



Optimizing Delivery and Transportation Logistics: A Practical Playbook

**How to Evaluate Readiness and
Make Smart Software Decisions**



Introduction

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The story of declining eCommerce delivery times reads like a fairy tale. Once upon a time (actually just a few years ago), consumers actually had to wait an average of 8 days to receive an online order.¹

Now, as if by magic, delivery times are measured in hours rather than days. “Soon, one-day shipping will no longer be a privilege, but a standard, which all businesses will strive to maintain,” according to trend trackers.²

Consumers want fast *and* free.

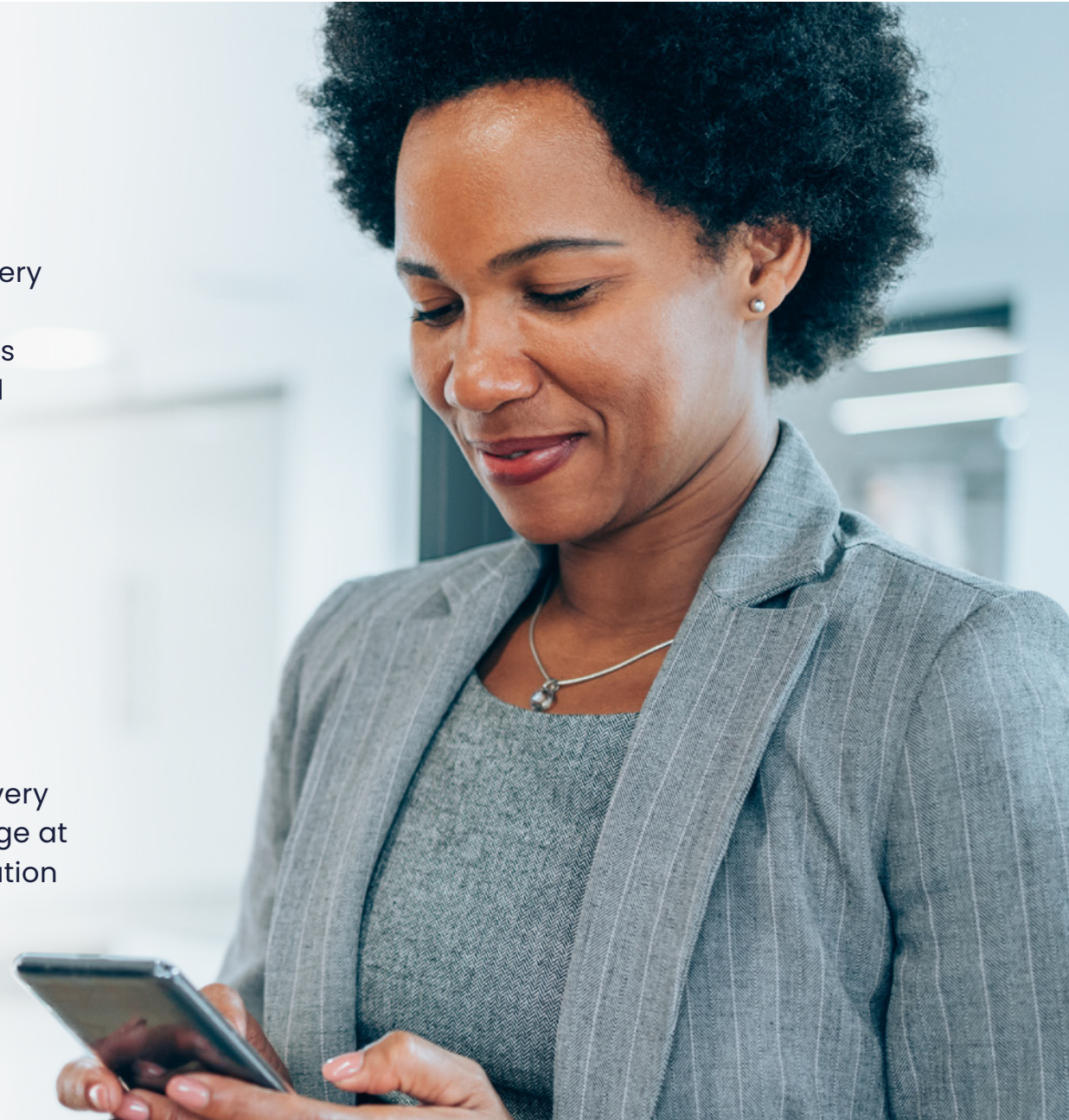
With skyrocketing consumer expectations, delivery and transportation technology takes on a high profile role. The promise of shorter delivery times sparks continuous innovation within two related segments of the solutions market:

