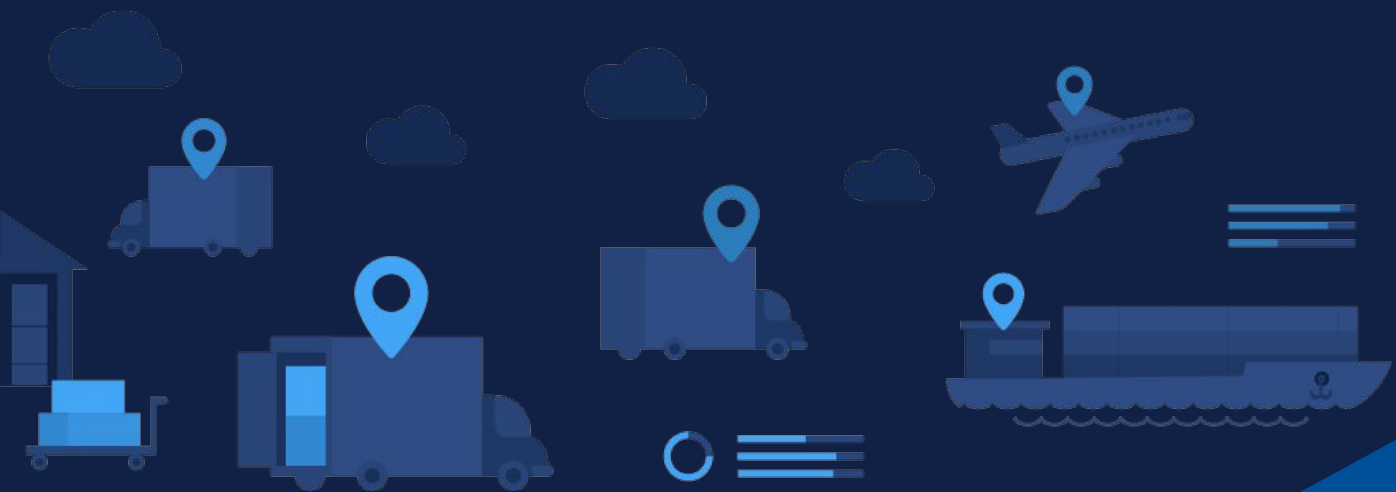
AgileVision

Navigating Logistics and Supply Chain Problems

that Stand in Your Way of Growth



Navigating Logistics and Supply Chain Problems That Stand in Your Way of Growth 4

The Biggest Business Problems Facing Most Logistics and Supply Chain Companies 6

- Forecasting Demand When There's a Lack of Visibility Into the Whole Supply Chain 6
- Adapting to Changes in Demand 6
- The High Costs of Manually Tracking Inventory 7

Where Small- to Mid-Sized Logistics and Supply Chain Companies Struggle Most With Technology 8

- Limited In-House IT Expertise 8
- Wrangling Siloed Data from Multiple Systems That Don't Talk to One Another 9
- Rapidly Developing New Systems Without a Temporary Hiring Surge 10
- Integrating for Hyper-Specific Use Cases 10

The Most Common Symptoms of Technology-Related Problems 11

- Taking Too Long to Implement 11
- No Qualified Internal Talent 11
- No Time For or Interest in Managing the Development Process 12
- No Expectations of What Normal SaaS or Cloud Costs Look Like 12

Evaluating Commercially-Available SaaS Applications 13

- Suitability for Needs 13
- Creating Integrations for SaaS Applications with Inadequate Standard Feature Sets 13
- Beyond SaaS: Rethinking Hardware Product Design Too 14

Challenges Unique to Legacy Mainframe and Client-Server IT Investments 15

Outdated Proprietary Software With Limited Extendability 15

Locked Into Long-Term Contracts With Legacy Systems 15

Evaluation Framework for Hardware 16

The Right Technology Stack For Your Company's Growth Plans 17

Investment in Cloud-Based Technology That's Not Dependent on Existing Technology Stack 17

Thinking Beyond Your Internal IT Department 17

Planning with Security and Business Continuity In Mind 18

Preparing For a Successful Technology Investment and Implementation 19

Product Owner 19

Access to Relevant Stakeholders, Businesses Process, and Resources 19

Realistic Expectations Around Timelines, Iterations, and Product Owner Continuity 20

Navigating the Technology Product Development for Logistics and Supply Chain Companies 22

User Interviews 22

Agile Methodology with Two-Week Sprints 22

The Bottom Line 23

Take the Next Step 24

About AgileVision 25

Navigating Logistics and Supply Chain Problems That Stand in Your Way of Growth

If you're like most logistics and supply chain executives, you're really good at tackling complex business issues as you build and execute plans that deliver profitable revenue growth.

