

THE FUTURE OF FREIGHT

What every logistics professional needs to
know for 2019

A comprehensive guide presented by CoLoadX



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Introduction:

Turning Uncertainty into Opportunity

It's often said that with every passing year the world gets smaller. Individuals are increasingly connected, mobility accelerates, and ideas spread faster than a meme on social media. But 2018 wasn't just another year. In some ways, it almost seems that in the past 12 months the world has actually gotten *larger*. That's a counterintuitive – and somewhat contrarian – idea, but in these pages we aim to explain what that means, and what it could mean to you and your business.

When we set out to write this year's outlook, we looked back on our published content that generated the most interest and resonated the most with our readers and customers. And one theme emerged: uncertainty. For many years, the logistics industry has operated in much the same way with the same cast of characters. We operated under a similar set of assumptions, with a stable global climate, relatively staid geopolitics, an expanding global economy, and a trajectory of trade that seemed to become inexorably freer.

That predictability is what was driving the small-world hypothesis. It goes without saying that every one of those factors has now shifted from predictable to unpredictable. Technology, which once seemed an unsullied force for good, has begun to trigger a backlash when data is breached or misused. E-commerce used to drive logistics...now it *is* logistics. Free trade agreements have pivoted into burgeoning trade wars. The trickling effect of climate-change has

begun to impact our everyday lives. All of those provide a counterweight to a small-world hypothesis – and hence the idea that, at least for now, the world is getting larger.

So what does that mean for logistics, for trade, and specifically for the ocean-freight business, which is the focus of CoLoadX? Simply put: everything. It's clear that in our profession, we can no longer live in a cozy bubble. We can no longer assume that our cargo won't be delayed due extreme weather events. We cannot assume that goods will flow freely between friendly nations. We can't be sure that the capacity we booked yesterday can be transported on the same terms tomorrow. But the only way to cope with uncertainty is to embrace change...and that means reading, analyzing, planning, collaborating and focusing on what is within your control.

Even with all this change, we at CoLoadX still believe that one factor can still transform uncertainty into opportunity: technology. We've already acknowledged that, when misused, new technology can be fraught with peril. Our job now is to make sure the positives outweigh the negatives. For example, our discussion of the blockchain demonstrates how new technology can provide security and accountability in a way that blocks out such "bad actors." And that's why we've tried both to dig deep into the uncertainty, but also to highlight the transformational changes technology can bring.

Our purpose here is not to offer definitive answers (because frankly, we don't have them). Nor is it to "take sides" in the many debates brewing in our industry. Instead we aim to do here what we try and do with our weekly dispatches: to spark well-informed conversations. We speak about these topics every day here at CoLoadX and now, we hope you'll join the conversation and use this information to prepare for the next wave of opportunity.

The Logistics Startup Wave

If you've been around the shipping business for a while, there's an elephant in the room that's becoming harder to ignore: startups. Before the startup era, our industry consisted of the same actors playing a zero-sum game. Very little new value was being created. The pie would only grow as a function of the size of global trade. Other than that, we were simply shifting money and resources from one competitor to another.

As we enter 2019, it's a whole different game. Successful startups fundamentally change the landscape by creating value. Sometimes that comes in the form of new technologies that companies are willing to pay more for because they increase profits -- like infrastructure improvements that allow ships to spend less time in port. And sometimes, it makes existing processes more efficient, allowing companies to redirect resources to more profitable activities.

Did you know: Over the last eight years, over 2,000 logistics companies have launched, according to AngelList.

So, it makes sense that technology is the key to helping grow the shipping industry and, more broadly, the world of logistics. But why are startups so important to this fundamental shift?

Successful startups foster change and innovation because of their visionary approaches to old problems. Startups don't have a legacy business to protect, so they are free to experiment, to occasionally fail, and to "go for broke." Startups in logistics are no different.

Billions of dollars have been invested to date on logistics startups with the complex goal of finding the next game-changing innovation in freight management. The logistics startups that are receiving funding are diverse and target links across the entire supply chain. In 2018, \$3.5 billion was invested in last-mile meal and grocery delivery startups alone.

