

A wide-angle photograph of a large industrial warehouse. The floor is dark and polished, with yellow lines marking the aisles. Numerous stacks of cardboard boxes on wooden pallets are arranged in rows, filling the space. In the foreground, a yellow forklift is positioned near a stack of boxes. In the background, a yellow automated guided vehicle (AGV) is moving along an aisle. The warehouse has a high ceiling with exposed steel beams and industrial lighting. The overall atmosphere is one of a busy, organized industrial environment.

# A Guide to Warehouse Modernization for %companyname%

Tips and Strategies for a  
Successful Mobile Transformation

The background of the slide is a photograph of a large warehouse. It features tall, blue metal shelving units filled with numerous cardboard boxes on wooden pallets. The boxes are organized into rows and columns. In the lower-left foreground, a worker wearing a yellow hard hat, a light blue shirt, and dark pants is walking towards the right, pushing a pallet with a few boxes on it. The floor is a smooth, light-colored concrete. The overall lighting is somewhat dim, with the focus on the worker and the immediate shelving units.

Is %companyname%  
Ready for On-demand  
Supply Chain?

**Warehouses are facing immense pressure to keep up with customer demand and expectations**, and it's not a sudden or temporary trend. Omnichannel sales models and on-demand commerce have proliferated over the past decade, and they've permanently altered the warehousing industry in profound ways.

In just 10 years, warehouses have seen substantial changes:

- The average number of SKUs managed by a single warehouse has grown significantly.
- Order volumes have multiplied significantly across all commerce channels, as have item-level fulfillment levels.
- Many warehouse operations are simultaneously juggling distribution and fulfillment due to dramatic shifts in expectations in both B2B and B2C supply chains.
- Acceptable order turnaround time has dropped to 1-2 days or within hours.

- The warehouse labor pool has shrunk, driving up the cost of labor and forcing warehouses to work smarter and more efficiently to keep up with demand.
- Seasonal peaks throughout the year and annual turnover rates at around 30%+ in some operational areas require warehouses to train new workers faster than ever before.

## Common Challenges and Pain Points

Many warehouses have struggled to adapt to this new environment and keep up with growing demand and expectations because they've largely operated the same way and using the same systems and processes for 10 to 20 years or more.

While there have been incremental investments in warehouse modernization and new technologies over the years, previous efforts have mostly been reactionary and siloed. Many of the piecemealed hardware and software platforms that warehouse operators rely on

aren't capable of scaling to meet today's and tomorrow's demands. This creates a number of challenges that prevent the warehouse from operating at maximum efficiency.

## Inventory Issues

With more SKUs and order volumes to manage, there's more pressure on inventory accuracy and availability than ever before. But manual inventory counts, outdated systems, and



inefficient processes lead to persistent problems with inventory errors, out-of-stocks, and replenishment issues.

### **Lack of Supply Chain Visibility**

You can't manage what you can't see, and a lack of visibility into the supply chain and into activity across the warehouse means many businesses can't meet customer demands for better traceability, order tracking, and fulfillment performance.

### **Inefficient Picking**

Many warehouses can't keep up with order and turnaround demand because they're still relying on outdated and manual picking processes that impede productivity and increase the likelihood of human error. Workers are walking many miles per day, often on inefficient routes to inventory locations, and then relying on manual pick lists or juggling multiple mobile devices while they try to handle and pick orders.

### **Manual Data Entry**

While many warehouses are now using handheld mobile devices and scanners to

automate order and inventory management, others are still relying heavily on manual data entry, which slows down processes exponentially and creates endless opportunities for human error.

### **Poor Staff Communication**

Meeting today's customer demands requires warehouse managers and workers to collaborate and work together more efficiently, but disparate and disconnected communication systems can get in the way of the real-time coordination that's required for the job.

### **Lack of System Integration**

Many warehouses struggle with a lack of system integration, with systems that can't talk to each other or don't integrate seamlessly and easily, so they can't access and share the information they need, measure performance, or manage operations effectively.

## **The Way Forward Is Through Mobile Transformation**

The good news is that the latest innovations and developments in warehouse technologies



offer a way forward through mobile transformation. By making smart, targeted investments in mobile technologies throughout your warehouse, you can solve today's biggest challenges while modernizing your warehouse for tomorrow's opportunities.

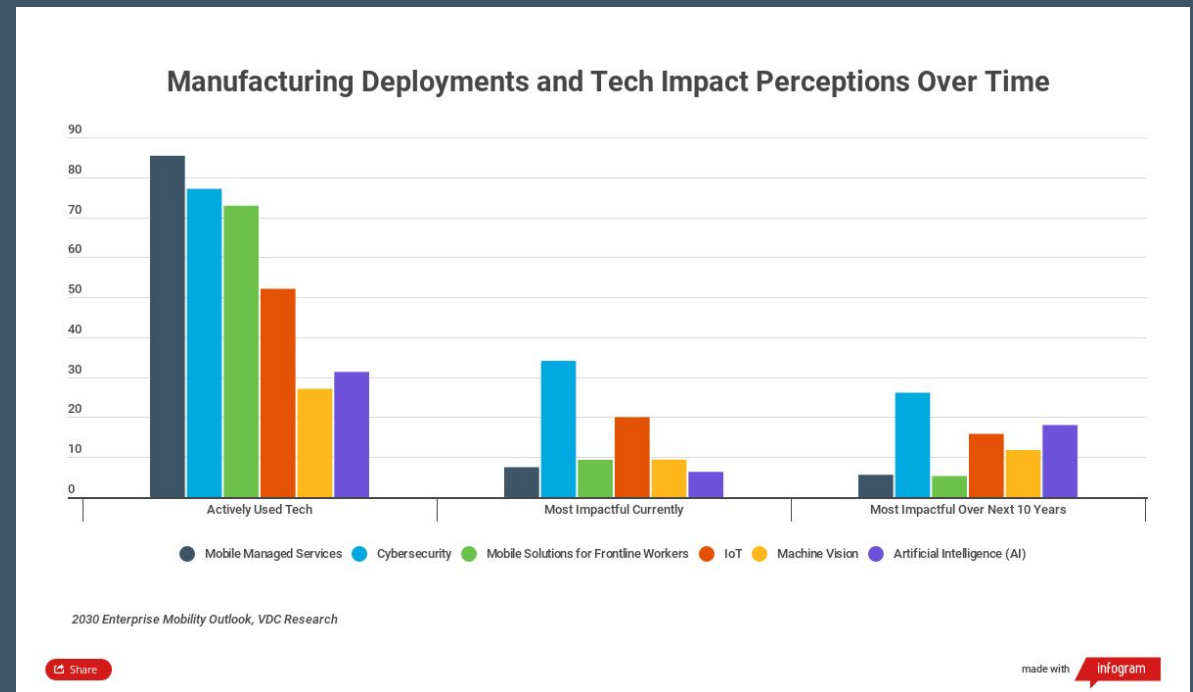
You can do this by implementing technologies to help automate and optimize processes throughout your operations, and by upgrading legacy systems and hardware to ensure you have the right solutions for the future ahead.