1. VRS* (Vehicle Routing & Scheduling)

2. RTTV* (Real-time Transportation Visibility)

When you take the rising costs of last-mile delivery into account—some estimates place the average at 53% of the total package cost³—digital optimization is the name of the game.

*The terminologies VRS and RTTV are used in this eBook in a generic sense of the capabilities but not as a way to categorize software vendor solutions as some analysts do.



Making sense of delivery and transportation solutions.

The accelerating pace of disruption—from higher shipping volumes, supply chain disruptions, and tech startups—keeps players from settling into a steady state. Market volatility and complexity have raised the stakes for technology adoption. Producers, retailers, distributors, and carriers must shift their focus from ‘what happened in the past’ to ‘how do we predict the future.’



Here’s what’s inside.

At nuVizz, we’re always thinking about what comes next—and how to make it happen faster and better. This eBook identifies the core functionality of VRS and RTTV solutions and what to look for in technology vendors. Perhaps more importantly, it provides a model to evaluate your firm’s maturity and build a roadmap for scalable deployment. **Read on.**

In the rapidly-evolving landscape of VRS and RTTV technology, how do you know what you really need? We’ve built a multi-tiered model on the simple premise of starting with the future in mind.

A New Model for Technology Needs

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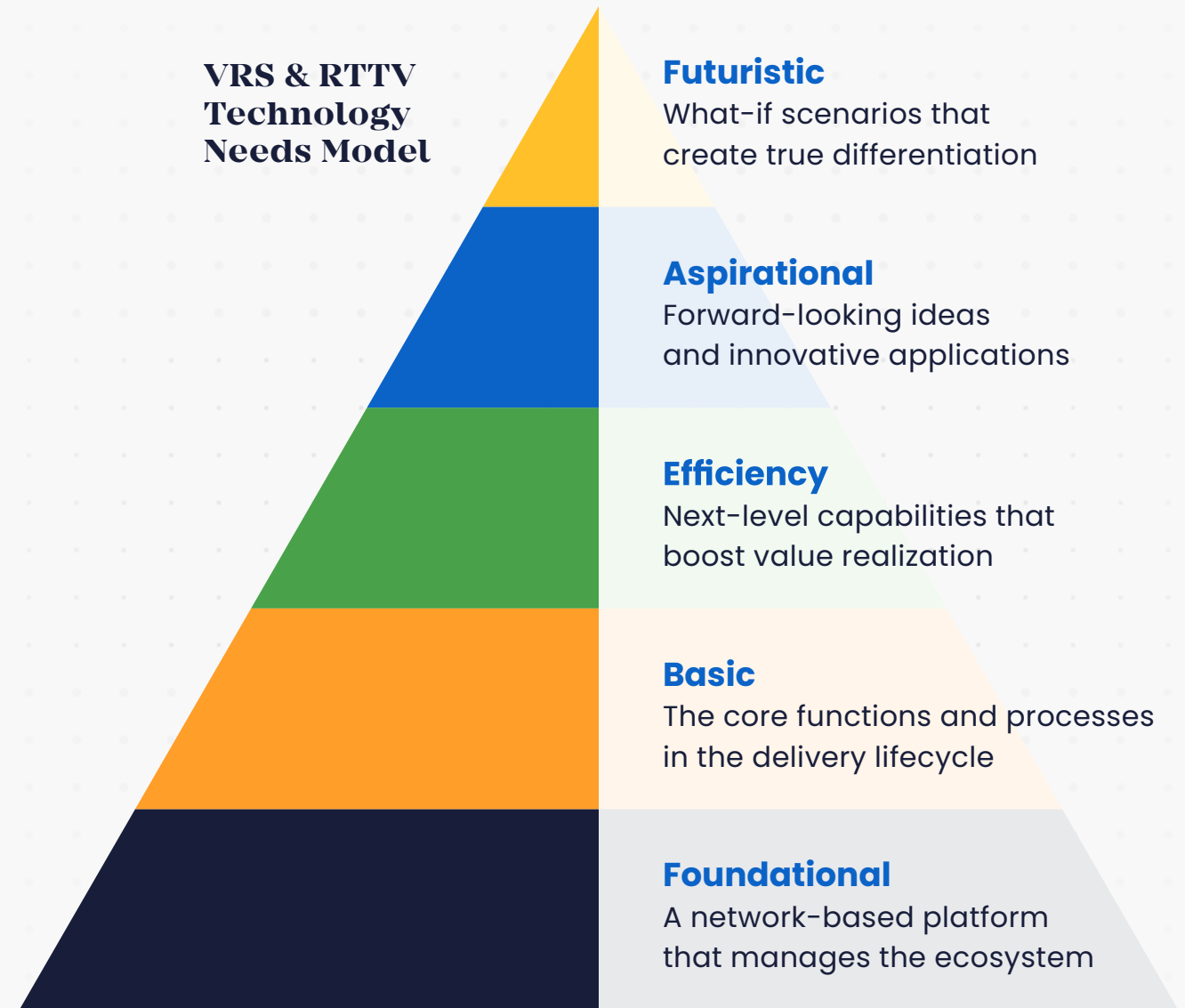
Let's turn to a classic construct to explain how users' VRS and RTTV needs expand and develop over time. If you ever took Psychology 101, you'll be familiar with Maslow's hierarchy of needs, which organizes human motivation into tiered categories. Our model follows a similar progression.

Multi-tiered and Maslow-inspired

Maslow's hierarchy is built on a base of basic physiological needs like eating, drinking, and sleeping. As you move up the pyramid, the needs shift from concrete (physical and safety needs) to abstract (love and belonging, esteem, and self-actualization).⁴