Digital freight forwarders like Flexport, data and analytics firms like Xeneta, software and platform developers like Turvo, and marketplaces like ours and Freightos are just some of the examples of the diversity in logistics startups.

Investors in logistics startups are equally diverse, and even traditional freight giants are pouring money into the startup world. Just last month, A.P. Moller-Maersk invested \$21.6 million in Loadsmart, a booking-technology startup based in the United States.

When an industry experiences a startup boom, it typically goes through three phases. First up, the **pioneer phase**. These are the companies that have a brand-new idea and build rudimentary products and services, even though there are very few companies ready to use them. They rely on a few courageous clients to learn about what the market needs.

Next comes the **proliferation phase**. The need for technology solutions are now established, and there are dozens of companies trying to solve many different pain points. They differentiate in whom they are trying to serve, in what products they offer, and in how they're priced. Lots of them get funded by venture capitalists because investors see potential in the industry.

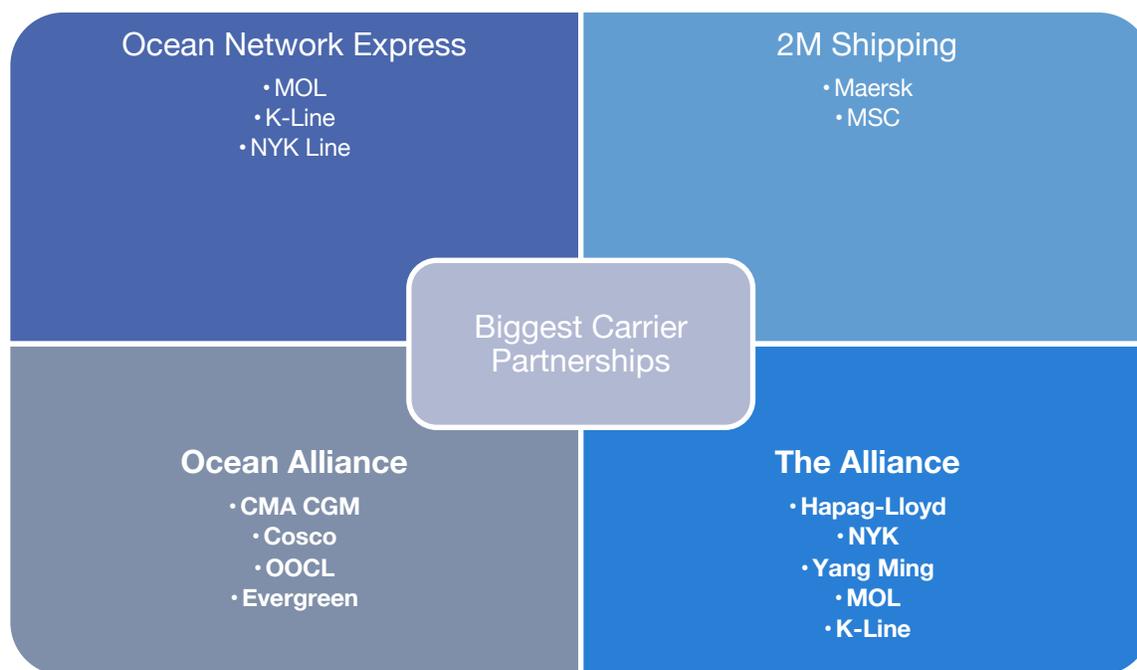
Finally, there's the **consolidation phase**. This is when the winners start to declare victory. The companies that fail to get traction either go out of business or pivot to other models. The bigger companies begin to buy the companies that manage to survive but aren't an outright success. And sometimes the winners in our particular space in turn get bought out by bigger conglomerates.

So where are we in this startup cycle? Although there are always new companies being birthed, and many of these companies continue to grow, the recent wave of acquisitions suggests that we are squarely in the consolidation phase. That said, by definition, cycles are cyclical. As these former startups are now being integrated into their acquirer's operations, the next generation of startups is starting to form -- building upon the triumphs and challenges of those that came before.

