FUTURE-PROOFING
THE PHARMACEUTICAL SUPPLY CHAIN

alpegaTMS

IN THIS E-BOOK YOU'LL FIND

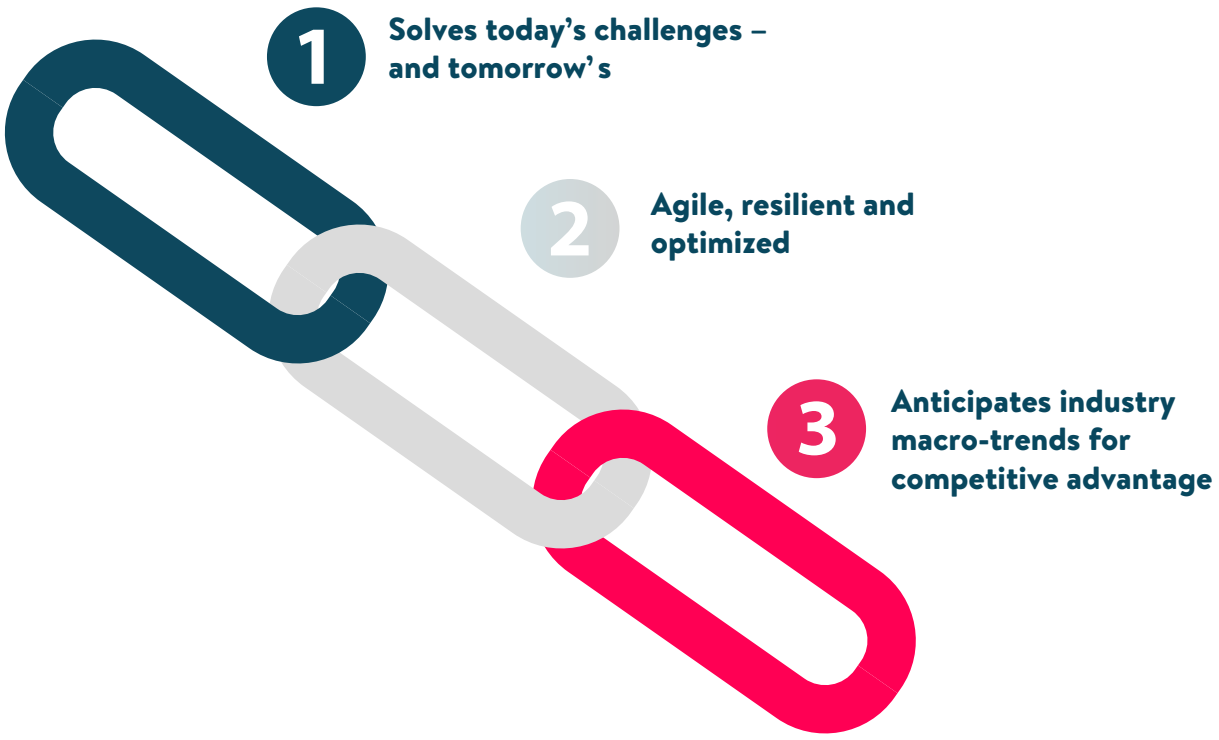
CONTENTS

INTRODUCTION

It is the intention of this ebook to investigate concrete strategies for future-proofing supply chains in the pharmaceutical industry. To do so, it will be necessary to discuss existing as well as developing challenges, then provide thorough industry-specific solutions.

The role of digitalization in transportation management plays a crucial role in solving supply chain challenges. Digital transportation management solutions will act as the lens through which we view the processes and activities necessary for future-proofing the pharmaceutical supply chain.

What is a "future-proof" supply chain?



01 CURRENT CHALLENGES

The nature of the goods: critical for human health, high stakes

The nature of pharmaceutical goods creates challenges unique to their supply chain.

Pharmaceuticals require precise handling and temperature control; contamination, spoilage or other damage may occur if these goods are not treated with the utmost care from the moment they are produced until they reach the patient. Pharmaceuticals also face threats of theft and counterfeiting.

Pharmaceuticals save lives. If their supply chain is not calibrated with precision and close oversight, lives can be lost. The stakes for on-time-in-full deliveries could not be higher.

Regulation- and audit-compliance requires secure documentation

Regulations shape the pharmaceutical supply chain in profound ways. The handling, packaging and transporting of pharmaceutical goods needs to include documentation for a wide variety of regulators. This includes customs specific documents and dangerous goods documents.

Regulatory requirements are not static; they are ever-developing, always subject to change and sometimes completely different based on the markets where a pharmaceutical company operates and distributes. If a pharmaceutical company operates internationally (most do), each site, market and supply chain partner will be subject to the regulations of each country involved in the chain.