You look for innovative ways to deliver greater value to your customers. Moreover, you're well aware that technology and software investments are key growth drivers and competitive necessities.

You and your peers in similar companies think a lot about product distribution, continuous improvement, manufacturing processes and procedures, warehouse maintenance and management, quality control, regional distribution, inventory management, and surplus management.

According to LinkedIn, there are more than 637,000 LinkedIn members in the U.S. logistics and supply chain industry.

SupplyChain247 surveyed over 1,000 supply chain executives and found 36% investing in analytics to optimize their inventory to help balance supply and demand. That same research revealed concerns over the need to respond faster to customers with greater accuracy. In fact, 28% want to blend data from multiple systems for improved supply chain visibility, and 19% want to leverage machine learning to forecast more accurately.

What do these companies' executives see as their biggest business problems? Where do these companies struggle most with technology?

And how do they think about commercially-available software as a service (SaaS) applications, legacy mainframe and client-server IT investments, and building the right technology stack to gain a competitive advantage in the marketplace?

In this eBook, Navigating Logistics and Supply Chain Problems That Stand in Your Way of Growth, you'll learn how to:

01. Identify
the biggest business problems facing most logistics and supply chain companies

02. See
where small- to mid-sized logistics and supply chain companies struggle most with technology

03. Self-assess
the most common symptoms of technology-related problems

04. Evaluate
commercially-available SaaS applications

05. Address
challenges unique to legacy mainframe and client-server IT investments

06. Invest
in the right technology stack for your company's growth plans

07. Prepare
for a successful technology investment and implementation

08. Navigate
the key steps of technology product development for logistics and supply chain companies

The Biggest Business Problems Facing Most Logistics and Supply Chain Companies

Logistics and supply chain companies face several interrelated business problems:

Forecasting Demand When There's a Lack of Visibility Into the Whole Supply Chain

A supply chain consists of several different companies, each with critical data sitting in their own silos. Therefore, it can be really challenging for companies to make good decisions when they don't have access to the data of other interdependent companies in their supply chain. So, each company only sees a small subset of the big picture.

For example, Storeroom Logix, a technology company driven to find better ways to process and use data, needed greater visibility between distributors and their customers. When distributors are able to see their customers' real-time inventory, distributors can forecast demand more accurately. Conversely, customers can make better plans when they know a distributor's inventory.

Adapting to Changes in Demand

Without knowledge of each party's data, it's really difficult to predict and adapt to changes in demand. Companies end up having to invest in safety stock, or buffer stock, to prepare for spikes or surges in demand.

The coronavirus pandemic in 2020, while considered by most to be

a black swan event, proved incredibly challenging for logistics and supply chain companies. Demand in many product categories suddenly surged to unprecedented levels based on a once-in-100-year, global, public health emergency.

The High Costs of Manually Tracking Inventory

In addition to making systems investments that allow for each party to see each other's data, tracking warehouse inventory can get really expensive, really quickly.

When you have a big warehouse or several warehouses, and there's no technology or very limited technology, employees must physically walk around the warehouse, perform inventory checks, make cycle counts, and resort to many manual, labor- intensive activities. This manual approach becomes time-consuming and quite expensive.

Most companies in this situation feel competitive pressure to move faster and reduce the high costs of manual labor.

There are also industry-specific considerations that can impact the kinds of challenges faced by logistics and supply chain companies. For example, regulatory compliance can introduce time and financial burdens.

Where Small- to Mid-Sized Logistics and Supply Chain Companies Struggle Most With Technology

In order for logistics and supply chain executives to use technology to gain a competitive advantage, company leaders must first understand where most companies like theirs struggle with technology.