Of course, overhauling processes and systems that have been in place for many years isn't going to happen overnight, especially given the complexity of today's supply chains. This is where planning, strategy, and good execution can make all the difference.

In our next chapter, we're going to discuss the key considerations warehouses should keep in mind when planning a major mobile transformation.

## Manufacturing's Mobile Maturity

**30.5% to 37.7%:** The rate of Innovators in manufacturing compared to the overall average, placing them far behind in mobile maturity. Still, only **17.1%** of manufacturing organizations feel at high risk of tech-led disruption, which is lower than the overall average of **20.9%** and lower than any other single industry segment. This suggests a level of comfort among manufacturing operations regarding the capabilities of their tech stacks despite their lack of innovation.



# Key Considerations for Mobile Transformation

## New Mobile Technology Implementation

If you're in any way responsible for implementing new technologies in your organization, you've probably been down the deployment road many times. But no matter how often you've managed a new solution rollout, it always pays to step back, do a sanity check, and make sure you're accounting for all the key factors and considerations that will help ensure a successful implementation.

In our experience helping hundreds of companies successfully deploy new technologies, there are six core factors you should keep in mind when planning to implement new mobile solutions. While you may already be familiar with these in varying degrees, it's important to review and incorporate these factors in your mobile technology project, and revisit them often as you execute on the plan.

### 1. Environment

The number one consideration for any new mobile technology implementation is the

environment where your solution(s) will be used. Different working environments can ultimately dictate the types of solutions you may need to choose, including hardware characteristics and specs such as the following:

- Device form factors, sizes, and weights
- Connectivity and networking requirements
- Hardware durability requirements
- Resistance to extreme or unique environmental factors
- Safety certifications
- Security requirements

Mobile solutions typically need to fit into your environment in a number of these different ways, so make sure you're evaluating the right technologies for the job while balancing them against other end user needs.

### 2. Applications

Software applications are a big driver of mobile technology choices, and they can narrow down your options quickly. For example, if the warehouse management or ERP app you're using is written for Android, then obviously that

will eliminate Windows or iOS devices. You then need to focus on Android hardware, which restricts your choices but can also introduce new improvements in touch-enabled mobile interactions, a simpler and easier-to-use OS, and the ability to migrate "green screen" apps and your other mobile software to Android's user-friendly platform.



Security requirements such as support for single sign-on may also be important in choosing mobile solutions that will run your required software applications. It's also important to keep security in mind with your devices' operating system as well. You need to be sure you'll be able to get OS and security updates for years into the future, and not just for the default support period that the OS developer offers.

### 3. End Users

End user experience should be a crucial part of any mobile technology implementation, from evaluating and testing potential solutions to being the obvious targets of final training and implementation.

End users are the ones who are going to be using mobile devices in their specific workflows and processes, and they know better than anyone else what they need on the front lines to make their jobs easier and get work done more efficiently.

We've seen many use cases where end user input or feedback completely changed the game on hardware selection, and that's a good thing. In some processes, ergonomics and the weight of devices are critical. In others, it's screen size, scanning capabilities, or pure ease of use.

Bring your end users into your technology planning, so they can help you define, evaluate, design, and test the right solution for the job. While resistance to change can sometimes be a factor, when you give your end users a chance to test and work with mobile technologies before you implement them, you'll learn a lot about what works and what doesn't, and where you may need to adjust your plans accordingly. Additionally, bringing end users into the planning stages early increases user adoption.

### 4. Supportability

Ultimately, you can't use devices you can't support. Developing a plan to support your devices needs to be done in the earliest stages of your mobile technology implementation planning.

## Support Plan Questions

- What do you expect your support requirements to be?
- Are the devices you're considering going to reduce or increase support needs?
- What sort of support systems and processes will you need to have in place?
- What will those systems and that workload look like?
- Do we have a help desk for them to call if they have issues?
- How will you manage the repair and spare pool process?
- Who's going to handle and manage support throughout your devices' life cycles?
- Are you going to support everything in-house, or does it make sense to outsource?

# Connectivity Plan Questions

- How will your devices connect to your apps, networks, databases, and IT/OT infrastructure?
- Will you be using Wi-Fi or cellular connectivity, or will you need both?
- Do your devices need to connect inside or outside the four walls, or both?
- Will you be using batch updates if you need to use your mobile devices offline?
- Are there any specialized connectivity requirements for your mobile processes?
- Are there any environmental obstacles that could interfere with connectivity?
- Are there opportunities to use newer protocols or methods to improve connectivity?
- Is there a carrier data plan or a voice and data plan required? What do those expenses look like?