Compliance doesn't just involve proper documentation; product artwork and packaging is also a concern, because the product may be shipped without packaging (bright stock), then get packaged at a later stage in the chain and undergo regulatory oversight at that time. Postponement, although it can be a profitable strategy for the company as a whole, adds a challenge for the pharmaceutical supply chain, as companies often wait as long as possible to decide the destination for bright stock, in an effort to reduce inventory holding costs. The supply chain function has to take the lead to make postponement an effective strategy for the business.

Finally, pharmaceutical supply chains must ensure that documentation is not only prepared (for compliance purposes) but also securely stored and accessible for audits in the future.

Enhanced security requires enhanced visibility

In order to prevent theft, counterfeiting, spoilage and contamination, those involved in transportation planning for the pharmaceutical industry must ensure that goods are traceable. Visibility and control over transportation processes are thus essential for the pharmaceutical industry.

If an incident occurs somewhere along the supply chain, it's critical that stakeholders – in pharmaceutical companies and regulatory bodies – know about it. Because the viability of the goods is of such importance, supply chain planners seek visibility of a granular level that can tell stakeholders when, where, why and how any damage occurred. Products must also be serialized so that the company can trace the product back to its source in case of recalls.

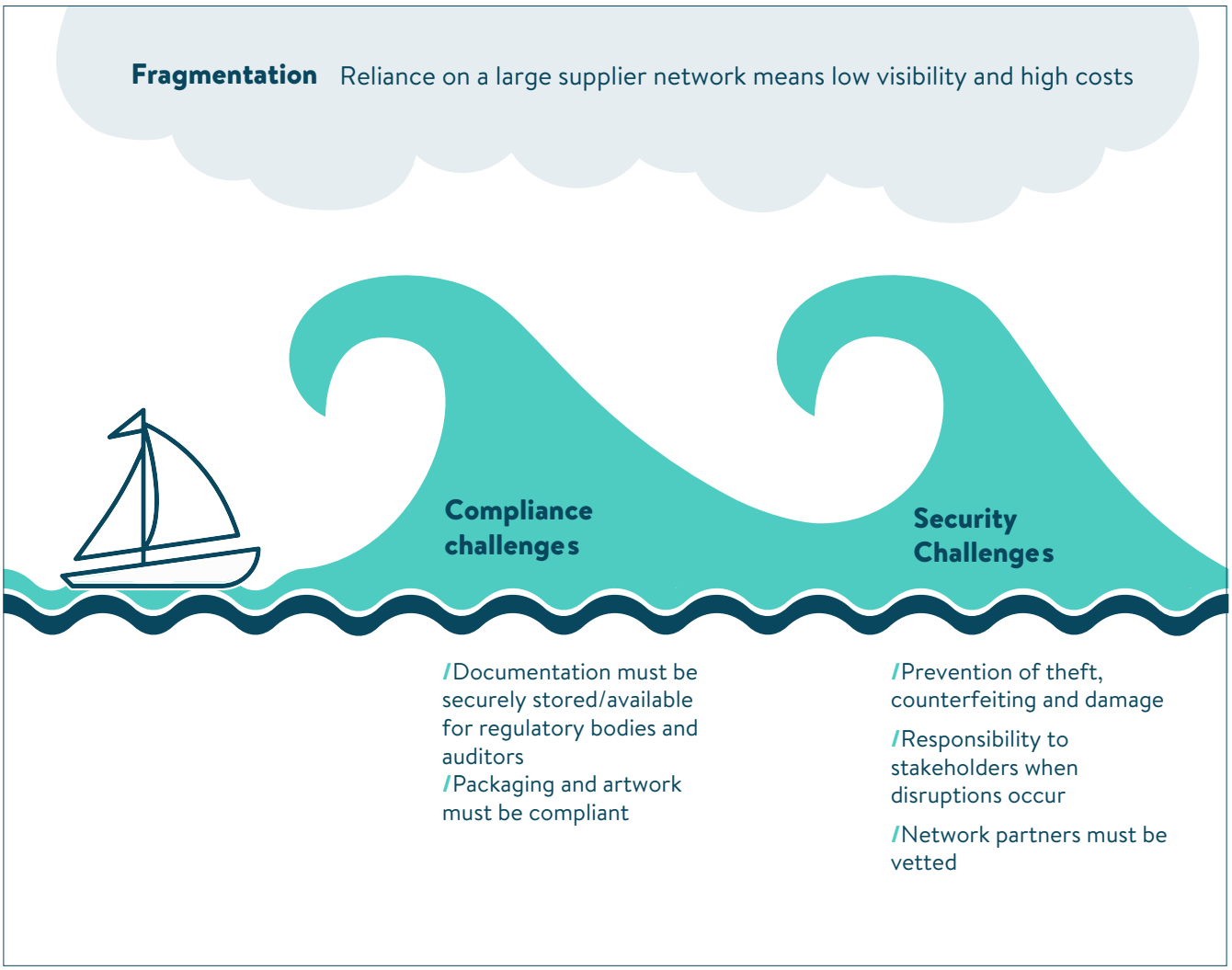
In specific terms, pharmaceutical products in Europe require temperature-controlled shipping and distribution based on Good Distribution Practice (GDP) guidelines. This means logistics stakeholders must be able to ensure the product is transported at the temperature listed on the packaging. Allowing a product to temporarily be exposed to temperatures outside of these storage guidelines (also known as a temperature excursion) requires a risk analysis based on the components of the drug, and their vulnerability to temperature fluctuations. Often, logistics experts choose to use data loggers that travel with their temperature-sensitive shipments, to be able to report back on the temperatures the shipment experienced during transit.