Limited In-House IT Expertise

Now there are industry giants such as DHL, FedEx Corp, and UPS Inc. that face very different technology struggles.

For example, when you head over to LinkedIn, you'll find that DHL Supply Chain has over 36,000 employees worldwide, with 630 employees in IT roles in the United States. Between FedEx and FedEx Logistics, there are over 3,000 IT professionals in the United States. And UPS Supply Chain Solutions employs over 500 IT professionals in the United States.

However, the average reader of this eBook is working within the opposite context.Your company as a whole has anywhere from a few dozen to a few hundred employees.

Your internal IT team – if there is one – is very small, with limited in-house resources for developing and maintaining custom software, or working on application programming interfaces (APIs) that are vital for integrating different systems together.

The internal team usually oversees routine website management and provides administrative support for existing lines of business software, such as G Suite and Microsoft

Exchange. They'll oversee basic network infrastructure, conduct data protection measures, add users, reset passwords, apply patches, and manage mobile devices that attach to the network.

Some smaller logistics and supply chain companies may have no internal IT staff and instead outsource to a company such as an IT managed service provider (MSP).

Wrangling Siloed Data from Multiple Systems That Don't Talk to One Another

There's usually siloed data concentrated in one system, accessible by only one company.

In an effort to modernize and remain competitive, a logistics and supply chain company may invest, for example, in an automated robotic warehouse system, designed to automatically move goods around the warehouse by specifying coordinates to pick up and deliver.

While this sounds great in theory, and is usually a huge leap forward, integrating this kind of system with other modern systems is, to put it mildly, painful and expensive. This integration almost always requires programming resources to configure, typically some kind of middleware or advanced integration.

Often, there are also product information management (PIM) systems and enterprise resource planning (ERP) systems with poor integration capabilities. To eliminate this fragmented information, and make better decisions faster, logistics and supply chain companies generally need a more sophisticated configuration to bring together the data from multiple systems.

Rapidly Developing New Systems Without a Temporary Hiring Surge

While the upside to the business can be extraordinary, and a competitive necessity, integrating disparate systems can be a huge initiative.

To accomplish this work quickly, you need to hire a big team, which takes time. However, the problem is that once the new platform is built and integrated, and your team is trained on its usage, you no longer need most of that IT talent. You'd have to downscale.

Most companies don't want to have to fire great employees after a project is completed. For starters, that approach takes a lot of time and money and is the antithesis of the company culture that most companies strive for.

Integrating for Hyper-Specific Use Cases

For example, a manufacturer of capacitors and battery cells wants to create reports and graphs on how the batteries discharge. They outsourced this work to an external testing company; however, unfortunately, their software doesn't allow the company to export that data with the desired uniformity.

With popular, commercially-available SaaS applications, such as customer relationship management (CRM) or helpdesk management, your first thought may not be how to integrate with a battery testing system or automated robotic warehouse system. But when this need arises, it would be extremely difficult to find a commercially- available integration because the use case is so specific.

So, to improve decision-making processes and speed, logistics and supply chain companies often end up investing in custom systems development to help their most critical systems, housing siloed data, communicate with each other.

Again, solving this technology problem is often incredibly important to profitably scaling the growth of a logistics and supply chain company. However, unless you're operating somewhere near the scale of DHL, FedEx, or UPS, or even a fraction of that size, you likely don't have the internal resources to undertake this kind of complex technology integration initiative.

The Most Common Symptoms of Technology-Related Problems

Now that you've seen the biggest business problems facing logistics and supply chain companies, as well as some of their most significant technology challenges, this next section will help you better self-assess whether you and your company have some of the most common symptoms.

Taking Too Long to Implement

In a digital-first world, where Amazon and Walmart continue to introduce supersonic speed into supply chain expectations, your company needs to build and implement systems faster than ever before.

If you and your team have struggled in the past with new technology that took too long to implement, while market conditions were already changing mid-project, you're likely to reach the conclusion that your previous approach was inadequate and you now need to prioritize time to implement in your decision-making process.

No Qualified Internal Talent

If you're not even sure where to start, when it comes to planning a new, major technology initiative, your company probably doesn't have the internal talent needed to plan or implement this kind of software development investment. So, it's pretty much a foregone conclusion that your company will need to look to external resources.