Era of Creative Carrier Consolidation

The carrier market has a lot of players, but the largest ones control a disproportionate share of the market. Here's an interesting fact from the *Journal of Commerce* from earlier this year: "Data from the analyst [Drewry] show that as of Oct. 1 there were 379 different vessel operators, but apart from 31 carriers at the top of this pyramid, none of the rest have more than 0.1 percent market share." And by creating partnerships to share capacity and provide greater geographic footprints, the big are getting bigger. According to Drewry, alliances like Ocean Network Express have ensured that the top seven carriers in the world account for 75% of ocean freight traffic.

But as the options for these types of partnerships have waned, carriers have begun looking for new synergies to grow their businesses without simply adding lanes or buying ships.



Of course, there are some potential drawbacks to consolidation. Though many analysts believe the carrier consolidation phase of modern shipping is over, the alliances already created could lead to less competition between carriers, which is not good pricing news for forwarders and NVO's. In addition, NVO's may lose leverage when negotiating capacity contracts.

In the old days, carriers represented trusted brands, and players like shippers, forwarders, and NVO's were often carrier-loyal. But consider the case of airline code-sharing. In the past, it was common for customers to be loyal to, say, Delta. But now, when you fly "Delta," your flight might in fact be operated by Air France, and you may be earning points which can be used across dozens of airlines. As carrier lines continue to blur, what will it actually mean to ship with "Maersk"?

The likely outcome is that, like in so many other areas of business, decisions will be driven not by brand loyalty, but by data. Technology is beginning to provide us with so much

data regarding rates, capacity, and sailing times, that the ship that wins the numbers game will increasingly win the business.

Blockchain Technology

If you're not caught up on the blockchain, here's a quick basic definition: blockchain is a centralized list of events or transactions, like a digital ledger. It is completely secure, and an entry cannot be changed once it's made. Whenever there is a business process composed of a series of steps involving two or more parties, they are recorded in this ledger, and only the parties involved can access them.

Blockchain technology has many potential uses, but the logistics supply chain is an obvious one. There are countless areas where the blockchain can alleviate pain points, including inefficiency in international trade documentation, security threats in the current logistics process, and a lack of visibility in logistics overall. And there is no doubt many more that will evolve over time.

Blockchain technology has four major benefits for logistics:

1. **It's secure.** The blockchain is not protected by a traditional "permissions" system for access. In other words, it's not just about having a password. Getting access to a blockchain involves providing "proof of work" which inherently demonstrates your qualification to access the chain.
2. **It's trustworthy.** The inherent security of blockchain technology doesn't just protect it from bad actors. It also ensures data integrity: Everyone authorized for a chain is viewing the same data in the same order, with the guarantee that it has not been changed. You can see how this would be critical when tracking the flow of funds, goods, or services.

3. **It's transparent.** Blockchain technology provides reliable transparency to all parties to a transaction. This is especially important in complex, multi-step transactions where outcomes rely on having perfect information about what other parties are doing or have already done. In the case of logistics, each “authority” is aware of all details about their shipments, *but only their shipments*. That includes what the freight is, where it has been, where it's going, the status of all paperwork, and who facilitated its transit.
4. **It's decentralized.** With the blockchain, there is no controlling authority -- no “blockchain world headquarters.” There is no government, financial system, or outside entity that can interfere with a given blockchain unless it is already a party to its transactions.

So far, carriers have been leading the way in developing logistics blockchain ecosystems. IBM-Maersk's TradeLens platform is already open to some of the carrier's partners and was recently adopted by the Port of Valencia, the first port to test out Maersk's blockchain solution. To avoid getting left behind, a coalition led by Cosco shipping that includes Ocean Alliance carriers, Yang Ming, and some of the world's biggest terminal operators, announced a competing blockchain solution that will soon be available.

But as we described above, just because existing carriers have taken the lead with blockchain doesn't mean that they have the exclusivity on innovation. The startup world is scouring all areas of the economy for innovative uses for the blockchain. Some have already begun logistics applications, and it's just a matter of time before they become integral players in this important trend.