The reliability of transportation partners is also germane to security concerns. Each partner must be carefully vetted and, once a member of the network, needs to have the right docu-mentation for their particular node. Partners must be reliable, trusted and able to provide realtime data that proves shipments have arrived undamaged and fully compliant with regulatory and quality requirements. In fact, the transfer of responsibility for compliance moves together with the goods as they are handed over from the manufacturer to the logistics provider. Providers who can deliver the service requirements of the pharmaceutical industry have often made significant investments to implement cold chain technology and real-time visibility solutions. This effectively limits the number of eligible providers, which is an especially relevant concern during periods of capacity shortage.

Fragmentation compounds existing challenges and adds hidden costs

A great number of suppliers are often needed to make a given pharmaceutical product. With an increased number of suppliers comes increased complexity, producing supply chains that are "notoriously fragmented."[i] The involvement of wholesalers on the outbound side of phar-maceutical logistics adds another layer to the visibility/security challenges in the end-to-end pharmaceutical supply chain.

With supply chain fragmentation also comes hidden costs, as complex supply chains require more resources to manage especially if managed manually. Each transportation node adds its own transportation costs, and without strategic optimization, pharmaceutical companies may be missing opportunities for significant transportation cost savings.



The experience of contending with these challenges will be familiar to those involved in the planning and execution of transportation management in the pharmaceutical industry. Compliance and security challenges are made even more difficult to solve due to the fragmentation of pharmaceutical supply chains.

Solutions, as one might expect, center on strategies for heightening visibility and control over supply chain processes. However, before discussing solutions in detail, let's first examine the next wave of challenges on the horizon.

02 THE NEXT WAVE OF CHALLENGES

What follows is a discussion, based on the latest thought-leadership, of how market changes and the disruptions of COVID-19 have revealed new and vital concerns for the pharmaceutical industry.

Changing markets present new unknowns

A great deal of the latest thought-leadership on logistics in the pharmaceutical industry focuses on broad market changes toward more patient-centric supply chains. Whether or not your company is directly focused on this approach, it is nonetheless a macro-trend that offers widely applicable intelligence for anyone attempting to future-proof their supply chain.

New ways that patients access healthcare are proving to have a significant effect on how pharmaceutical companies deliver their product to patients. In the Amazon era, patients want their healthcare delivered at maximum speed, with maximum convenience. The heightened expectations of patients – for service and delivery speed on par with, say, ecommerce – has motivated pharmaceutical companies to rethink various aspects of their go-to-market strategy, including how to best orchestrate supply chains to serve patient needs.

Research from Gartner points out the shift from:

"hospitals/pharmacies are the primary points of care delivery"
To
"healthcare occurs at the intersection of best cost, convenience, and effectiveness"[ii]

"Patient-centric" and *"personalized medicine"* are terms many researchers apply to the latter approach. The idea encompasses not only direct-to-patient models but also models that en-deavor to treat patients more like empowered consumers. While direct-to-patient flows may seem like primarily a concern of outbound logistics, these models require changes across the end-to-end supply chain in order to work effectively.

Leading pharmaceutical companies, seeking competitive advantage, are already re-coordinating supply chains to prepare for these new models. These early adopters are finding that agile models, enabled by digital tools, are a great aid to the sorts of fundamental changes in perspective patient-centricity requires.

Gartner sums up the challenge succinctly:

"Personalized medicine requires supply chains that are agile and responsive, two terms that are rarely used to describe current life science supply chains."[iii]

"Rarely…" at least for now.