No Time For or Interest in Managing the Development Process

As mentioned earlier in this eBook, logistics and supply chain executives focus on product distribution, continuous improvement, manufacturing processes and procedures, warehouse maintenance and management, quality control, regional distribution, inventory management, and surplus management. For a company with anywhere from a few dozen to even a few hundred employees, there's usually no obvious leader to be the internal champion or day-to-day manager of a major software development initiative.

Quite simply, no one wants to spend time every day for several weeks or months managing the process.

No Expectations of What Normal SaaS or Cloud Costs Look Like

Further complicating matters, when you try to manage a process that you don't understand, it's really difficult to know if what's happening actually should be happening. For example, with one of our newer clients, their internal IT person had some problems with IT infrastructure. There were some issues with system performance. This person called vendor support, who made a recommendation. The internal IT person then ended up purchasing a one-year agreement, for several thousand dollars, for a service that this company didn't need.

This all happened the day before that client asked us about this same issue. As indicated by this experience, when you don't know what you're managing or purchasing, it's always better to ask a qualified expert for guidance.

When starting with a new client, we always ask for access to billing information. 99.9% of the time, our team is able to help the client reduce costs by 20% to 30% just because there are service subscriptions in place that no one knows are there. Everyone is afraid of taking ownership and pressing the delete button.

With cloud services, it's much more difficult to identify these wasted expenses. With recurring subscriptions and multiple services, you could have a monthly bill that increases by 10%. Sometimes, you think that this is a normal part of the software development process. But, in reality, someone turned something on and forgot to turn something off.

Evaluating Commercially-Available SaaS Applications

There are two kinds of clients: those who are comfortable buying or subscribing to SaaS applications, and those who are not.

Suitability for Needs

While it may sound counter to how many software development companies operate, AgileVision will only work with clients who are willing to subscribe to SaaS applications.

Essentially, what you save on the cost of custom software development can pay for a lifetime subscription to a SaaS application.

When executives are missing a tool or want a new version, AgileVision either develops an extension to their existing SaaS application or develops a new tool or application altogether.

The last thing AgileVision wants to do is to try to convince someone to invest in a custom software development initiative when there's a commercially-available SaaS application that already exists and works. Our goal is to exhaust all available SaaS options (i.e., where there are great tools that don't require any coding), before considering a custom development project.

Creating Integrations for SaaS Applications with Inadequate Standard Feature Sets

Many times, the best clients for AgileVision are the ones who we've tried to talk out of using our services. However, when digging deeper, we'll often find that clients are already

aware of the limitations of existing SaaS applications that are in their space.

However, because we've demonstrated that we are looking out for the client's best interests, as opposed to just selling a larger project, this establishes trust. It also helps attract the kinds of clients who value that kind of relationship.

Beyond SaaS: Rethinking Hardware Product Design Too

This situation happened recently with one of our clients who created custom-designed hardware in China. Their first device was great, a good combination of quality and price.

The client then needed a simplified version of this device. The first version was an automated locker with doors and shelves with weight sensors. Next, the client just needed shelves with weight sensors. When the client asked the vendor for this new version, the vendor removed the shelves from the locker but left lots of unnecessary electronic boards with circuitry.

AgileVision worked with the client to determine that 80% of the included hardware was not needed. The vendor wasn't happy, because it reduced the size of their sale. However, the client was elated.

We often face conflicts of interest and always recommend what's best for the client, not what a vendor wants to sell.

Even when balancing staffing levels vs. the timeline to deliver a project, our team always makes sure that mission-critical team members stay on.

Challenges Unique to Legacy Mainframe and Client-Server IT Investments

After considering whether a commercially-available SaaS application could eliminate the need for a much larger investment in custom software, logistics and supply chain executives should address legacy mainframe and client-server challenges.

Outdated Proprietary Software With Limited Extendability

When legacy systems are isolated from the rest of a company's more modern SaaS and cloud-based assets, there's usually no opportunity for a normal integration.

So, you need a workaround. AgileVision, for example, is typically hired to create these kinds of workarounds and extract data.

After all, what may have been bleeding-edge technology 10 years ago is now outdated and very difficult to integrate.