It may seem early for smaller businesses like freight forwarders and NVO's to incorporate blockchain into their businesses. But stay tuned, because this “future technology” shows signs of permeating everything we do in the not-to-distant future.

Smart Containers

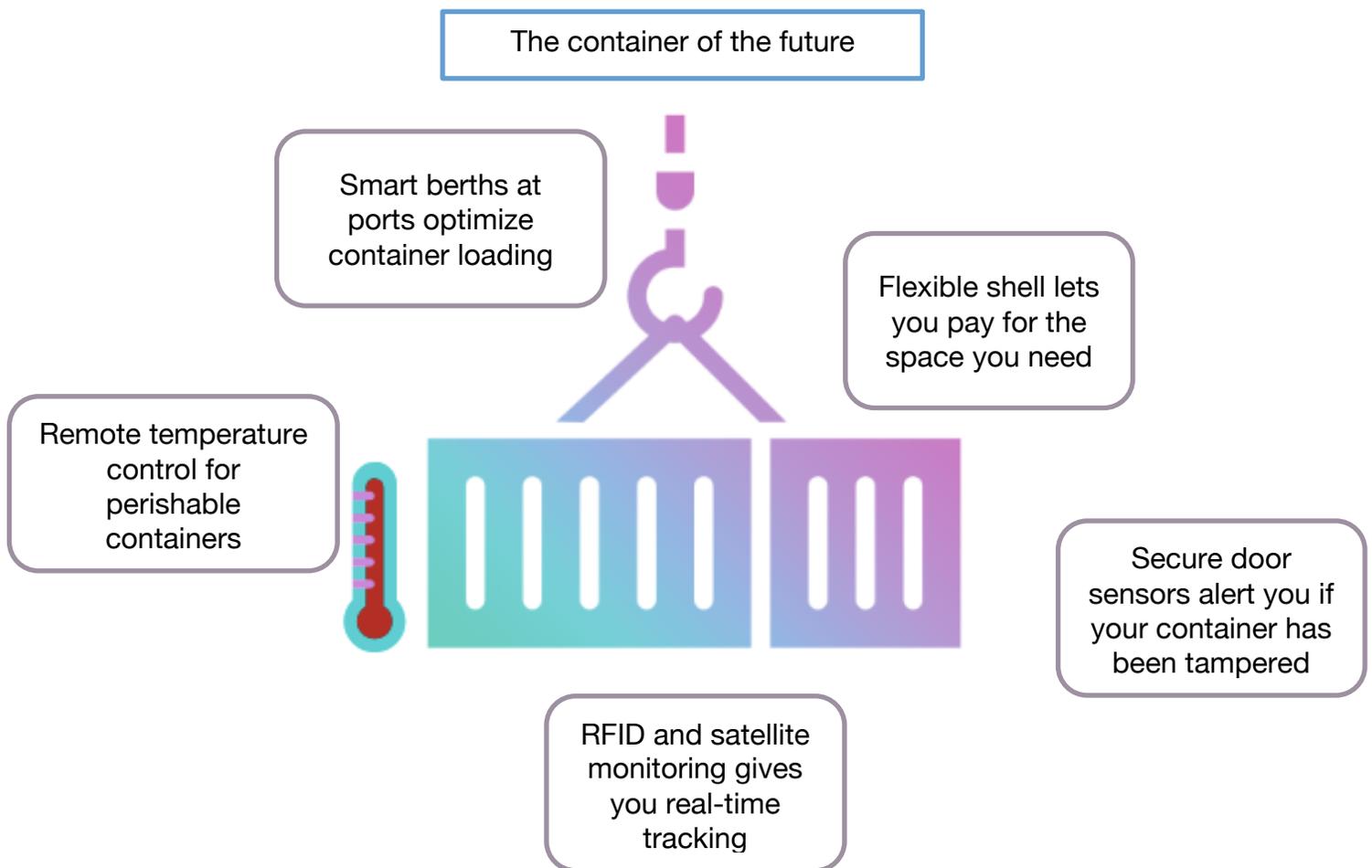
It's not hyperbole to say that global trade as we know it today was made possible by the standardized shipping container: it made trade more efficient; it globalized trade at a scale like never before; and it introduced standards that removed friction from the efficient flow of goods. It remains the greatest innovation in freight management of the last six decades...perhaps the last six centuries.