In our version, the Foundational level sets the baseline for increasingly powerful capabilities. The divisions between Maslow's levels, like ours, are not always crystal clear. You don't need to fully satisfy one for the next to emerge.

We've observed that the majority of buyers overlook the Foundational level and jump straight into tackling Basic needs. In the following pages, we'll talk about why that approach is counterproductive, and we'll dive into specific examples of the model in action.



Start with the Basics

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Let's start, as most buyers do, with the core functionality that VRS and RTTV solutions offer to users in the transportation and delivery ecosystem. To oversimplify, there are five core actions associated with any delivery, whether it be a new HD television or a time-sensitive lab sample or a multi-leg freight shipment.

For this eBook, assume we're talking about motor vehicle deliveries that require drivers, at least until we get to the futuristic needs level.

The delivery lifecycle



1. Scheduling/Capacity Planning

Determining availability of resources and timing to complete the delivery.



2. Route Optimization

Getting the delivery to its destination in the fastest and cheapest way available.



3. Dispatching

Assigning drivers and ensuring they have the access and information they need.



4. Execution

Tracking the status of a delivery through completion and documentation.



5. Customer Experience

Measuring the recipient's satisfaction with the delivery process and involved brands.



Start with the Basics

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Today's pain or tomorrow's growth?

Many companies fall into the trap of solving for today's pain points of increased volumes, rising consumer expectations, decentralized shipping partners, and driver shortages. Buyers often bite on vertical-specific features, one-to-one carrier integration, or automation of existing workflows.

