

A photograph of a driver in a truck cab. The driver is wearing a dark blue long-sleeved shirt and a black cap. He is holding a tablet computer mounted on the dashboard with his right hand. The tablet screen displays a software interface with various icons and text, including "1.9 miles N from Kaukauna, WI" and "Login - KEITH S GORNJAK: Off Duty". The truck's dashboard features a speedometer showing "0 mph", a radio, and several gauges. The background shows a bright, sunny day through the windshield.

5 Things Every Fleet Needs to Know Before Upgrading Their In-Cab Technology

Technology upgrades are a major investment in terms of time and money. This guide details what you need to know about advancing your in-cab technology. Discover the five things you need to consider to maximize your return on investment and ensure that your fleet is set up for success - both today and in the future.

Introduction

In 2019, many fleets were focused on ensuring a successful transition to electronic logging devices (ELDs) in time for the deadline to comply with the ELD mandate in the United States.

While fleets are continuing to refine how they operate under ELD regulations, another big shift is on the horizon: rapid advancements in both in-cab technology and wireless networks. While your fleet may be utilizing fleet mobility solutions today, understanding the continued evolution of platforms and the networks they rely on is critical to staying efficient, productive and connected.

Whether you are actively looking to upgrade your in-cab technologies or don't know where to begin, this guide will walk you through five key aspects to consider when making a change. No two fleets are alike and neither are technology implementations -- but there are some crucial topics that every fleet should be aware of to ensure a successful rollout and adoption of new technology.

By leveraging this guide, you will be able to confidently plan an upgrade of your fleet's in-cab solutions and be prepared to take full advantage of the continued evolution of transportation technology.

#1 Understanding the Concept of Wireless Network Sunsets

After transitioning to ELDs, the first question you might have is: “why do I need to upgrade my in-cab technology if it is compliant with the ELD mandate?” It’s a fair question and, while we will detail the technological benefits of upgrading later in this guide, a key driver behind the need to make the switch is the impending sunset of older 3G wireless networks.

Although you may be aware of some details on the 3G wireless network sunsets, here’s a refresher: U.S. wireless carriers have begun to repurpose older 2G and 3G CDMA and GSM networks in favor of further investment in newer 4G LTE networks. This means that any in-cab devices that rely on these older networks will become obsolete.

This sunset started last year and will continue over the course of the next couple of years. Although it is a phased approach, that doesn’t mean that you won’t feel the impact of these sunsets in the meantime.

A good analogy is an abandoned road: at first, you might still be able to access it, but over time the lack of maintenance and repair make it impossible to use. We expect the sunsets will happen gradually, with providers cutting back coverage in lower volume areas, resulting in coverage gaps prior to full network shutdowns.

While your current technology provider may offer 4G LTE connectivity, do you know if your fleet’s devices are capable of connecting to 4G LTE networks? If not, can they help to identify how the network sunsets are impacting coverage, both now and as wireless carriers continue to repurpose older cellular infrastructure?

If you aren’t utilizing LTE-capable hardware this will likely require a hardware change on the vehicle to ensure the devices and drivers who rely on them can stay connected in the face of network sunsets.

#2 Knowing “There’s An App for That”

The investment of time and money to upgrade your vehicle base to LTE connectivity is significant. Taking the time to ensure your fleet’s connectivity also presents an opportunity to reevaluate the scope of your in-cab solutions. As networks advance, so, too, do the capabilities of fleet mobility solutions and now is the time to see how you can best leverage it to improve driver and vehicle performance.

In-cab technologies have come a long way from the early days of monochromatic green screens that did little more than track and trace vehicles and drivers. Advances in technology have ushered in a new era of in-cab solutions that are enabling fleets to reach new levels of productivity, efficiency and connectivity.

In parallel with technology in our personal lives, transportation companies are increasingly reliant on a variety of device types and applications to streamline how they do business. Think about your smartphone: you are likely to pair proprietary apps that come on the phone with third-party apps available in the App Store or on Google Play. Fleets want this customization and also want to take it a step further by building their own apps tailored to their business-specific needs. In fact, trucking apps will represent a \$35.4 billion market by 2025 according to Frost and Sullivan.¹

Popular In-Cab Applications



Navigation and Routing



Electronic Document Scanning



Weigh Station Bypass



Fuel Management



Music Streaming



Benefits of Selecting Android:



Wide Range of Apps

Android is a commonly used operating system, with a variety of third-party apps to implement to help increase driver connectivity.