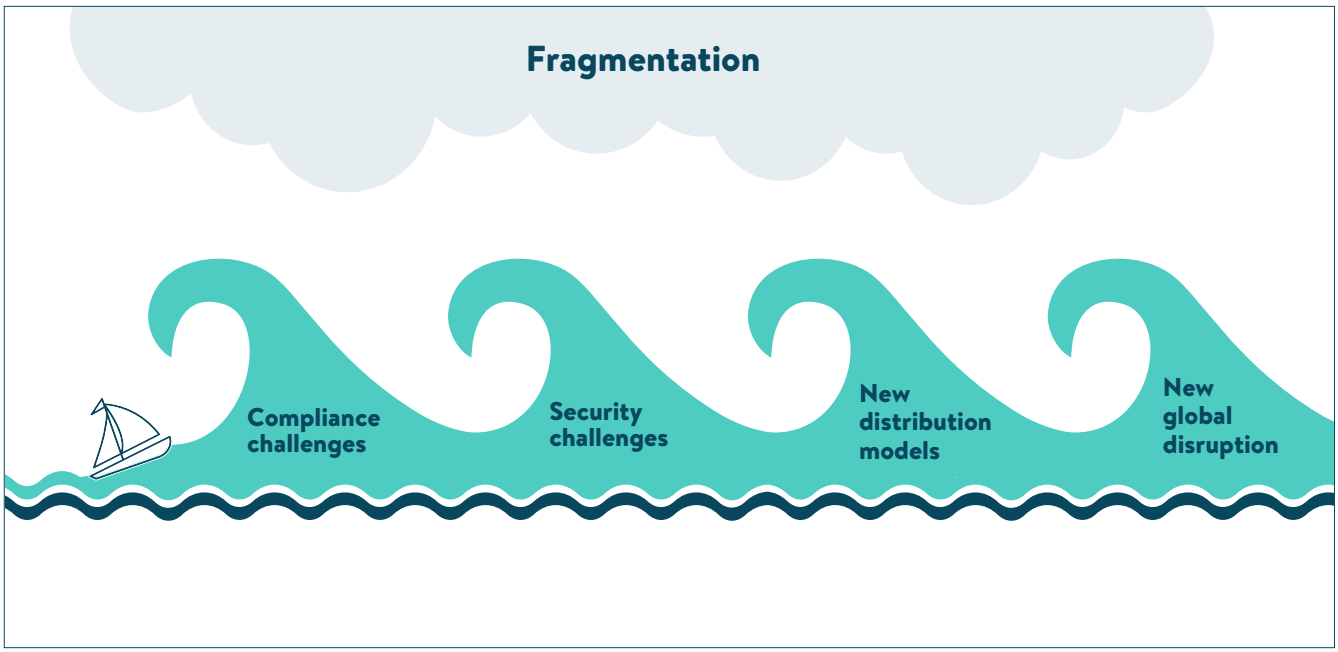
Global disruptions, such as COVID-19, have revealed the weaknesses in supply chains – and made resilience a priority

Rare is the pharmaceutical supply chain that saw no impact from COVID-19. Setting aside the challenges faced by companies directly involved in the production of COVID-19 vaccines, companies experienced disruptions such as delayed shipments, limited carrier capacity and shutdowns in the supplier network (particularly with regards to suppliers in China in early 2020).

Pharmaceutical companies of all sizes saw these kinds of supply chain disruptions have a direct impact on their bottom line. Many scrambled to source carriers and procure freight, often at higher than usual market rates; those who did not have dynamic and data-driven solutions for transportation planning in place likely suffered. Container shortages had an outsized effect on the pharmaceutical industry, because the carriers who could deliver the capabilities the pharmaceutical industry required (cold-chain, compliant) were limited. Every industry experienced limited access to capacity, but for the pharmaceutical industry, the supply of eligible carriers was even further reduced.

Given the global disruptions of 2020-2021 – not just COVID-19 but also the Suez canal blockage and the container crisis -- pharmaceutical companies are now seeking ways to be more agile and increase communication among partners as a way to safeguard supply chains from the next global disruption.

The real consequences of these disruptions have proven to be a motivating factor in adopting resilience measures on an accelerated timeline. If supply chain resilience was not a priority for a given pharmaceutical company in 2019, it likely is now.



03 SOLUTIONS

The role of digital systems in solving logistics challenges

To future-proof the pharmaceutical supply chain is to address each one of these challenges with a lasting solution. Many of the challenges discussed are interconnected; many are made more difficult by the fragmentation of pharmaceutical supply chains. Challenges are many. So what's the starting point for solutions?

If there's a common thread to all the solutions this ebook presents, it is that they are all easier to achieve with digital systems for transportation management.

Let's examine the old paradigm. Traditional transportation management relies on Excel spreadsheets and phone calls to plan transportation; operations stay manual, data stays siloed. Documentation is printed out and stored in massive filing cabinets. And anyone attempting to solve the complex logistical challenges previously established soon find themselves lost and stuck.