As you narrow down and evaluate technologies, you need to determine whether you have the resources and expertise to support them in-house or whether it will be more economical and efficient to work with a qualified technology partner to monitor, support, service, and repair the devices for you. Consider the key questions on page two when considering supportability.

## 5. Connectivity

Another key factor to consider with mobile technologies is connectivity. Make sure to ask some fundamental questions to make sure you're capturing your complete connectivity requirements and anticipating any potential limitations or issues before you choose any solution. Use the key Connectivity Plan questions on this page to help you determine your ideal connectivity options.

## 6. Short-Term vs. Long-Term Cost

Budget and costs are a major concern for many companies who want to implement new technologies. Many tend to focus on their short-term cost to implement new solutions – the

cost of the hardware, applications and security suites. But it's critical to weigh your short-term or up-front cost against the long-term value of your investment. Understanding the true total cost of ownership (TCO) requires you to consider the supplementary costs including Mobile Device Management, help desk/support services, spare pool and maintenance.

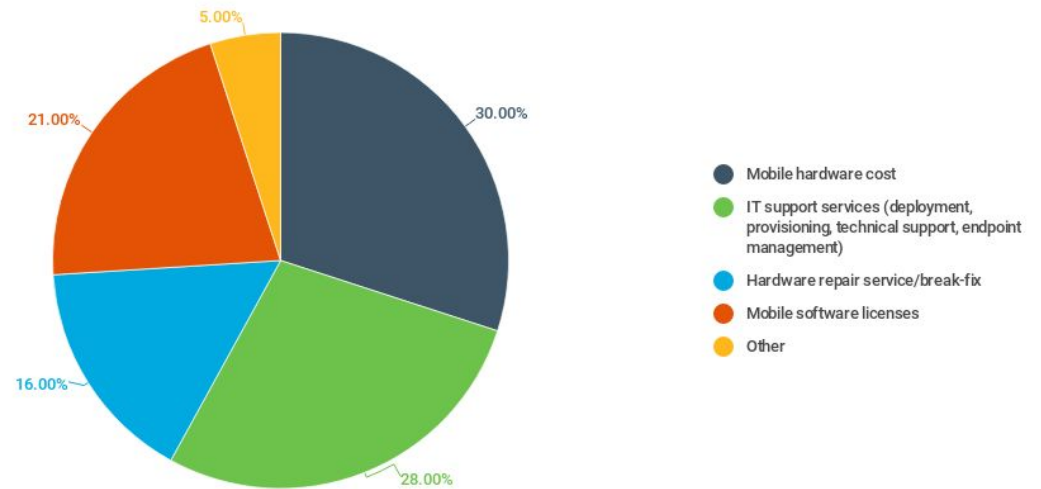
Do you want to save money in the near term even if it means you can't give your warehouse managers and workers the mobile technologies they really need to maximize productivity and efficiency? Have you considered the lifecycle of the mobile device and if it's a three year life cycle, there is going to be costs associated to having that equipment returned, disposing of it or ultimately dispositioned that need to be factored when you're looking at a TCO for your mobile solution.

Do you want to save on hardware costs by purchasing cheaper consumer-grade devices but end up with higher long-term costs due to damage and replacements because you didn't invest in more durable solutions? Have you

considered the mission criticality of the device? When a device breaks, will the end user need a replacement immediately or are they down and if so, how do we facilitate a ready replacement?

Have you factored in the hidden costs of mobile such as time spent managing a large number of vendors or investigating lost or stolen devices? This can really add up. In fact, according to a recent survey by VDC Research, 34.8% of manufacturers say the time and effort implementing new technology tools or infrastructure has an 'extremely significant' impact on total costs. We've seen a lot of businesses make the costly mistake of having a short-term vision when they could have saved a lot more money and made much better mobility gains by making smart long-term investments.

Warehouse & Manufacturing Average Percentage Breakdown for Mobile Spend



2021 Enterprise Mobility Outlook, VDC Research

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*Warehouse & Manufacturing respondents report the highest rates of capex models for mobile technologies by far, a possible point of friction as it relates to their flexibility and agility in more effectively responding to disruption.*

2021 Enterprise Mobility Outlook, VDC Research

## Workforce / Process Automation

Warehouses of the future will rely less and less on manual and labor-intensive processes. Instead, they'll use automation technologies to augment human labor and drive more productivity and efficiency wherever possible.



But a warehouse has multiple workflows, so you can't apply the same automation solutions everywhere in your operations. Different workflows require different technologies geared for each area and process. Each workflow presents an opportunity to use innovative new technologies to solve specific challenges in that area.

For example, in receiving and shipping, you will normally need forklift-based solutions, which have traditionally been vehicle-mounted mobile computers. But recent innovations allow mobile computers to serve as both a forklift-mounted and a handled mobile device that can be removed from the mount and taken wherever the operator needs access to critical apps.

In picking, entirely different technologies improve worker productivity, such as a hands-free wearable device. A good example is Zebra's complete hands-free voice-directed picking solution, where you can combine Zebra's wearable WT6000 Android touch mobile computer with a ring-style finger-worn barcode scanner, headset, and picking software to

enable more efficient workflows. Pickers access their next order through a mobile app that directs them to the correct warehouse location and helps them scan and verify each is correct with visual cues and voice audio instructions.

Beyond the mobile worker, there may be additional opportunities for automation, such as implementing radio frequency identification (RFID) to automatically track and locate products and inventory as they move through your warehouse. Systems such as these can be



Tags are a critical component of an RFID solution.

An introduction to RFID

used in combination with sensors and Internet of Things (IoT) technologies to create completely automated tracking and traceability processes, so you can eliminate manual-intensive activities and refocus your warehouse workforce on other business-critical tasks.

Opportunities and considerations such as these are relevant for every area and process in your warehouse. The key is to take a holistic view of your entire warehouse, from receiving to outbound shipping and all points in between. Understanding every process and end user may lead to a unique solution for each use case.