A point solution might help you survive the holiday rush, but will it set you up for future growth? On the other end of the spectrum, buyers may turn to a global consulting firm or integrator seeking a market proof solution. But that can drag deployments from weeks and months into years.

“It's a dynamic world. Whatever you decided yesterday you want to do has already changed. A strong and flexible foundation delivers more value than either a quick hit or an overengineered implementation.

— Gururaj Rao, nuVizz CEO

Foundational Needs Often Overlooked

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The strength of your technology foundation determines the speed and confidence with which you can move up the hierarchy to achieve Aspirational and Future goals. A network-based platform removes barriers and minimizes bottlenecks along the path.

As an example, distributed networks are a defining feature of future delivery ecosystems. According to IBISWorld, there are nearly 244,000 local delivery services in the U.S.⁵; 21,000 3PL carriers⁶; and a whopping 787,000 LTL and FTL trucking businesses.^{7,8} Delivery network modeling needs to account for them all at any given moment.

Don't reinvent the wheel.

Every time a new agent or carrier comes online, it creates ripples through the delivery ecosystem. Are you starting from scratch each time to integrate them? Can you infuse the additional capacity into your daily operations? Brute force and increased headcount are poor substitutes for built-in optimization.

A compounding value proposition.

A many-to-many platform allows carriers to increase asset utilization across verticals. It also helps shippers gain leverage with more varied options. Starting with an expansive view of your growth plans will serve you well in the selection process.

Pay attention to key differences.

Point Solution	Network-based Platform
New carriers/partners added through customization.	New carriers/partners added through configuration.
Scalability based on additional people and overhead.	Scalability based on an optimized network delivery model.
Limited types of network carriers and partners.	Diverse and creative types of network carriers and partners.
Specialization in one vertical or sector.	Applicable to many verticals and sectors.

If you're evaluating VRS and RTTV technology providers using a checklist based on current business operations and workflows, you're missing the boat. Look for a partner with "what if" ideas and "get it done" execution.

In Search of Efficiency

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Having established the critical importance of foundational needs, let's return to the delivery workflows to show how the hierarchy plays out in the real world. Every tech solution should cover the basics to some extent, but what do increasing levels of maturity look like? Moving from the Basic to Efficiency level generates noticeable improvements.

1. Scheduling/ Capacity Planning

Determining availability of resources and timing to complete the delivery.

At the Basic level, capacity availability is based on pre-configured rules and feasibility constraints, such as working hours of drivers, availability and capacity of vehicles, and contracted delivery timelines. But complications arise quickly.

Customer-friendly and complexity-tolerant.

In a static world—think one category of goods, one vehicle type, a recurring route—scheduling follows a linear progression from Point A to Point Z. That scenario has become the exception rather than the rule.

Increasingly, delivery constraints are dictated by the demands—some may say whims—of the consumer. At a minimum, that means user-friendly, self-service scheduling. Online shopping patterns are here to stay, and high-quality delivery experiences are expected.

Technology solutions higher up the pyramid accommodate a mix-and-match approach to select the best carrier (or combination of carriers) to meet the objective. Additional value comes from things like:

- **Integrating self-scheduling with route-based and automated booking**
- **Adjusting schedules based on unforeseen circumstances, and**
- **Viewing the live status of a delivery and getting schedule updates**
- **Even rescheduling on the fly (more on that later)**

The next core function—route optimization—further illustrates the staged journey to efficiency.

In Search of Efficiency

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2. Route Optimization

Getting the delivery to its destination in the fastest and cheapest way available.

