour a batch of concrete before it's unusable. If a truck driver misses a turn or gets delayed, they risk wasting time, resources and money, as well as negatively impacting their customer relationships.

To combat the tight time frame, Holcim developed an app called ConcreteDirect with help from AWS along with HERE Routing and HERE Maps.

ConcreteDirect helps customers place and track their concrete orders for over 30,000 sites across North America. And, a complimentary driver-facing solution guides drivers to the job site from their in-cab tablets.

The entire library of HERE data and APIs are deployed natively on AWS, meaning Holcim can

"With HERE, we have a partner on board who's able to provide mapping and navigation services across our global footprint. And with AWS, we have the technology components that we need to shift our entire business into the data-driven cloud, allowing us to realize the innovation roadmap that we set ourselves," said Philipp Leutiger, Chief Digital Officer at Holcim.

provide customers with trusted data security and privacy from HERE, along with the opportunity to scale at the high workloads of AWS.

The result? Concrete delivery is five minutes faster per trip, reduced fuel consumption supports Holcim's sustainability goals, and customers have the option of contactless delivery.

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Further reading:

The predictive supply chain conversation doesn't have to end. Cut costs, drive workflow productivity and enhance operational efficiency — it's all possible with location technology.

Check out our additional materials below and reach out to us; we'd love to hear from you.

Chain reaction: the number one challenge supply chains face today

Read the article →

Supply chain disruption is far from over

Read the article →

Fleet management

Explore the solutions →

Supply chain

Explore the solutions →

About HERE Technologies

HERE, a location data and technology platform, moves people, businesses and cities forward by harnessing the power of location. By leveraging our open platform, we empower our customers to achieve better outcomes – from helping a city manage its infrastructure or a business optimize its assets to guiding drivers to their destination safely. To learn more about HERE, please visit **here.com** and **360.here.com**.

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