But the shipping container has been stuck in time. With the exception of the addition of new dimensions, the shipping container has barely evolved since its invention and mass adoption. Now, like the rest of the logistics industry, the container is set to receive some major technology-induced upgrades.

Upgrades to the shipping container focus on tracking, quality assurance, and security. RFID tagging gives shippers visibility about the location of their freight. Everything from the container itself to the contents of any single container can be tracked across virtually every mile of its journey. And remote quality-management systems are being developed that will allow freight owners to control things like temperature on perishable goods containers.

Security is a critical component of the future shipping container. Sensors will be able to report if a container is damaged or tampered with even when out to sea. And smart shipping container developer SecureSystems has created personalized access controls that require the shipper to authorize access to a container before it can be opened.

The further-off future shipping container may incorporate all of these advancements and more. Collapsible containers, which could expand or contract depending on shipment needs, are already in development. As automated ships and ports develop, the shipping container will change alongside them. We've already seen containers that can lift and lower themselves, previously developed by container design company Excalibur Shelters. We may one day see containers that can even load and offload themselves.



Prospering in the Age of Amazon

As the current shopping season continues to demonstrate, the momentum in logistics innovation is being driven by e-commerce, not by traditional logistics service providers. Companies like Amazon, Alibaba, Walmart, Best Buy, and Target have all made moves to take control of their own logistics.

In the last year, these online retailers have made major investments to bolster their last-mile delivery services. Target purchased Shipt, Wal-Mart purchased Parcel, Alibaba invested \$720 million in Chinese rural-delivery service Huitongda Network, and Amazon ordered 20,000 vans for its delivery fleet.

Further up the supply chain, Alibaba is developing “smart warehouses,” which it hopes will optimize the turnaround time in order fulfillment. Meanwhile, Amazon is well on its way to becoming a logistics service provider itself: in 2016, the e-commerce giant registered as an NVOCC in China.

Broadly speaking, the most salient interpretation of these developments is that e-commerce companies are developing their own proprietary logistics ecosystems. Amazon introduced Amazon Logistics and Shipping with Amazon, two full-service logistics options that will be open to third parties, turning the growing Amazon fleet into a parcel delivery service *a la* FedEx. Meanwhile, Alibaba’s goal is to turn its heavy investments in logistics into a global smart-trading network that would act as a centralized standard environment for its logistics partners.

Target is investing \$7 billion to develop their own state-of-the-art first-to-last-mile digitized solution. The plan also includes turning store locations into “hyperlocal distribution centers.”

Best Buy is doing the same with its physical stores.