As an alternative to upgrading to more modern technology, legacy systems vendors will many times offer the latest version of the system at the same cost as 10 years ago and require a long-term agreement.

Locked Into Long-Term Contracts With Legacy Systems

With both legacy mainframes and client-servers, sometimes companies "accidentally" sign three-year agreements. Why is "accidentally" in quotes? Sometimes, the purchase was inadvertently made. Many times, however, it's

really buyer's remorse.

This dissatisfaction becomes especially problematic when managers and other users are already unhappy with the system during the very first month but have to "live" with their decision for the next 35 months. Sometimes, companies buy really bad technology and are severely budget-constrained. Therefore, they have no other choice but to use outdated technology until it depreciates.

For example, there's an inventory management system we've come across in logistics and supply chain companies that's a good product. But it has a lot of problems when trying to use its API for integrations. In this particular case, it's really hard to extract data; it just can't be done in a conventional way.

Overall, when a company like AgileVision is present during the systems evaluation phase, the goalis to prevent companies from making bad technology decisions with bad consequences.

Evaluation Framework for Hardware

In addition to mindfully evaluating how legacy mainframe and client-server systems solve today's business problems, it's also often important to evaluate hardware that's part of related technology investments.

For example, when ordering a sample of a hardware device, consider:

- How does the hardware work?
- Will the hardware successfully integrate with the company's current and future technology stack?
- Will the hardware do what the client wants?
- Is the hardware applicable to the overall needs?
- Is it acceptable?

The Right Technology Stack For Your Company's Growth Plans

When you think about building the collection of software applications, programming languages, and frameworks that define your company's technology stack, you're most likely prioritizing goals around innovation, being client-centric, and making a sound investment in your company's future growth.

However, approached correctly, with the mindset of using technology for your company's competitive advantage, the existing technology stack doesn't matter quite as much as you might think. Here's why.

Investment in Cloud-Based Technology That's Not Dependent on Existing Technology Stack

To give your company more control and be location-agnostic, first consider whether this planned technology can integrate with your existing systems. As long as you and your development partner can check off the basic requirement, your new system should be built to securely run in cloud infrastructure, such as Amazon Web Services (AWS). Your new system should also operate in an isolated environment for only this new system.

For most logistics and supply chain companies, once systems start migrating into cloud- based IT infrastructure, most other systems will move to a cloud-based environment as well.

Given this basic foundation, your existing technology stack, for better or worse, won't impact how your new system is designed and developed. Perhaps even more importantly, your new system won't be dependent on your existing infrastructure.

Thinking Beyond Your Internal IT Department

Although industry giants like DHL, FedEx, and UPS can take vastly different approaches because of their very large internal IT departments, logistics and supply chain companies with anywhere from a few dozen to a few hundred employees have much more limited internal IT teams.

With this in mind, it's not realistic for small- to mid-sized companies to have enough internal IT expertise on systems design and development to cover all needed expertise.

As a basic systems architecture tenet, when a company has an on-site mainframe or server at a facility, the goal is for the new system to not be tightly connected with the legacy system. While integration with the legacy system totally makes sense, depending on the legacy system likely doesn't.

Because it can be so difficult to predict what happens with physical hardware, your systems development partner should create your new system to be independent of legacy systems.

Planning with Security and Business Continuity In Mind

This approach also can provide a layer of protection against malware attacks. For example, one of our clients found this out the hard way.

One of their employees opened an email that looked like a customer complaint about delivery and shared that email with colleagues.
As a result, the client's warehouse management system, website, and ERP system went down for one week until everything could be reinstalled.

Following the malware attack, during that one week systems outage, the new system designed and developed by AgileVision was the only system left working.

Why? Because the new system was built to not be dependent on existing infrastructure.

Preparing For a Successful Technology Investment and Implementation

When a logistics and supply chain company is considering a new technology initiative around a strategic custom software investment, what should executives, and especially their internal champion, be thinking about?

Product Owner

To set your new technology investment up for success, you need one person from your company who is committed enough on your side – the product owner – to represent all stakeholders and their varying end-user mindsets.

This person must have available time to be committed to that responsibility. The product owner must intensely believe in the project, like working on the project and be committed to the project.