The heart of any VRS system, routing algorithms typically fall into three increasingly efficient categories, as outlined in Gartner's *Market Guide*:

- 1. Static routing:** uses volume forecasts to schedule a driver's route for each shift, typically with visits to specific locations
- 2. Dynamic routing:** daily orders (forecast or actual) are used to build delivery routes in the next day or several days
- 3. Real-time dynamic routing:** adds new and changed orders to the system, which continually reoptimizes to accommodate⁹

Gartner analysts note that VRS applications "...are evolving into solutions in which the routing algorithm is almost becoming a secondary feature."¹⁰ An emphasis on last-mile fulfillment and customer experience has raised the stakes. VRS providers now need to compete on how they enable a connected network with real-time visibility into available capacity and locations.

Balancing fast, cheap, and good.

Speed counts, but it's not always the driving factor for optimization. Is it more important to get there faster, or within the specified time window? Are you optimizing for customers' schedules or for drivers'? Do you want to save fuel costs but your available EV fleet needs a charge?

The answers will depend on the depth of the shipper's network and their risk tolerance. That risk could come from late or missed deliveries, dissatisfied consumers or carriers, overtime costs, inefficient load balancing, or other incidents. Larger firms may accept built-in inefficiencies due to economies of scale, where a fleet manager hustling to achieve optimization for five trucks can't take the hit.

Taking all of these considerations into account illustrates the value of a flexible technology foundation and real-time dynamic routing.



To compete for mindshare, shippers and carriers must compete on both speed and service. Check out the [nuVizz Route Optimization blog](#) for more detailed analysis.

“ Logistics is multi-faceted. You can't build a singular solution in a multiplex world.

 Head of Supply Chain Digital Services, Global Fleet Manufacturer

In Search of Efficiency

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3. Dispatching

Assigning drivers and ensuring they have the access and information they need.

At the Basic level, a dispatcher finds a driver (in some cases *any* driver) to make a delivery. Perhaps nowhere is institutional knowledge more ingrained than in this role. But the benefits of efficiency-boosting platforms outweigh resistance to change.

Empowered by automation.

The dispatcher position has an extremely high likelihood to be “replaced by robots,” with a 96% chance of automation.¹¹ With integration of real-time resource capability and status visibility, carriers can refocus these resources on customer service and problem solving.

4. Execution

Tracking the status of a delivery through completion and documentation.

After a delivery is en route via dispatch, the actual execution triggers an inordinate number of requirements, from proof of delivery to exception management and invoice generation.

“With dispatch and execution, high-touch complements high-tech. Automation that benefits end users is more likely to be adopted and expanded for the organization’s benefit.

Pratik Jagad, nuVizz Chief Product Officer

Brand new solutions for old-school problems.

One applications director for a national food service brand knows the implications of outdated processes. “We deliver around the clock, regardless of weather. With the wind and rain, the paper the customer signs was always getting soggy,” he says. “It’s a terrible way of delivering, and then if there’s an issue, we’d have to go through mountains of boxes for documentation.”

This is where digital transformation pays dividends. Technical capabilities that move you up the hierarchy include:

- **Event-based architecture:** user actions trigger consistent communications and next-step activities
- **API and EDI integration:** data feeds into customer service, contract management, and billing systems
- **Geofencing:** location-based notifications alert stakeholders and inform route adjustments

With transportation and delivery software, the humans using the system are often the weakest link. Increasing dispatcher and driver adoption with user-friendly solutions pays off considerably.

In Search of Efficiency

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5. Customer Service

Measuring the recipient's satisfaction with the delivery process and involved brands.

It's not uncommon for three or four different stakeholders to handle a delivery before it arrives at its final destination. RTTV solutions bring to light the complex, messy, and expanding networks that enable on-time, accurate deliveries.

"This visibility does not only provide benefits internally to the transportation organization, customer service and the warehouse but equally provides service to the customer who is demanding these types of insights into their loads," according to Gartner's *Market Guide*. "In the past, this has allowed companies to differentiate in customer service, although this capability is increasingly becoming an expected offering by customers."¹²

Going beyond the ETA to ROI.

Advanced RTTV platforms integrate delivery and ETA status with customer ratings into a continuous feedback loop. The changing nature of the delivery status triggers and enables specific workflows. Event-based customer communications create touchpoints on the front end ("The truck is expected at the loading dock in 20 minutes.") and the back end ("How did we do? Rate our delivery.")