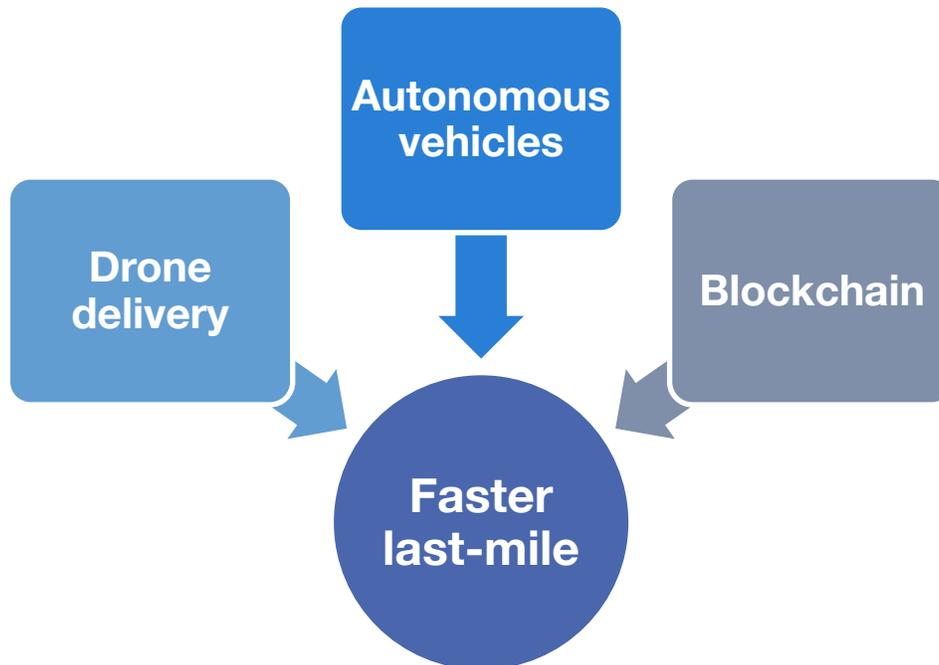
This trend is particularly vexing for third-party logistics providers. It is hard to imagine a world where Amazon stops innovating in their ability to move physical goods from one place to another. And it is equally difficult to predict what their next steps will be. What's likely is that the challenges of logistics will evolve, and that there will inevitably arise gaps in the supply chain that are better addressed by specialists than by the Amazons of the world. The logistics winners in the age of Amazon will be the companies that can best observe, analyze, and predict where to specialize to fill those gaps.

24-Hour Last-Mile Logistics

Since Amazon popularized subscription-based free two-day shipping, customer demand for same-day delivery on e-commerce purchases has been steadily rising. In fact, many consumers now demand it. A 2016 global survey by consulting firm McKinsey found that a quarter of participants would be willing to pay a premium for same-day or instant delivery on online orders. That number has surely risen in the past two years.

Implementing 24-hour last-mile delivery poses some deep challenges. The most obvious one is higher costs: labor and delivery fleet maintenance costs will all go up under the constant pressure of a 24-hour delivery cycle. Technology innovation will require R&D investment in things like delivery drones and smart warehouses.

Which technologies can make the last-mile faster?



Retailers also need even more sophisticated inventory data than what they have today to avoid stock issues. In fact, maintaining proper inventory will be a challenge across the whole supply chain: retailers need to have their ready-for-delivery stock at the right levels -- and in the right places -- to prevent low supply or overstock.

But often overlooked is the stress that this trend will place on the shipping industry. Ocean freight carriers (and the logistics ecosystem that supports them) have to be able to handle demand capacity without sending half-empty containers to sea. This will require an unprecedented degree of cooperation and data exchange between all players in the supply chain. Shippers and freight professionals will no longer have the luxury of booking capacity weeks or months in advance.

They will require ever-more sophisticated predictive capabilities to translate consumer demand data into capacity requirements. This predictive technology is still in its nascent stages, but it is one of the technologies required to ensure that the first, second, and third miles keep pace with that 24-hour last mile.

Green Shipping

Container ships are some of the biggest polluters in the world. Massive cargo ships use heavy fuel, also known as bunker fuel or bunker oil, a high-carbon, high-sulfur fossil fuel that releases harmful emissions into the air when burned. The International Maritime Organization (IMO) estimates that by 2050, the amount of air pollution from container ships could go up by 50 to 250 times its current level.

Regulating emissions from massive freight carriers is a difficult, complex task for many reasons. Ocean shipping is an international industry and introducing blanket policies that meet the requirements of a global economy can be notoriously difficult. An estimated 90% of all trade occurs by sea, and that number isn't going to decrease anytime soon. And the benefit of bunker oil as a fuel source is that it's incredibly cheap.

While many countries have their own regulations for ships that sail into their ports, the IMO recently unveiled plans for a sulfur cap, a sweeping policy that would require container ships to reduce the sulfur content of their fuel from 3.5% to 0.5%.

Did you know: Experts say cleaner fuels in container ships could lower the premature mortality rate along trade lanes by 34%.

Cleaner fuel isn't the only way shipping can go green in the near future. Battery-powered ships are already in development, with China testing their first battery-powered container ship last year.