In the end, a holistic approach will help you see the bigger picture and identify the top priority opportunities to increase automation and improve your warehouse throughput and accuracy. This is where your technology partner can play a crucial role by sharing insights on the latest available mobile technologies and how different systems and solutions can be deployed and integrated to help automate your workforce and each warehouse process.

## Top Trends



### DRIVERS

**46%** cited faster delivery to end-customers as the primary factor driving their growth plans



### CHALLENGES

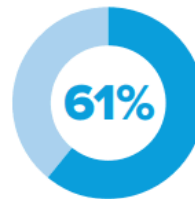
**60%** reported labor recruitment and/or labor efficiency and productivity among their top challenges



### STRATEGIES

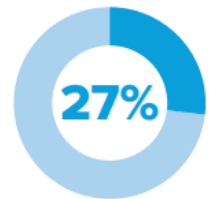
**80%** of organizations are planning to invest in new technologies to be competitive

## PLANS



**Partial Automation and Augmentation**  
(Equipping workers with devices and technology)  
61% will rely on a combination of humans and technology by 2024

**Full Automation**  
(No human involvement)  
27% plan to utilize full automation by 2024



## Mobile Technology Upgrade and Refreshes

There are many reasons why you might need to upgrade or refresh your current mobile technologies, but each case is also a potential opportunity to do more than just solve the initial challenge at hand.

For example, many warehouses were the first to adopt mobile technologies, but now these devices are nearing End of Life (EOL) or require a newer operating system (OS) to ensure continued security and support for their mobile platform. In most cases, this means investing in new devices that can run the latest OS options, but those same devices are unlocking many other benefits in their warehouse operations.

It might be as simple as your current warehouse management system (WMS) or enterprise resource planning system (ERP) running faster and more reliably on newer technology equipped with more processing power and memory. But by upgrading your mobile devices, you can also simplify your mobile workflows with Android touchscreen apps; replace more

paperwork by being able to scan barcodes, form fields, and signatures; and unify your voice, text, PBX phone, and push-to-talk communications through a single device.

There are many potential opportunities to speed up, optimize and improve warehouse processes by replacing aging and outdated mobile technologies. It's a chance to evaluate all your processes and find opportunities to integrate new hardware, a new OS, and new capabilities that can transform the way your warehouse runs – for the better.

As a reminder, make sure to take a holistic approach and look at the bigger picture of your warehouse for opportunities to leverage new mobile technologies to increase automation, productivity, and accuracy in everything you do. But don't forget to consider each workflow individually.

Different solutions, device types and form factors may be a better fit for certain areas, so don't take a one-size-fits-all approach. Make sure to consider each mobile workflow in its

own context as well as how it fits into the bigger picture of your operations. Then make sure you do your research and consult with the right experts to get guidance on the latest mobile devices and operating systems, their capabilities, and how these can be applied to each process for maximum benefit.



## Improving Inventory Management

Optimizing inventory management is an entirely new game today, with many potential opportunities for improvement. As you explore the possibilities for your warehouse, make sure you're up to speed on the latest developments and available mobile solutions for better inventory management.

These include the following solutions:

- Improving inventory visibility, forecasting, and replenishment with next-generation, software-based warehouse management systems (WMS) and enterprise resource planning systems (ERP).
- Automating inventory management and eliminating manual paperwork, processes, and inventory counts with mobile computing, barcoding, and radio frequency identification (RFID) technologies.
- Using radio frequency identification (RFID) and real-time locating systems (RTLS) to automatically identify, locate, and track inventory as it moves through your warehouse.
- Using advanced barcode imagers to capture and parse barcodes, form fields, text fields, signatures, addresses, phone numbers, and more.
- Replacing cumbersome and inefficient picking processes with hands-free, voice-directed mobile picking solutions that automatically cue orders and items to pick, direct warehouse workers to the correct pick locations along the most efficient paths, then validating correct picks with integrated barcode scanning devices.
- Deploying mobile technologies and tracking systems in receiving areas for traceability and optimization of put-away processes for better inventory management and future fulfillment needs.
- Using mobile computing and scanning technologies in staging and packing to verify and validate that correct items are packed and shipped.
- Using cameras, sensors, and RTLS technologies to optimize truck and trailer loading for better shipping accuracy and efficiency.

These are just some of the many examples of how today's warehouses are modernizing and deploying mobile technologies to help them improve their inventory management. Relevant solutions may vary based on your business needs and requirements, but there is a world of opportunities available, so make sure you have a clear understanding of what's out there and what could be a good fit for your business.



## Improving Asset Management, Visibility, and Control

Warehouse workflows are highly dependent on having the right mobile devices or other equipment in place, when they're needed, and making sure they're running optimally.

For example, a lost mobile device or an inability to quickly locate a required piece of equipment can bring a critical warehouse process to a halt. A failure to keep mobile devices updated with the latest security patches or to swap out failing batteries can create vulnerabilities and disrupt workflows as well.

There are many things that can go wrong when you can't track and manage your key assets properly. But many warehouses struggle with locating and tracking their assets, keeping them updated and properly maintained, and making sure they're in optimal health.