In contrast, digital transportation management, such as an end-to-end transportation management system (TMS), offers a single platform for collaboration between transportation stakeholders. A TMS enables holistic visibility and management, based on a single source of data. When dealing with logistics challenges as complex as those of the pharmaceutical indus-try, these qualities are not only helpful – they're essential.

"*Digital and analytics tools and automation will be the engines that accelerate agility and transparency,*"[iv] claims McKinsey in a report about pharmaceutical operations planning. And it is precisely agility and transparency that are the driving force behind the specific solutions digital tools enable.

Leading pharmaceutical companies already use digital technology; we know this not just because it's the subject of thought leadership from McKinsey, Gartner, Bain and more, but because we're proud to count top pharmaceutical companies among our clients.

We base the recommendations in this ebook on the real-life experience of our clients in the pharmaceutical industry.

Solving compliance challenges

As established, one of the most important priorities for the pharmaceutical supply chain is compliance – indeed, without effective solutions for compliance in place, a pharmaceutical company will be unable to bring their product to market. Documentation must be stored securely and made available for regulators and auditors; packaging and artwork must also comply with regulations.

Unfortunately, there is no way of reducing the amount of documentation the typical pharmaceutical supply chain requires. The good news is, a TMS provides an easy and secure way to store and keep track of all documentation. With digital systems, logistics stakeholders gain a control tower view: they can access the same documentation that customs officials see at a given port; they can also download the same documentation later, when it's time for an audit. This is a much more organized approach to managing complex documentation than the old way, which relied on manual processes, inefficient and error-prone.

Solving security challenges

Digital systems also manage documentation more securely than manual ones, due to data encryption. Data encryption thwarts the potential threats of theft and counterfeiting, and mitigates the risk of cyberattacks on sensitive documentation.

But what about the risk of loss or damage to the goods?

Here it may help to take a closer look at the role of carrier sourcing. Pharmaceutical companies are excessively careful about carrier sourcing; no unknown carriers may be a part of their networks. When managed manually, it can be a daunting task to perform the due diligence in vetting all carriers for a global, multi-modal network. More than that, there's no possibility for agility in this model; if a carrier fails, there's no recourse, and little hope of an OTIF delivery.

Digital systems for carrier sourcing allow a smarter approach to securing contracts with the right carriers. Pharmaceutical companies can easily assign their particular parameters (many motivated by compliance concerns) during the request-for-quote process. This streamlines the vetting process, ensuring that companies find reliable carriers who can meet all compli-ance regulations and actively minimize the chance that goods are lost or damaged.

Loss and damage incidents occur. But when they occur, digital systems deliver the visibility data pharmaceutical companies need. Sensors can alert stakeholders to the precise nature of a compliance exception – how long a shipment may have been outside of the required temperature, for instance. Through end-to-end visibility and real-time tracking, digital systems provide up-to-the-minute alerts on shipment status, enabling decision-makers to react more quickly when there's an issue. Enhanced visibility enables agility and streamlines the exception management process.

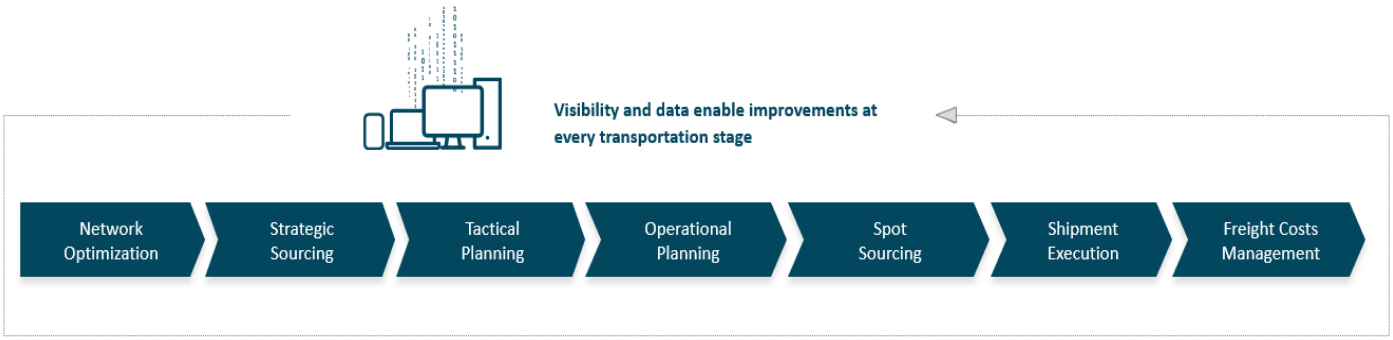
It's also important to note the value of reliable visibility data. No supply chain may improve without full visibility of its processes. And as we've seen with our pharmaceutical clients, process improvements can be a significant cost saver (12 million euros annually, to reference one pharmaceutical customer case).