Intuitive User Experience

The Android user interface is easy to navigate and can provide drivers with a streamlined workflow.



Device Flexibility

The widespread adoption of Android gives you more options when it comes to selecting a display type that fits your fleet's needs.



Build Your Own Solutions

Android's architecture is ideal for you to build customized apps specific to the needs of your drivers and operations.

So, how do you enable this level of customization within your fleet? Two key components to keep in mind are:

Selecting a Flexible Operating System:

It starts with having the right operating system on your devices. With the rise of consumer-grade devices in transportation, operating systems like Android™ are becoming more and more common.

Smart devices that run on the Android platform are more customizable from top to bottom, providing users the opportunity to load and use only the apps they want and need. By leveraging Android, fleets can rely on a commonly-used operating system, giving them access to a wide range of web-based, third-party apps that they can easily implement within their driver base.

The widespread use of Android also provides an ideal environment for fleets to build their own apps to address specific needs within their business.

What is your technology partner's approach to operating systems? Do they understand the increasing need for customization and the importance of having the right environment to enable it? Ensuring you have the right platform in place is not only critical for today but it will also enable you to enhance your use of fleet mobility technology as new devices, apps and solutions become available in the years to come.



Implementing the Right Mobile Device Management Model:

While having the right ecosystem of apps is important, it is also crucial to ensure that you have a framework for them to work together properly and gives you control over the user experience. This is where considering a mobile device management or MDM model comes into play.

In the transportation industry, there are two levels of MDM models to choose from. The more “traditional” MDM will manage the basics like security of devices, user login and logouts. This more generic approach may be suitable for smaller fleets or those that have a limited set of applications or devices across their driver base.

For enterprise fleets, it is smart to consider a more robust MDM tailored specifically to the transportation industry, often called Enterprise Mobility Management solutions. This more advanced model builds on the basics of the traditional MDM and supplements it with advanced features to customize the user experience as well as enable you to:

- Manage both business and personal apps running on the device
- Remotely assist drivers during support cases and troubleshooting
- Configure permissions, such as enabling Safe Mode while a vehicle is in motion
- Set parameters for applications, such as giving an app access to GPS information
- Enhance user experience through customizable home-screens
- Quickly enroll, secure and remove an in-cab device

Before upgrading to any new solutions, it is important to talk to your technology partner about what MDM options are available to you. Do they offer a robust, encrypted solution that can enable you to deploy the apps and devices your fleet needs today, and potentially in the future?

Through Trimble’s Mobility offering, fleets can harness an enterprise-level MDM to give drivers the tools they need to be productive while giving fleets peace of mind in knowing they can safely manage a wide range of apps and devices across their driver base.

Leveraging an Enterprise Mobility Management Solution:

Build on the basics of a traditional MDM with a more comprehensive Enterprise Mobility Management model to:

Enhance App Management

Manage both business and personal apps running on the device

Enable Remote Support

Remotely assist drivers during support cases and troubleshooting

Configure Device and App-Specific Settings

Configure permissions, such as enabling Safe Mode while a vehicle is in motion

Adjust Data Sharing

Set parameters for applications, such as giving an app access to GPS information

Customize the User Experience

Enhance user experience through customizable home-screens

Ensure Control of Devices

Quickly enroll, secure and remove an in-cab device

#3 Selecting the Right Mix of In-Cab Technologies

Now that you have the operating system identified and a device management process in place, how do you choose the right type of hardware for your in-cab experience? Just like the consumer hardware market, the choices for displays and other in-cab equipment are seemingly endless, so it is important to weigh your options by considering the following points:



How your hardware connects:

It starts with determining how your vehicle's hardware components will connect and communicate with each other and the back office. Some more basic configurations connect the telematics box with the in-cab display via Bluetooth, using the display's wireless network to connect each component. Another common configuration is to use wireless connectivity on both the telematics box and the in-cab display and pair them in the cloud.

Both of these options present challenges: the first option depends on a less-than-reliable Bluetooth connection and the telematics box only works if the display is in the cab to connect to. Pairing the telematics box and display in the cloud also presents challenges: since it relies on wireless networks, the box and display will not be able to communicate with each other if there are any disruptions in coverage.