Fortunately, there are many ways to use today's mobile computing, barcode scanning, and RFID technologies to improve your asset management, visibility, and control. With the

right tracking technologies and asset management strategies and solutions, you can achieve significant gains:

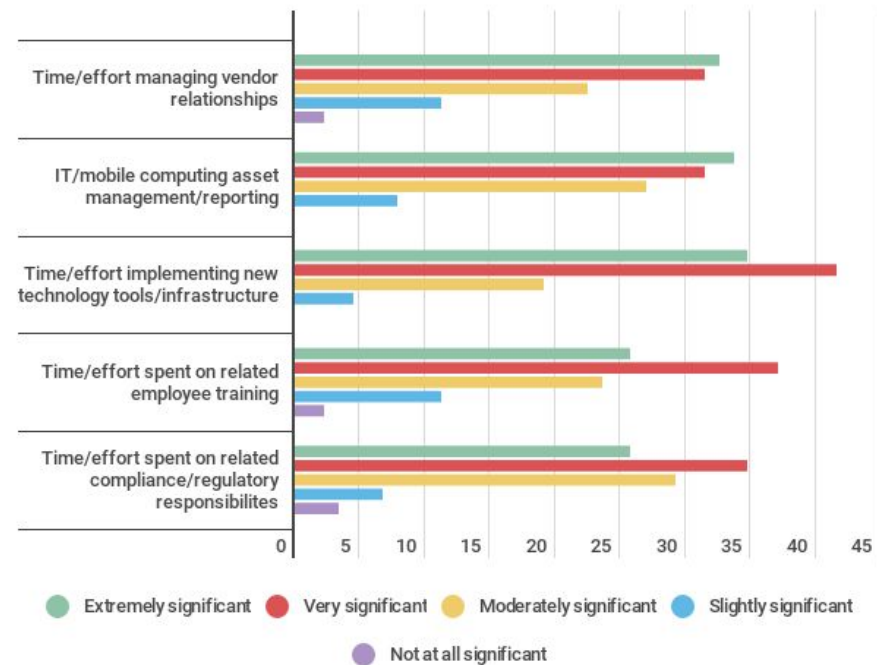
- Improve your asset management efficiency by having visibility into all the devices, tools and equipment that you use throughout your operations, all from a single pane of glass and accessible from virtually anywhere.
- Identify, track and locate warehouse equipment and vehicles when they're needed.
- Maintain service, repair, and maintenance records for warehouse equipment and other high-value assets.
- Track IT assets and other warehouse technologies such as smartphones, desktop and laptops, mobile devices, barcode scanners, headsets, and much more.



- Gather data from devices at the edge of your operations and gain insights into how they're performing, how they're being used, and where there may be bottlenecks or potential problems due to connectivity, network, hardware performance, or other issues.
- Make sure all your mobile devices are secure, charged, and ready to go for the end users that need them.
- Leverage comprehensive asset management insights to understand every process, every asset, and how to maximize the utilization and value of your devices and equipment.

As you explore opportunities to deploy or upgrade mobile solutions for better inventory management, workforce efficiency, and process improvement, don't forget to look for these ways to use mobile technologies and software to enhance your asset management as well.

**We asked Manufacturers & Warehouses to rate how significant each of the following soft costs related to their frontline IT infrastructure and mobile technologies are compared to their organization's overall investment on these resources.**



2021 Enterprise Mobility Outlook, Stratix & VDC Research

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## Reducing Technology Costs

Few technology executives or managers would turn down an opportunity to save on costs while getting the performance and results they need from a solution. But achieving that requires a long-term view of total cost of ownership (TCO) and an awareness of what kind of value and savings you can get over a solution's life cycle.

Short-term costs and budgets are important, but they must be balanced against long-term costs, return on investment, and actually getting the work done and achieving your warehouse improvement goals. With this in mind, here are a few key factors to consider as you look for ways to reduce technology and overall warehouse costs.

### Durability

Most warehouses need rugged, enterprise-grade devices built to withstand the rigors of their environment, from drops to concrete floors to extreme temperatures, dust, dirt, moisture, and all the wear-and-tear of all-day, everyday use in an industrial environment.

But not all enterprise-grade devices are created equal, and while some may seem less expensive up-front, they cost a lot more in terms of long-term repair and replacement expenses. Often, it's better to invest a bit more in the short-term for better durability specs and, ultimately, long-term durability.

### Consolidating Devices

Doing more with one device is another great way to lower TCO. By being able to access more functions and more capabilities with less hardware, you can purchase fewer devices and lower your related costs.

For example, when outfitting their managers with computing technologies to manage operations, some warehouses have replaced the need for separate office desktop or laptop computers with a 2-in-1 rugged tablet solution.

Enterprise-grade tablet-style computers are now available with high-end computing capabilities as well as detachable and magnetically storable keyboards and other accessories that allow them to be used as both



an office computer and as a portable tablet. This means managers don't have to be tied to their desks and can take their business-critical apps and the speed and power of a laptop wherever they need to be in the warehouse.

Maximize the value of your mobile technology investment by considering multi-purpose devices and consult with a good technology provider to help you design a solution based on the unique needs for your warehouse and end users.

## Mobile Device as a Service (MDaaS)

Just as software as a service (SaaS) revolutionized software purchasing models, mobile device as a service (MDaaS) is now a great new way to save money and avoid big up-front capital expenditures when you need to implement new mobile technologies.

MDaaS works much like SaaS, where you pay a flat monthly fee per device you use in your warehouse. And just like SaaS, it offers several key advantages over traditional purchasing models including:

### Predictable Monthly Spend

With MDaaS, you pay a flat monthly fee per device, encompassing all the life cycle services and support to meet your business and operating needs. There are never any 'surprises' and instead of having to invest a large sum against your CapEX budget, you can roll the costs into your OpEx budget and implement new solutions more affordably.

### Easy Technology Upgrades

Instead of a five-year depreciation for devices, the MDaaS model allows you to upgrade and refresh your technologies as often as every two years, when it makes sense for your business to do so, rather than being based on a financial depreciation schedule.

### Bundled Support

The MDaaS model also includes end-to-end support and life cycle management for all your mobile devices. That means your devices and end users will be supported throughout the life of the device while it's in your employ – when a device gets broken, you have a replacement in 24-hours and you never have extra fees.

### Single Point of Contact

With a MDaaS agreement, you can also enjoy the convenience of a single point of contact for all your hardware, implementation, support, and customer service needs. For example, at Stratix, we manage all the mobile devices for many of our customers, through a single pane of glass, and they're able to work with a dedicated representative who manages their account and their hardware so they can stay focused on other pressing issues in their business.