Mechanisms to communicate and collect feedback vary from email and SMS to interactive voice response (IVR) surveys and virtual agents. As you move beyond Efficiency into Aspirational needs, continuous customer learning provides valuable inputs for corrective workflow automation.

“Real-time visibility doesn't just satisfy a customer's desire to know 'when will my delivery arrive.' It's the driving force behind an optimized supply chain. Without it, you're not only wasting resources, you're potentially losing out on valuable insights to improve future service.

— Anantha Rao, nuVizz CTO



Platform 2.0: Striving for Aspirational

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Transportation and delivery optimization is a progressive journey. At the Aspirational level, it involves Artificial Intelligence (AI) and machine learning (ML). Often used interchangeably, these terms represent two different toolsets within the VRS and RTTV technology spectrum. An optimized solution applies the right techniques to solve specific challenges.

Don't believe the hype.

AI represents a broad—and broadly exaggerated—category that encompasses optimization techniques, computational logic, and probabilistic reasoning. This latter category includes ML and predictive modeling, which are highly relevant to the Aspirational needs level.

Within delivery management, ML algorithms iterate through vast data sets where humans are incapable of recognizing logical cause and effect relationships. This active learning process takes unknowable or highly variable questions—such as “how much time will it take a driver to deliver at this specific location?”—and predicts outcomes. Some sample inputs include:

- **Traffic and time patterns,**
e.g. loading and waiting times, delivery windows, etc.
- **Unexpected and systemic disruptions,**
e.g. driver shortages, weather events, etc.
- **Intuitive or institutional knowledge,**
e.g. dispatch tendencies, customer preferences, etc.

Easier said than done.

Leveraging AI and ML to achieve network-wide, cross-channel optimization is purely Aspirational for most firms. Thus, Gartner reports that “Even today, very few companies have successfully navigated the journey where they are able to extract prescriptive insights allowing them to automate their workflows—it is possible, but not without sowing the seeds.”¹³

Despite the inherent difficulties of improving predictability, the trend is clear. Industry demands will accelerate strategies to extract human nature and human error from the system at every step.

Pillars of VRS and RTTV Technology

Improving operations to prepare for the unknown requires three key components, with increasing automation and optimization as maturity increases.

Visibility

Real-time insight into what is happening across the complete supply chain.

Availability

Resource status across stakeholders and delivery channels.

Predictability

Data translated into expected outcomes and automated workflows.

Thinking Ahead to Futuristic Needs

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A report from *Middle Market Growth* reinforces the proposition that aspirational and futuristic technologies have a long way to go to penetrate the lower end of the market: “Artificial intelligence and machine learning grab headlines and attention but the reality of digitalization of supply chains tends to be much more grounded, especially for small and midsize companies.”¹⁴

If that’s true for AI and ML, it’s even more the case for autonomous vehicles, drones, delivery robots, and unusual fleet options. But that doesn’t mean you shouldn’t pay attention to what’s happening in this space as a sign of things to come.



Thinking Ahead to Futuristic Needs

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FUTURISTIC



The only constant is change.

Promises of reduced labor and fuel costs are redefining delivery models. Global drone package delivery is expected to grow at a 45.5% growth rate this year¹⁵ and autonomous delivery vehicle (ADV) usage around 11% over the next six years.¹⁶ Other innovations are notably consumer focused, such as:

- **Crowd-sourced, consumer-to-consumer transport**
- **Delivery inside a consumer's home or car while they're away**
- **Self-service lockers for customer pickup in high-traffic areas**

Increasingly, firms will employ these simple, sustainable transportation solutions and futuristic strategies to combat a contracting labor market and fluctuating demand.

Tomorrow's solutions, delivered today.