Solving fragmentation challenges

The value of supply chain visibility can be further explored in relation to another important challenge for pharmaceutical supply chains: fragmentation.

Reducing fragmentation can come from reducing suppliers or cutting out wholesalers, both approaches worth exploring in enterprise planning. However, the true value of an optimized supply chain can equal or even outweigh these efforts in the process cost savings and transportation cost savings delivered.

Pharmaceutical supply chains seeking to gain competitive advantage from their transportation must aim to look at supply chains holistically, using the full power of end-to-end visibility.



Improvement doesn't happen by magic. Improvement happens when reliable data flows to stakeholders to inform better decisions. Supply chain visibility and reliable data, then, are the key drivers to optimization across all nodes of transportation workflows, including procurement, planning, execution, and freight cost settlement. All of this is especially important for the fragmented and complex supply chains native to the pharmaceutical industry.

Solving new challenges due to patient-centric models and supply chain disruptions

Already established is how enhanced supply chain visibility, delivered by digital tools, optimizes transportation processes for cost savings. However, there's a particular additional value an end-to-end TMS delivers, and it's proving essential in facing some of the latest logistics challenges for the pharmaceutical industry.

That value is agility. It's more difficult to quantify than cost savings, but it's nonetheless a major reason why clients implement our TMS solutions, and worth discussing here.

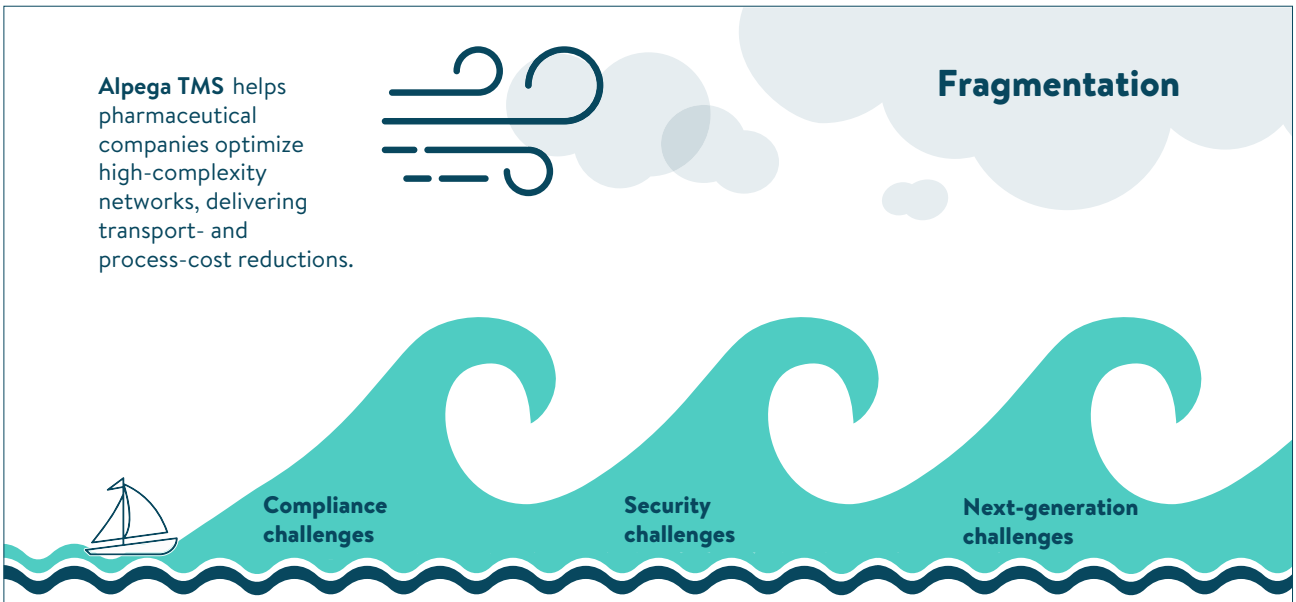
When a pharmaceutical company wants to completely rethink how their goods get to patients, it helps to have a high level of supply chain visibility and control; pivots happen more quickly, and decision makers can be more proactive when they have all their data at their fingertips and know that it's reliable. Furthermore, while making a transition to new patient-centric models, or seeking crucial ad-hoc shipments during a container shortage, companies will need to rely on an agile freight procurement process to fill in the gaps; it helps to have access to the latest spot-bidding tools (such as TenderEasy).