Instead, fleets should look at a more robust connection in the cab, leveraging wireless networks via the telematics box and connecting it to the in-cab display via Wi-Fi. Connecting via Wi-Fi not only ensures a connection between the display and the telematics box even in spotty coverage areas but it enables you to connect a wide range of other on-vehicle components and gather additional data on vehicle and driver performance.



What your drivers' workflow looks like:

When it comes to selecting the displays themselves, you have a lot of choices to consider, too. The three main categories of displays are:

- **Proprietary:** These displays are manufactured exclusively for your technology provider.
- **Commercial:** These displays are made by third-party manufacturers like Samsung and can be purchased either through your technology provider or off the shelf.
- **Bring your own:** The "bring your own device" (BYOD) model relies on your drivers to use their own cell phones or tablets as an in-cab display.

Which options does your technology partner offer? For enterprise fleets looking to have more control over the management of the displays and the user experience, proprietary and commercial grade choices are likely to make the most sense. Even these options come with many choices. When looking at display types, remember to consider:

- **Portability:** Do your drivers do work outside the cab that requires electronic signature capture? What about electronic driver vehicle inspection reports? If so, perhaps a portable tablet might be preferred over a fixed-mount display.
- **Toughness:** Regardless of your fleet or load type, the trucking industry can be a rugged environment to operate in. Do you operate in extreme weather conditions or in particularly tough conditions? If so, you may want to consider a ruggedized device that is built specifically for the rigors of the industry.



Which other benefits are available to help you justify an upgrade in in-cab connectivity?

In addition to thinking about the hardware itself, it is equally important to consider what the hardware can enable and how this can help you justify the investment. By taking the time to invest in new technology, you should also look at the full range of options available from your technology provider. Do they offer:

- Video and other safety-related technology to improve liability protection and driver coaching opportunities?
- Truck-safe in-cab navigation to enhance driver efficiency, reduce out of route miles and increase overall fuel economy?
- Electronic scanning and document management to eliminate paperwork and streamline the flow of information across your fleet?
- What integrations are available to other in-cab technology providers that might further improve how your fleet and drivers operate?

By taking a more holistic approach to your new technology investment, you can identify and uncover new opportunities for further ROI and make the most of this change to discover additional ways to enhance how your business operates.

Heniff Harnesses the Trimble Platform to Evolve All Parts of their Business

It takes more than 300 things to go right for a single delivery to be executed correctly.

That is how Jeff O'Connor, president of Heniff Transportation, sees it. And O'Connor would know. Heniff is an Illinois-based fleet that has more than 1,100 trucks that deliver liquid bulk materials across the United States. In order to ensure that all of these steps go properly, Heniff relies on a wide range of Trimble transportation solutions, both in-cab and in the back office, to gain visibility and to streamline processes across their organization.

"Trimble has helped us create visibility to all of those steps and it's automated a lot of those processes along the way," said O'Connor.

For Heniff, other transportation solution providers could give them the solutions to meet their needs

but by leveraging a wide range of products under Trimble, they are able to avoid information silos and bring these individual solutions together to the benefit of their entire operation.

"We've really taken a big approach on cross-integrating all those systems," said Joe Neal, chief information officer for Heniff. "So anyone in our organization, whether that's a driver manager, a dispatcher, a driver on the field, an executive management team...we really want to give them all the information at their fingertips, so they don't have to go in ten different systems, five different systems – and I think that's one of the things that's really helped us be so successful."

HENIFF
TRANSPORTATION SYSTEMS LLC



#4 Managing the Installation of New Equipment

Identifying the right in-cab solutions is an important milestone but it is just a step in a broader strategy to successfully implement this new technology in your fleet. Like any major technology investment, a successful rollout will require collaboration between your technology partner and key stakeholders within your organization.

It is imperative to involve central parts of your business, coordinating closely with these functional areas and your technology provider to ensure a successful implementation. These areas include:

Finance

The capital costs of new hardware can seem daunting but they don't have to be. Collaborating with your finance team and your technology provider can enable you to see what options are available to best manage this investment. Develop a game plan to maximize your return on investment (ROI), including exploring the following options:

- **Taking a phased approach:** One strategy is to consider implementing new technology in phases, targeting subsets of your fleet before gradually rolling it out to the rest of your vehicle base. Are there particular terminals or lanes that your fleet operates in that may be more susceptible to 3G network degradation? Do some of your vehicles have even older equipment than others? Introducing new hardware in stages can help you manage costs and strategically implement new technology where it is needed the most.
- **Spreading out your investment:** Another option to consider is seeing if your technology provider offers a subscription-based service model. We are all used to paying for our cell phones and other personal devices through monthly fees and the fleet mobility industry is beginning to offer this type of payment structure, too. By spreading out your investment over months or years, you can realize the benefits of the new technology while not incurring a large upfront cost.