The realities of operating in a climate-change environment will demand sacrifices. Many of these new regulations will require up-front investments in new technologies and business practices. But it's important to consider these in terms of the long-term sustainability of the logistics industry -- and of the planet. Conducting business-as-usual may prove disastrous in the longer term, and today's sacrifices may well prove to be tomorrow's salvation.

Government and Logistics

Governments also play a vital role in international logistics. The right policies and investments can provide a helpful tailwind to global trade. Conversely, uncertainty and conflict tend to provide unhelpful headwinds. Policies related to infrastructure investment, tariffs, and sanctions, all play an outsized role in the health of the global trade economy.

Poor infrastructure inhibits trade by impeding the profitable import and export of goods. So it's no surprise that many governments are investing in their seaports, airports, railways, and roads.

The most notable example of this is China's Belt and Road Initiative, sometimes called the New Silk Road initiative. The government of China plans to invest as much as \$8 trillion in the infrastructure of more than 65 countries so that the world's largest export economy can further expand its global customer pool.

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- The number of countries the Belt and Road Initiative could reach

\$1.7 trillion

- The estimated cost of infrastructure developments and repairs by 2027

65%

- Estimated percentage of the world's population that lives in Belt and Road Initiative countries

Of course, what may seem like a bright, collaborative future is no sure thing. Countries that partner with China need to be sure they're getting a fair deal -- that they're not being exploited by China's global trade ambitions. In fact, New Silk Road initiatives have begun triggering a backlash and have even been rejected in some places. Earlier this year, Malaysia backed away from New Silk Road projects as currently proposed, claiming that Chinese demands are causing development costs to skyrocket.

Any discussion about government and logistics has to include trade policy. For many decades, the world trade policy was relatively static, promoting prosperity and cooperation

through lower tariffs and lower border restrictions. For better or worse, we're in a different environment now.

According to the Wall Street Journal, around \$200 billion in goods could see a 25% hike because of impending tariffs. Tariffs can contract margins, leading to reduced shipping budgets. And political sanctions, such as those the U.S. has recently imposed on Iran, can redistribute trade volume to compensate for newly-restricted markets.

It's difficult to say whether this higher-tariff environment, accompanied by more contentious trade relationships, is the new normal or a temporary deviation from decades of free-trade policies. Logistics professionals no longer have the luxury of assuming that trade will continue to grow in predictable patterns. A trade lane that had been growing in popularity for years might, almost overnight, begin to contract. So, flexibility is becoming more important than ever. The key is to double down and invest in the areas where you add the most value to trade, which can maximize your resistance to the fickle winds of policy changes.

People Aren't Obsolete

The focus of this analysis has been on the use of technology in transforming logistics. But technology is only as good as the service it provides. If you've ever tried to get a shipment from a factory in China to an Ikea in Brooklyn, you know that there is no way for this to be fully automated...at least not yet. A true logistics solution requires complete end-to-end management of a shipment, and that still requires human intervention. For freight forwarders especially, people are critical to three components of a transaction:

1. **Winning new business**

2. **Nurturing and maintaining relationships**

3. **Executing on a shipment**

With more and more decisions are being driven by data, how do you stand out with buyers making purchase decisions based on interchangeable offerings of similar rates and capacity? That's where relationships come in. People still want to do business with other people they like and trust. It's precisely *because* there are so many interchangeable offerings that relationship management is so important when winning and keeping business.

When it comes to delivering on your service, the human element becomes even more important. Aside from customs paperwork, with all its exceptions, there are countless things that can go wrong with a shipment. And as of today, only experienced professionals can tackle those -- and give customers the assurance that they are being handled properly.

Technology can in fact give your business incredible new capabilities and unleash many efficiencies. But it's important to continue to invest in the humans that actually serve your clients. If you consider customer service one of your core competencies, then it makes sense to redirect some of those tech-enabled savings to hiring and training the very best workers.

Thanks for reading. If you'd like to discuss how CoLoadX can help you prepare your logistics business for the future, we'd love to hear from you.

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