Agility in transportation management also aids in creating more resilient supply chains. Alpega TMS recently hosted a panel discussion with industry leaders about this topic, and a key takeaway was that enhanced visibility was by far the best way to safeguard supply chains against the next global disruption.

When global disruptions occur, enhanced visibility can keep pharmaceutical supply chains running smoothly. If spot shipments become necessary, a streamlined spot bidding process enables quick action. If a supplier becomes cut off in the network, decision-makers know about it immediately. In a global disruption, the value of being able to make transportation decisions more quickly than competitors is truly priceless.

The role of Alpega TMS in solving industry challenges

Alpega TMS, our end-to-end transportation management system, is the solution best suited to face all of the challenges discussed. Here's how our solution turns the tide on the greatest challenges for the pharmaceutical supply chain.



Alpega TMS helps pharmaceutical companies stay compliant and audit-ready with secure documentation management/storage. Data extract lets clients get the complete history of all their transport orders easily.

Live-tracking from **Alpega TMS** mitigates the risk of theft, counterfeiting and damage. Stakeholders can automate the vetting process for network partners with a single planning tool.

Enhanced visibility and control enables agility, essential when restructuring transportation networks to better serve patient needs. When global disruptions occur, the same qualities allow transportation stakeholders to make quicker recoveries for competitive advantage.

What we hear from our pharmaceutical industry clients

When we talk to our clients in the pharmaceutical industry, we find that the value they appreciate in our solution goes beyond just solving challenges. Here are some of the top reasons pharmaceutical industry clients choose Alpega TMS.

/ Seamless Integration

Alpega TMS connects seamlessly with ERPs and other enterprise software. This is particularly valuable for clients in the pharmaceutical industry, where interruption to existing systems and data can have costly consequences to compliance.

/ Quality Assurance

From temperature control to audit-readiness, the pharmaceutical industry carefully curates each step of transportation processes to assure quality and compliance. They choose Alpega TMS because we deliver the real-time tracking capabilities and visibility data to ensure all processes are aligned with regulations, parameters and goals.

/ Multi-Modal

Since many pharmaceutical supply chains use multiple transportation modes, and FTL and LTL shipments, companies often gravitate toward Alpega TMS because our solution is suited to this level of complexity.

/ Scalability for Growth

Pharmaceutical companies focused on fast growth realize it's not possible without digital solutions to automate manual processes. They choose Alpega TMS because we can implement more quickly and more reliably than the competition, and the fact that our solution is designed to scale with growing companies delivers value that keeps them scaling up.

/ Reducing Warehouse Chaos

The Smart Booking module from Alpega TMS is particularly popular with pharmaceutical companies, because it allows them to easily automate dock scheduling in their warehouses, there by reducing disorder in the delivery process and reducing time that temperature-sensitive products wait while being loaded or unloaded.