IT

Have you ever forgotten your computer password or needed help setting up new office hardware like a printer or copier? If so, you know how crucial your IT staff is in managing business technology. In-cab hardware is no different.

It is imperative to work with your IT team to manage the rollout of your new investment. While you may have an existing process to manage your current in-cab solutions, this switch provides an opportunity to revisit it to identify areas that could be updated and improved upon. Key points to discuss include:

- Developing a strategy to manage the inventory of displays and in-cab equipment, as well as accessories like cables and mounting devices
- Creating a framework to troubleshoot user issues and repair equipment, as needed
- Identifying who within IT is tasked with support, so that users and back office personnel know who to go to with questions and assistance
- Asking your technology provider if they offer a recycling program to help you safely dispose of existing equipment

The success of your implementation will also largely depend on integrating any third-party systems into your fleet mobility platform. Many fleets rely on the data collected at the vehicle to inform back office software related to dispatch, maintenance and payroll. These integrations can be complex and not necessarily something your IT staff is used to creating and maintaining. This is why it is imperative that your technology partner has experience and can work with you to properly configure these integrations and ensure a proper flow of data between systems.

At Trimble, we have a dedicated team of integration services who are focused on ensuring that our customers' integrations are working properly across the hundreds of software providers we connect with. By working with a dedicated resource like this, you can get the benefits of these integrations without the hassles of maintaining them.

Maintenance and Operations

Every fleet knows that any time a truck spends off the road is time that results in lost productivity and lost revenue. Maximizing equipment uptime is very much an art and a science and it is important to maintain this uptime during the rollout of new in-cab hardware. This includes:

Pairing installations with planned maintenance:

Similar to the point above, consider rolling out new equipment in phases so as to minimize the overall downtime on your vehicle base. Are certain vehicles coming in for planned maintenance? Coordinating installation of new in-cab hardware at these times can help you address both areas without having to take a truck off the road twice.

Leaning on trained technicians: It is also a good practice to evaluate your capacity to manage these installations in house. Involve your maintenance and operations teams to see how best to work installations into their existing workflows. It is also worth considering outsourcing some of the installation work through your technology provider so your maintenance teams can focus on the repair and maintenance of your trucks.

Does your technology partner offer installation services? Outsourcing this work can help take the burden of installations off of your fleet, leaning on a

team of expertly trained technicians who specialize in installing this type of equipment and can do so on a schedule that best fits your fleet's needs.

Understanding new technologies: Unlike many older systems, which required complex installations involving the removal of a cab's headliner to run cables and cords, newer solutions can be plugged directly into a vehicle's dash, cutting install times down significantly.

Does your technology partner offer solutions that can be installed in a more straightforward way? This streamlined approach also enables you to skip removing these old cables and cords from your previous in-cab system. In most cases, you can simply remove the old display and mount and leave the hidden cables in place.

Exploring OEM integrations: It is also valuable to understand if your technology provider works with vehicle original equipment manufacturers (OEMs). For example, Trimble's PeopleNet Mobile Gateway™ (PMG) is factory-installed on every Peterbilt and Kenworth equipped with MX-13 engines. This means that a display is all that is required to begin leveraging the system and the benefits that come with it.



TSD Logistics Enhances Its Connectivity with the Trimble Duo

TSD Logistics is a Texarkana, Texas-based fleet that offers diversified transportation services throughout North America, including dry bulk, over-the-road freight shipments, specialized logistics services and more.

A longtime Trimble customer, TSD upgraded to Trimble Duo™ as part of their strategy to rely on 4G LTE networks and to ensure their fleet's connectivity for years to come.

In addition to the Trimble Duo's 4G LTE connectivity, its "all-in-one" nature enables a more streamlined installation process when compared to solutions that have separate displays and onboard computers.