## Why Mobile as a Service Makes Sense

63%

of respondents in a survey of global companies considered **mobility** to be their **most important** factor in gaining competitive advantage<sup>1</sup>



10,000+

employee organizations spend an average of **\$1,408** for mobile enablement per employee over a two-year contract period<sup>4</sup>



Mobile technology refreshes in

**2 years or less**

while traditional desktops and accessories still have a **five-year depreciation** cycle<sup>2, 3</sup>

A person wearing a yellow hard hat and a dark blue shirt is seen from behind, holding a tablet. The tablet screen displays a "Logistics" dashboard with a map, location pins, and various icons. The background is a blurred warehouse setting with a forklift and stacked boxes. A network of white lines and dots is overlaid on the image, suggesting a digital or data-driven environment. A vertical bar with a green-to-blue gradient is located on the right side of the image.

# Creating a Blueprint for Successful Transformation

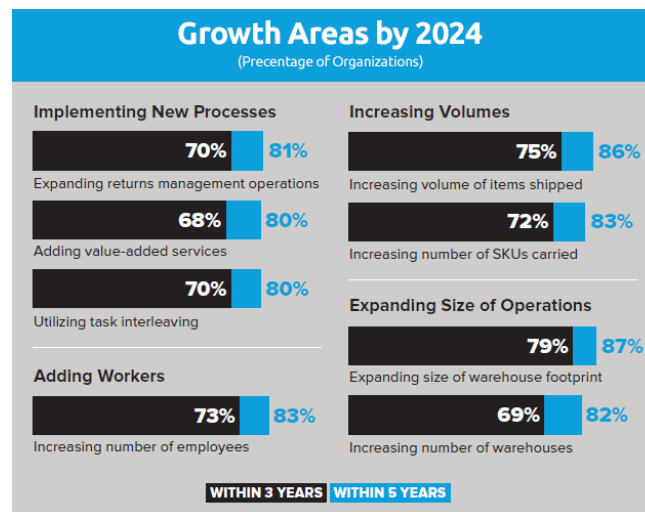
## Why Mobile Technology Initiatives Fail to Reach Their Goals

While mobile-led digital transformation is critical to remaining competitive and efficient, these transformation initiatives are extremely complex and often fail. There are many factors that can contribute to a failed or stalled initiative, including:

- A failure to secure executive buy-in and support
- Lack of end user input into solution selection
- Lack of internal expertise and resources to manage project complexity
- Discovery of IT infrastructure, networking and other problems that prevent transformation
- Problems with solution usability and end user adoption
- Long-term struggles with device management, updates and lifecycle management

Addressing these challenges comes with significant complexities that many organizations don't have internal resources to manage. For example, while 77% of respondents in a recent

Zebra Technologies [Warehouse Vision study](#) agreed that augmenting their workers with technology was the best way to introduce automation in the warehouse, only 35% of them said they had a clear understanding of where to start.



These numbers illustrate the importance of having a clear roadmap for exactly how to implement your mobile transformation initiative. If you don't plan out the entire solution and lay it out in a project plan to ensure that all the pieces fall into place at the correct

time, there's a good chance your transformation is going to fail. If you haven't considered and outlined the right factors, strategies and steps for each piece of the project, each one of those areas could be a potential failure point.

However, if you lay everything out in an end-to-end project plan, with the final objective clearly stated and all the right factors and strategies considered and outlined, you're virtually guaranteed success. Depending on your role in the process, there are some key strategies for planning success that you should keep in mind.



## Strategies for Mobile Technology Success

IT teams and departments typically have a few core issues they're looking to avoid in any mobile technology rollout. Ultimately, you want to avoid solutions that cost too much, are too complicated, or don't fit into your existing IT support and resource model. Here are a few ways to ensure success.

### End-to-End Planning

Every technology project is a bit different, but it all goes back to the planning phase at the beginning. If you don't plan for every detail and make sure all the pieces are there, then your rollout won't be successful. Take the extra time and make the extra effort to be exhaustive at the planning stage, so everything that follows can be more efficient, effective, and successful.

Additionally, make sure there is someone managing the project with specific expertise in the solution so that they can successfully plan and direct the entire process. Complex mobile projects require not only the use of proven methodologies to track and anticipate critical