Dedicated to customer success in the pharmaceutical industry

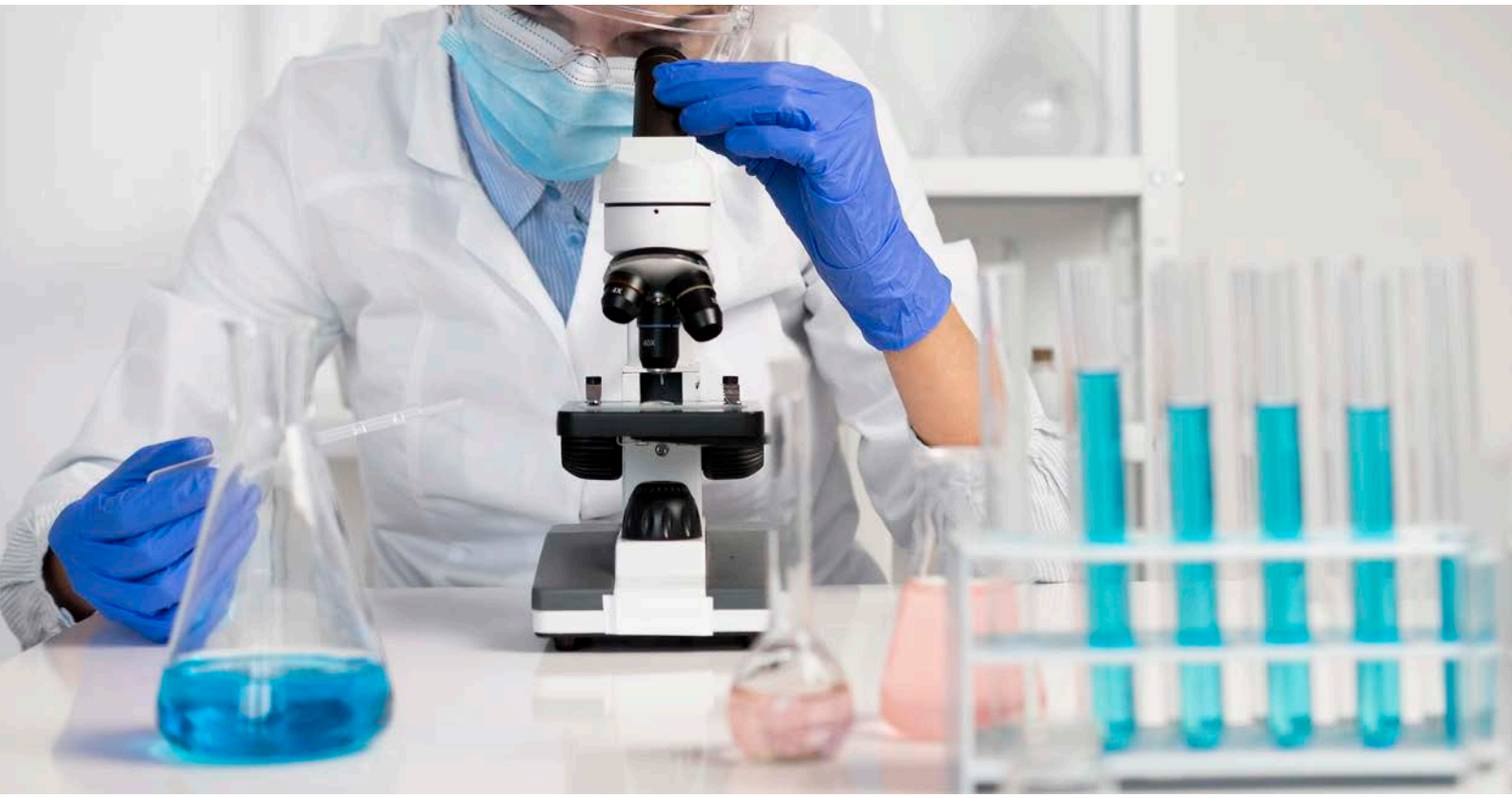
Given the capability of Alpega TMS to solve logistics challenges, both established and brand new, it should come as no surprise that leading pharmaceutical companies rely on our solu-tions.

One of our most valued clients is a top 5 global pharmaceutical company (by revenue). After a global rollout of Alpega TMS, they started saving 12 million euros per year. The optimization across their network not only brought freight cost reductions, but also:

- Reduced manual effort for transportation management and invoice auditing
- Reduced costs due to erroneous invoices
- Improved automation due to real-time communication with all supply chain partners
- Improved systems exchange – seamless interaction with existing ERP systems

We asked another pharmaceutical industry client – yet another company in the top 5 for global revenue – why they chose Alpega TMS. Their answer was simple:

Get logistics processes done in the shortest period of time in order to deliver vaccines.



04 CONCLUSION

Getting crucial pharmaceutical products from A to B, as quickly as possible: this summation gets to the heart of why logistics is so important to the pharmaceutical industry – and why all our work is worthwhile. If done right, pharmaceuticals reach the patients who need them – at the right time and in the right condition.

What's the most effective way of future-proof pharmaceutical supply chains?

Go digital. Go with Alpega TMS. Our solution can help your company make the transportation optimizations that won't just save money but save lives as well.

Sources cited

[i] Gartner Presentation, "Designing a Supply Chain to Support an Evolving Industry: The Challenge of Modern Healthcare," Stephen Meyer, 2020.

[ii] Ibid

[iii] Gartner, "2020 Gartner Supply Chain Top 25: Life Sciences," August 18, 2020.

[iv] McKinsey, "Pharma operations: The path to recovery and the next normal," Katie Kelleher, Ketan Kumar, Parag Patel, Ulf Schrader, 2020.

ABOUT ALPEGA TMS

Alpega TMS is a modular, end-to-end Transportation Management System (TMS) for shippers that brings together more than 30 years of expertise from both inet and Transwide. Our software empowers transportation professionals to manage their logistics and supply chain processes, thanks to the latest in transportation technology. Alpega TMS' 100,000+ users leverage a network of 80,000+ carriers across 5,000 shipping locations to handle more than 30 million transport orders each year. Our cloud-based TMS software is easy to use, and it was created in collaboration with shippers, carriers, and logistics service providers. It is flexible and scalable, and it can transform global and local supply chains into collaborative ecosystems.

Alpega TMS is part of the Alpega Group, a leading global logistics software company offering modular solutions that cover the transportation and logistics needs of shippers and carriers across all levels of complexity. Alpega is present in 80 countries worldwide and employs over 500 people with 31 different nationalities.

For more information about our company and products, please visit www.alpegagroup.com/en/tms

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