While it may sound ideal to have an executive decision-maker in this role as the product owner, often it is not. Why? The goal of this new technology investment is all about saving executives' time.
If an executive's time is in very short supply, it's far better to have a mid-level manager who is well connected within the company to take on product ownership responsibilities.

Access to Relevant Stakeholders, Businesses Process, and Resources

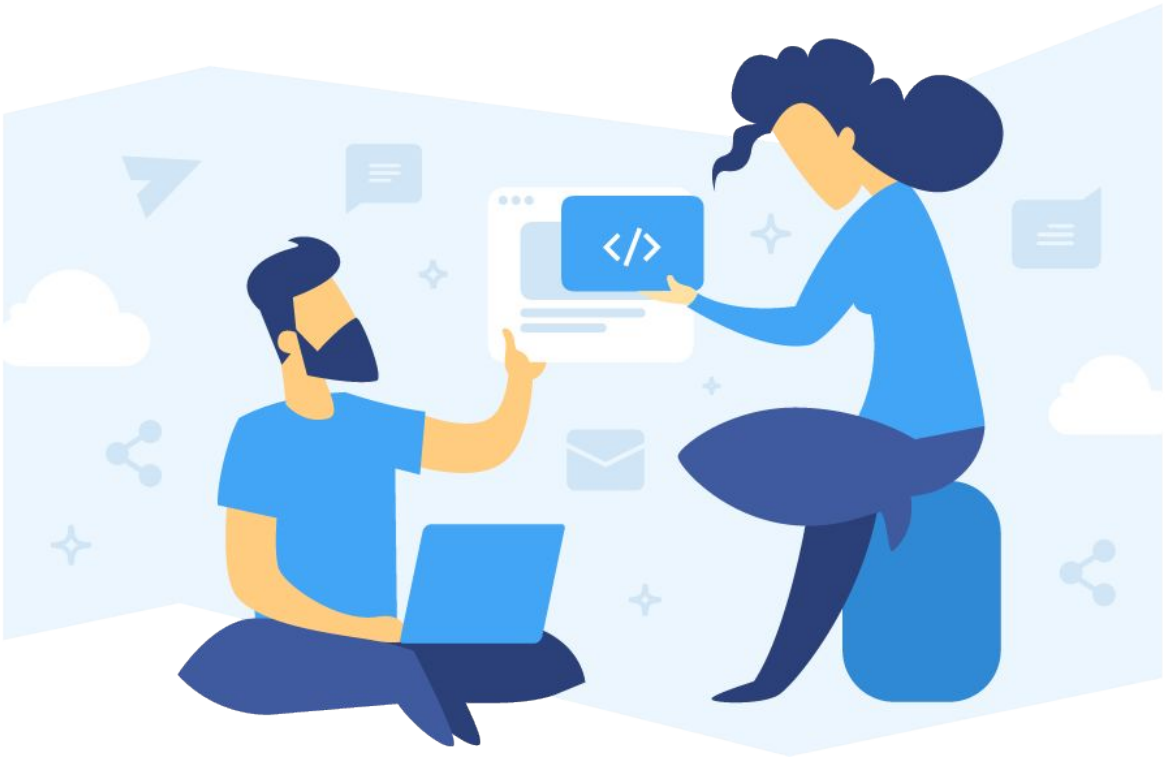
Second, building a new technology system requires access to the right people at the client site. When this is assured, success is virtually guaranteed. Without it, the project becomes a nightmare.

For example, if the new system is related to accounting, the development partner needs access to the CFO, controller, or the right stakeholder. If the new system will impact the warehouse, the development partner needs access to warehouse management and staff, with perhaps the ability to have a Zoom meeting.

If the delivery staff will be using or impacted by the new system, access to the delivery staff is critical. If your company's website will be impacted, your development partner will need to be able to talk with your website team.

When there is enough commitment, access is usually not a problem. Why?

- Executives are committed.
- The company's team understands the importance of this initiative.
- The initiative is needed to help the company's most relevant stakeholders.



Realistic Expectations Around Timelines, Iterations, and Product Owner Continuity

Building new software is not magic. You cannot buy tools that will magically do the software development work without your input and dedication.

You can't just be financially bought into the new system without also participating in the development and iterations. There must be a realistic understanding of the time frame involved.