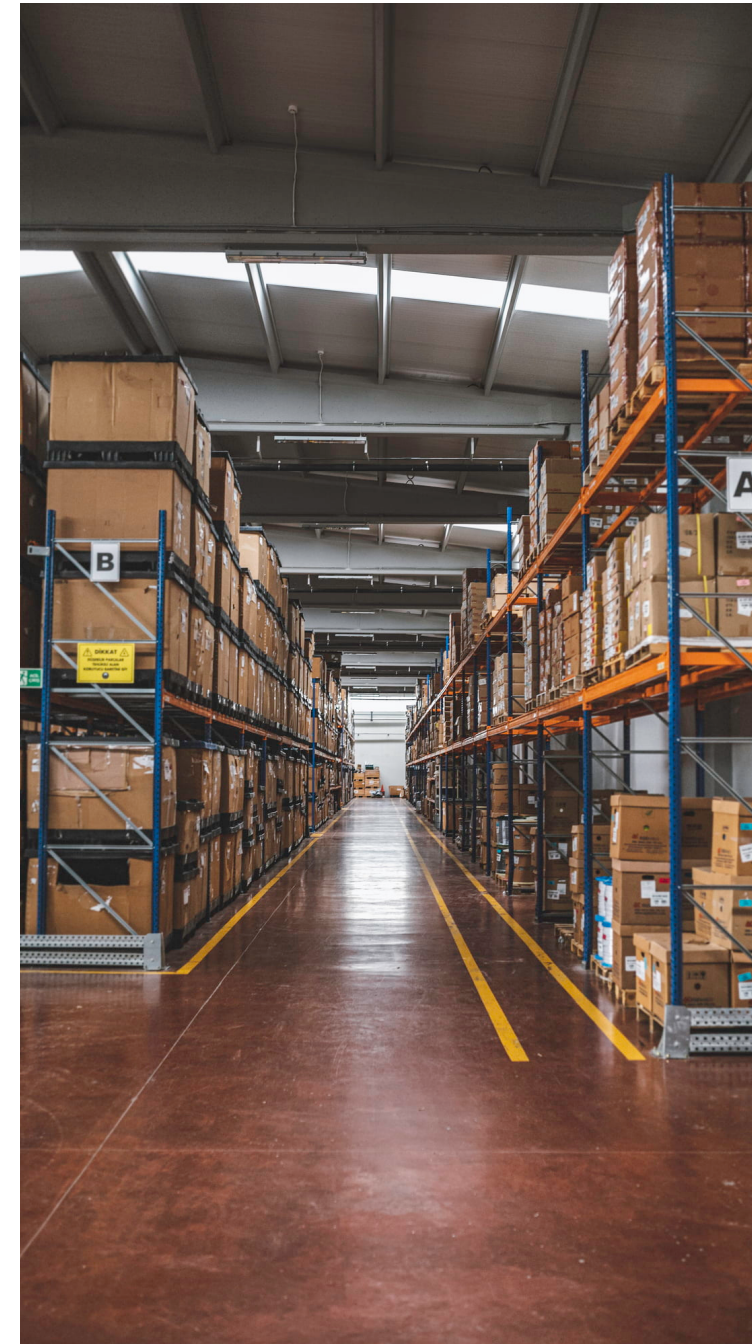
factors through all phases of the project but also the ability to manage unique challenges that can arise. A project manager doesn't have to be someone within your organization. If your internal resources or expertise has limits, consider working with a managed mobility services partner to help you plan, design, test, deploy, train, and support your solution.

### Technology Selection

Bring in somebody who has the experience implementing the technologies you might need to implement and that has good relationships working with the various vendors of those technologies. Getting advice and guidance from experts who know the latest available solutions, understand the implications of upcoming changes (like 5G), can recommend potential hardware, and help you test and validate them can save you a lot of time and effort in research.

### Integration into Legacy Systems

A big challenge for many warehouses is that they can't simply replace all their current systems at once. You may want and need to implement new mobile technologies, but you



may also need to integrate them seamlessly with legacy systems.

Take heart, there are readily available warehouse management software solutions, WHS or an ERP. There's almost always a mobile hardware and software package that will allow you to use that existing legacy solution on a new mobile device, with a new OS.

There are also many ways to port over from Windows to Android or from keypad to touch-enabled solutions. For example, Zebra's All-Touch Terminal Emulation is a software solution

that enables the conversion of legacy "green screen" telnet apps to beautiful Android all-touch mobile apps that your implementation partner would bring. Solutions like these are great ways to keep using legacy systems on the back end while completely transforming the front-end user experience with the latest mobile operating systems and hardware.

### **Building a 5-Year Blueprint**

Warehouses don't like to change unless they absolutely have to, so be sure to build out a five-year blueprint for your project, not just a short-term plan.

For example, some mobile solutions require changes to software or major updates every six months. If you don't implement those updates, then you may end up with software or devices that are unusable. You want to have control over your solutions and think long term, so you can avoid being tied to these kinds of updates.

Fortunately, there are other solutions that are designed to run for 5 to 10 years and aren't tied to specific OS updates or other changes that could cause pain in your warehouse. By building a plan or blueprint for 5 years or more, you can take advantage of solutions like these and



better anticipate other issues that would otherwise derail your warehouse technology initiative.

### Support

Any new mobile technology launch isn't just about day one; it's also about day two and beyond. You need to know how you're going to support your solution, keep it operational, and minimize downtime or user issues with a proper support process. As we highlighted earlier, whether you're going to provide and manage support internally or externally, or through a hybrid approach, your support plan will need to be comprehensive and consider the end user, the devices, and your expected business outcomes. You need a comprehensive plan.

## Key Elements of Comprehensive Support

- Help desk support: What hours of coverage, SLAs, and application knowledge do they need to have?
- Device repair and replacement: How mission-critical are your devices? Do you need 24-hour replacement? Are repairs covered?
- New devices: As your company grows, your business demands expand, and you hire more employees, how easy is it to add additional devices to cover your needs?
- Security and patch management: How will you push updates and upgrades?
- Asset management: Do you know where your devices are? Do you have enough spare pool to cover?

***77% of respondents agree that augmenting workers with technology is the best way to introduce automation in the warehouse***

Zebra Technologies [Warehouse Vision study](#)

The background image shows a person from behind, wearing a yellow hard hat and a dark blue long-sleeved shirt. They are holding a tablet computer in their left hand. The tablet screen displays a "Logistics" application with a map, location pins, and various icons. The person is standing in a warehouse or industrial setting, with a forklift and stacked boxes visible in the background. A network of white lines and dots is overlaid on the image, suggesting a digital or data-driven environment. A bright light source is visible in the upper left, creating a lens flare effect.