This quick installation time allowed TSD to upgrade their trucks with minimal downtime. Hassle-free installation means trucks are back on the road faster, and an intuitive user experience on the Android™ platform makes it easy for drivers and back-office staff to utilize the platform's capabilities to meet their business-specific needs.

“We’ve heard nothing but positive feedback from our drivers. The [Trimble Duos] run a lot faster and smoother for them, and the ease of use for the drivers has been great. We won’t purchase anything else but Trimble Duo.”

- Joy J. Hanson-Hickerson
CFO, TSD Logistics

#4 Navigating Change Within Your Business

You've selected your solutions, are actively implementing them across your vehicle base and are getting ready to start using your new fleet mobility technology -- this is exciting isn't it? Before you declare this project complete it is crucial to develop the framework for your end users to be successful.

We've all experienced technology change within our jobs and know firsthand how disruptive this change can be if we don't know how to use this new technology. Ensuring that your drivers and back office personnel are equipped with the knowledge they need to be successful will help increase adoption and minimize the growing pains that come with learning a new system. Coordinate with your technology provider and consider the following options:

Creating internal awareness: Sometimes we just want to know why a change is occurring. Before you roll out your new solutions, consider building an awareness campaign internally about the change and why your fleet is making the switch.

Do you utilize internal newsletters or driver messages? Informing employees of this change and the benefits of it will make them more prepared and even excited about how this change will impact their work for the better.

Identifying a pilot terminal: Similar to the benefits of a phased approach in terms of managing costs and vehicle uptime, rolling out new technology in phases is also beneficial to the end user. Consider identifying a pilot terminal that can serve as beta testers for your new solutions.

Once identified, conduct onsite trainings with this terminal's drivers and back office personnel on how the displays function and how to perform common tasks within the system -- both in the cab and in the back office. Monitor this program over the course of 2-3 weeks to see what worked well, what might need refinement and begin to plan additional rollouts and trainings at other terminals.

While you might have some training personnel in-house, it is important to supplement them with

resources from your technology partner. At Trimble, we have a team of trainers who specialize in explaining how our solutions work and developing curriculum for drivers and back office personnel, empowering them to use our solutions as effectively and efficiently as possible.

Developing a library of resources: While initial training can go a long way in helping end users, questions are likely to come up as they work within the new solutions.

It is crucial that you work with your technology provider to supplement training with documentation and other self-serve resources to help answer common questions drivers and other users might have. By empowering your users to self-serve, they are less likely to need assistance and more likely adopt the technology because they have access to the resources they need to be successful.

Developing educational and training materials might not be something your fleet does often so it is imperative to work with your provider to ensure you have the right tools to help answer common questions. Trimble has developed a vast catalog of user guides, eLearnings, webinars and videos to highlight key portions of our solutions that may be of importance to all users.

Highlighting a framework for support: Even with extensive training and a vast collection of self-serve resources, questions will still come up. It is smart to anticipate these questions and develop a framework to address them.

Work with your technology provider to identify in-house resources who can serve as experts when questions arise. At Trimble, we follow the "train the trainer" approach to help ensure that key individuals are empowered to know the ins and outs of the system well and can transfer this knowledge to other users.

You should also supplement this approach with collaboration with your technology provider. What does their support system look like? Who should they call when issues arise? Trimble has a dedicated support team available 24/7/365 and a team of Customer Success Managers. Identify how your technology provider operates and document an escalation process so that everyone at your fleet is aware of who to turn to when they need assistance.

Following These Steps Can Ensure a Future-Proof Fleet.

There is no question that a major technology change in your fleet can seem daunting -- but by taking the time to plan ahead you help enable a more seamless transition. Considering these key areas can help ensure that your rollout is a successful one and one that sets your fleet up to take advantage of the latest advancements in fleet mobility technology.

At Trimble, we help fleets like yours every day harness a wide range of solutions to help improve the safety and efficiency of all parts of the supply chain. Use the evolution of wireless networks and in-cab technology to your advantage -- contact us today to find out how to ensure your fleet's productivity and connectivity, both today and in the years to come.

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Trimble Transportation provides solutions to create a fully integrated supply chain, helping customers make more informed decisions and maximize performance, visibility and safety. With an intelligent ecosystem of products and services, Trimble Transportation enables customers to embrace the rapid technological evolution of the industry and connect all aspects of transportation and logistics — trucks, drivers, back office, freight and assets.