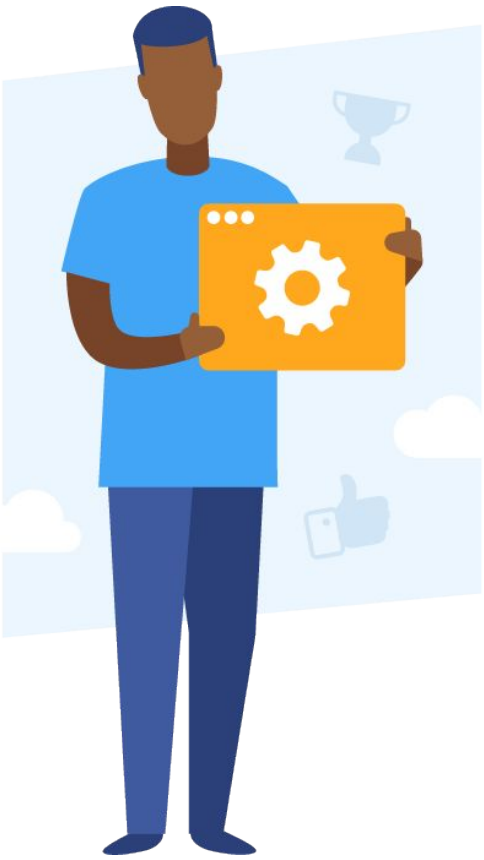
As an important cautionary note: We once worked with a client whose company had a troubled culture.

Originally, we had a really good product owner who could figure out everything. He would interview stakeholders on our behalf. Everything was going well until that person left the company.

When that company veteran was replaced by an entry-level hire just out of college, without the great internal relationships to lean on, the project was never quite the same.Our team as the development partner no longer had access to the right internal stakeholders, and the replacement was not confident or comfortable making decisions as a product owner.

Again, with any new technology investment, it takes serious commitment for successful implementation. Lack of communication and a lack of commitment can destroy even the most perfect project. In this particular case, that one staffing change, where the technology investment lost its product owner, its internal champion, destroyed everything.

Now that you know about this risk, hopefully, your company won't repeat the same mistake.



Navigating the Technology Product Development for Logistics and Supply Chain Companies

As the final building block for how logistics and supply chain executives can use technology to gain a competitive advantage, let's turn our attention to the process: namely, what to expect when you're navigating technology product development for your company.

User Interviews

As a starting point, plan to participate in, and if you're the product owner, facilitate user interviews.

You and your development partner need to:

- Determine what's needed
- Understand if there are existing SaaS and/or hardware products that satisfy the need (or come close to satisfying the need)
- Figure out if it makes sense to buy an existing SaaS and/or hardware product, rather than build a custom technology product

These are core questions that must be asked repeatedly throughout the process. Our goal at this stage is to exhaust as many options as possible. In the case of AgileVision, all of our team members are trained to think this way.

For example, with one particular client, we looked at trying to reduce the number of electronics boards in their design. We evaluated which standard items could be purchased. When we discussed buying an existing solution, the client was concerned about outgrowing its capabilities. However, we decided

those limitations were OK as a temporary solution during the proof-of-concept phase. In similar client scenarios, we've also looked at whether we could build on top of existing software, and potentially separate it from what should be developed.

Agile Methodology with Two-Week Sprints

Once the exploratory work is complete, the development project is managed using an Agile methodology with two-week sprints.

Each sprint, or iteration, starts with defining the scope (i.e., a set of features that can be demonstrated and that provide actual value to your company).

Each sprint concludes with a demo of the results. During each sprint, the product improves and more features are added as needed.

Once product development is complete, the implementation transitions into a maintenance and support phase to make sure that the product works and address any remaining questions and complaints from end-users.

The Bottom Line

Logistics and supply chain executives are always on the lookout for ways to tackle complex business problems while they build and execute plans that deliver profitable revenue growth.

To address these needs, companies frequently turn to technology and software investments as key growth drivers and competitive necessities.

In this eBook, you've learned about the biggest business problems facing most logistics and supply chain companies, where small- to mid-sized logistics and supply chain companies struggle most with technology, the most common symptoms of technology-related problems, evaluating commercially-available SaaS applications, challenges unique to legacy mainframe and client-server IT investments, the right technology stack for your company's growth plans, preparing for successful technology investment and implementation, and key steps involved in technology product development for logistics and supply chain companies.