In this context, effective network management becomes more critical. Shippers are moving into a world where the delivery ecosystem could range from neighbors and gig workers to robots and ADVs. The platform must be equipped to intelligently oversee, execute, and report on the capacity and visibility of all these different sources.

“ In the future, transportation firms will vie to provide the best delivery on the planet and for the planet.

— Gururaj Rao, nuVizz CEO

Takeaways

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To stay competitive, transportation and delivery firms must constantly rethink assumptions and find new opportunities for collaboration. The good news is, effective VRS and RTTV technologies can dramatically improve your supply chain's ability to evolve and grow.

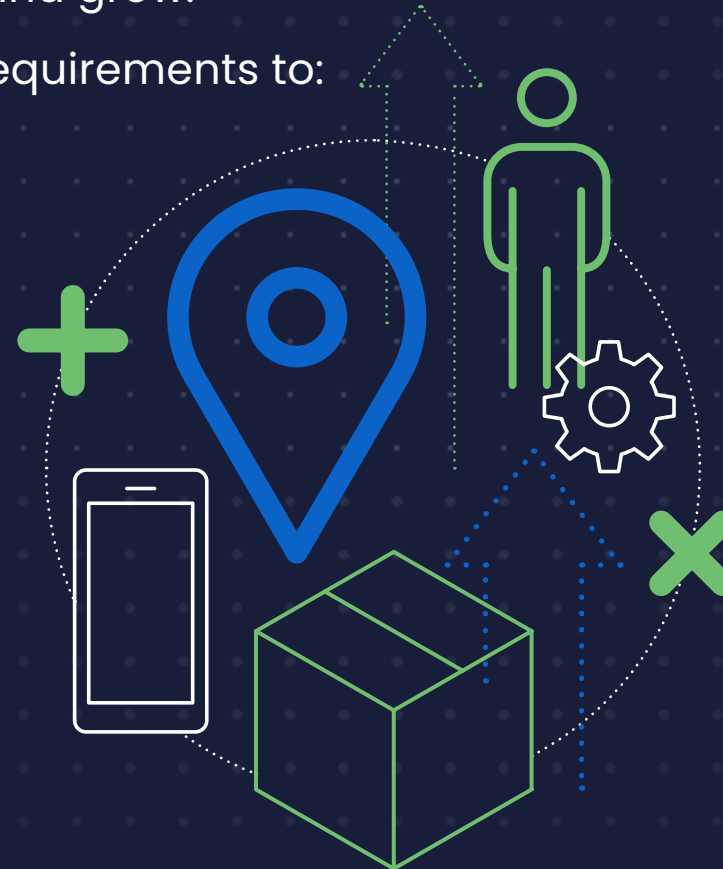
The best platforms transcend Basic delivery requirements to:

Reduce the need to reinvent the wheel as your network grows

Minimize the impact of tribal knowledge and guesswork

Elevate conversations from transactional to transformational

Spark systematic efficiency and differentiating innovation



Dream it, do it.

Before you dive into the review and selection process, use the hierarchy model in this eBook to evaluate your current maturity level and appetite for continuous improvement. By considering Foundational needs before you embark, you'll be better positioned for sustainable and scalable growth—and fully equipped to reach Aspirational and Futuristic objectives.

What's your take?

With help from our clients and business partners, nuVizz strives to stay on top of forces impacting companies across the delivery ecosystem. We'd love to hear from you.

How are you leveraging technology to maximize operational and financial value? How are you preparing to reach the next level of the needs hierarchy? Reach out to discuss your questions, feedback, and concerns: info@nuvizz.com.

Endnotes

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nuVizz lights the way to better delivery and transportation logistics. From the first mile to the last mile—and everything in between—we're trailblazers in supply chain optimization and digitization.

Infinitely flexible, the nuVizz SaaS platform drives visibility, control, and cost savings across the fulfillment lifecycle. Our single-minded mission: simple, sustainable transportation solutions for every business on the planet. **Go further. Grow faster.**

support@nuvizz.com | info@nuvizz.com | (404)-937-1971