Take the Next Step

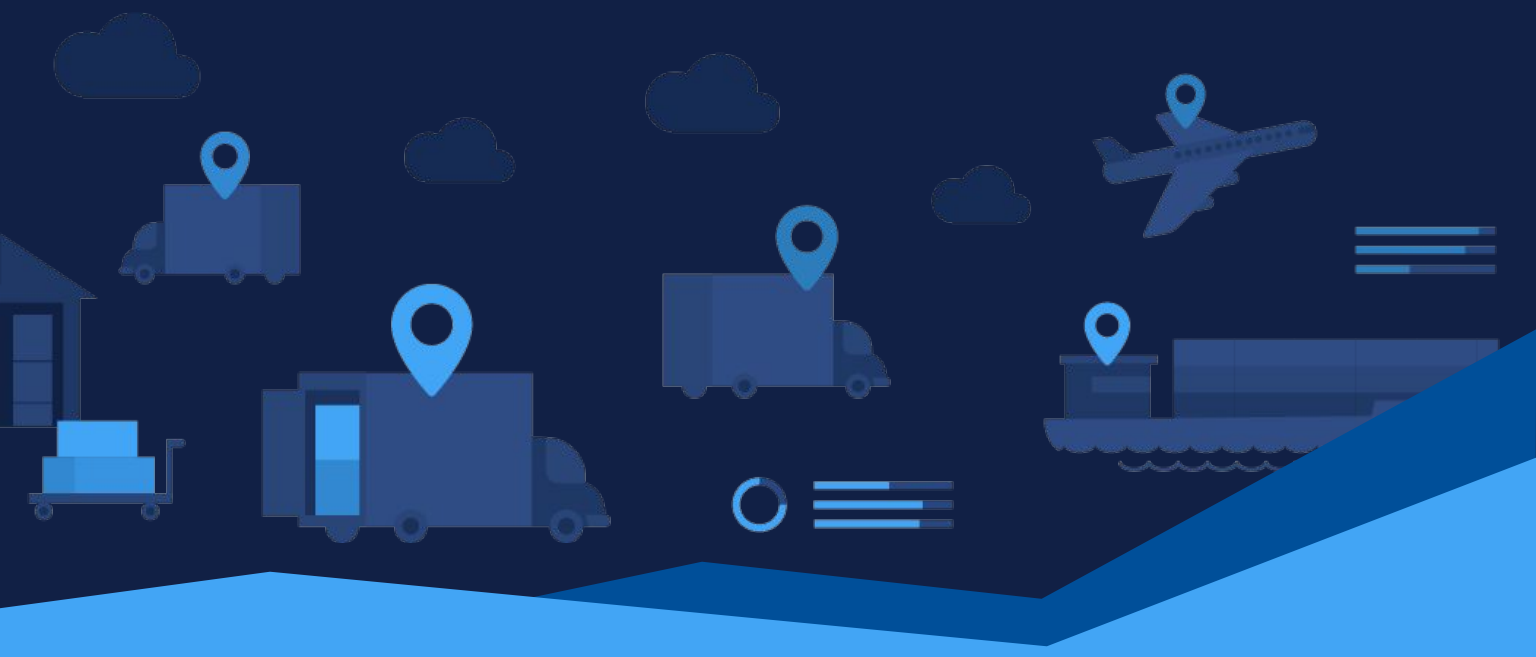
Does your company have some business challenges with which you're actively struggling?

Do you have a technology product that you think could be a game-changer for your company, but you're not quite sure where to start?

Are you curious about how other logistics and supply chain companies are using technology to gain a competitive advantage?

Take the next step - schedule your free logistics technology consultation with one of our experts!

Schedule Your Technology Consultation



About AgileVision

AgileVision demonstrates its skills through successful IoT integrations and other technology innovations for logistics and supply chain, eCommerce and retail, AV equipment, and advanced material manufacturing companies.

AgileVision consults on the technology stack to match the specific needs of the project and provide the most value for business optimization and growth.

See more on www.agilevision.io