# Creating a Blueprint for Successful Transformation

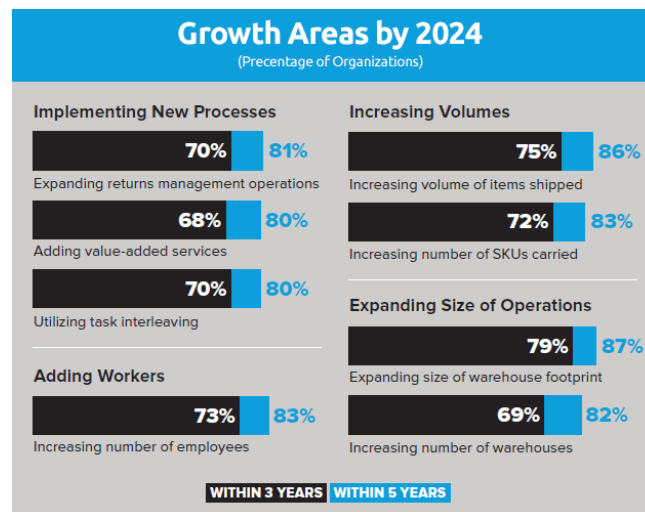
## Why Mobile Technology Initiatives Fail to Reach Their Goals

While mobile-led digital transformation is critical to remaining competitive and efficient, these transformation initiatives are extremely complex and often fail. There are many factors that can contribute to a failed or stalled initiative, including:

- A failure to secure executive buy-in and support
- Lack of end user input into solution selection
- Lack of internal expertise and resources to manage project complexity
- Discovery of IT infrastructure, networking and other problems that prevent transformation
- Problems with solution usability and end user adoption
- Long-term struggles with device management, updates and lifecycle management

Addressing these challenges comes with significant complexities that many organizations don't have internal resources to manage. For example, while 77% of respondents in a recent

Zebra Technologies [Warehouse Vision study](#) agreed that augmenting their workers with technology was the best way to introduce automation in the warehouse, only 35% of them said they had a clear understanding of where to start.



These numbers illustrate the importance of having a clear roadmap for exactly how to implement your mobile transformation initiative. If you don't plan out the entire solution and lay it out in a project plan to ensure that all the pieces fall into place at the correct

time, there's a good chance your transformation is going to fail. If you haven't considered and outlined the right factors, strategies and steps for each piece of the project, each one of those areas could be a potential failure point.

However, if you lay everything out in an end-to-end project plan, with the final objective clearly stated and all the right factors and strategies considered and outlined, you're virtually guaranteed success. Depending on your role in the process, there are some key strategies for planning success that you should keep in mind.



## Strategies for Mobile Technology Success

Operations teams typically have different goals than IT when it comes to mobile technology transformations. Ultimately, operations wants to avoid solutions that don't meet process needs and are too complicated for end users. And they want solutions to work and be reliable whenever they're needed. Here are a few guidelines for helping make sure all these requirements are met.

### Focusing on Use Cases

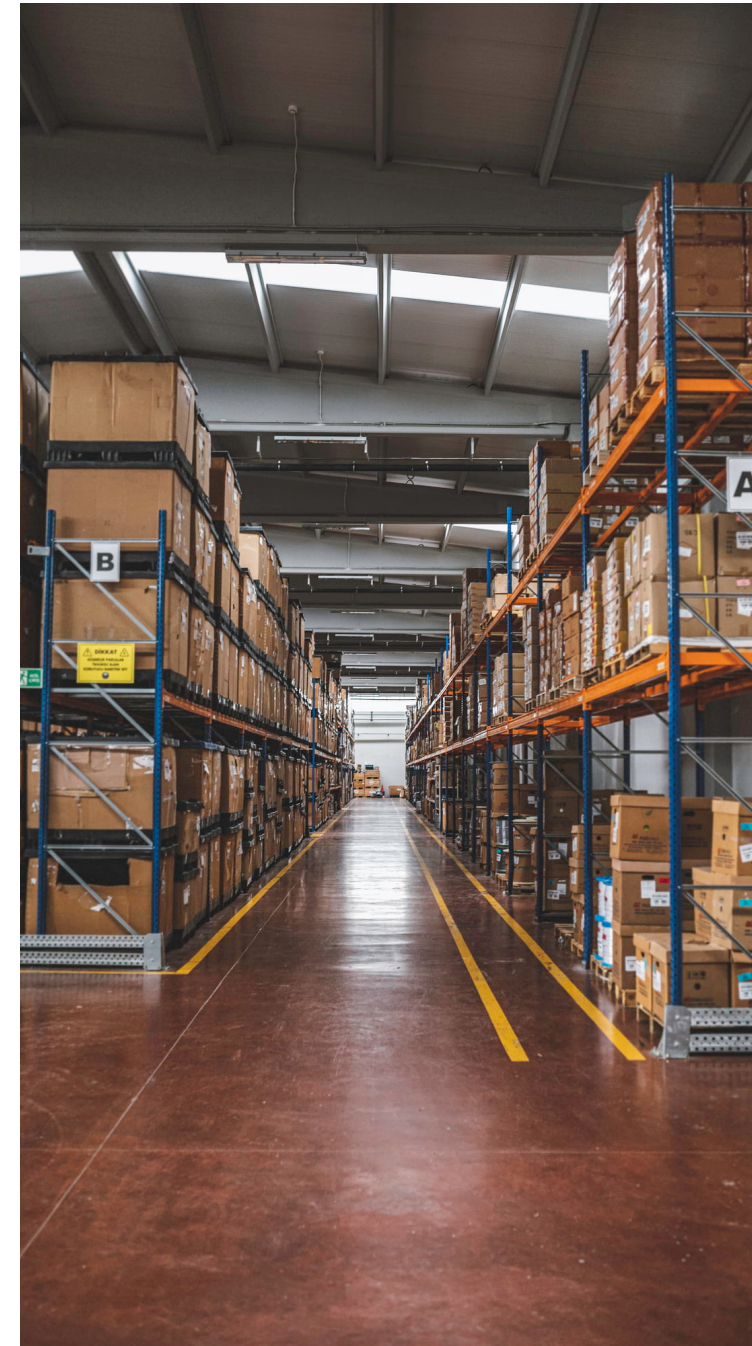
When you're looking to use mobile technology to modernize, automate, and optimize your warehouse, it's operations, not IT, that will determine the use case. Operations determine the business goals and needs, the use case, and how end users are going to use any proposed technology.

As an operations leader, you need to work on each of these areas and do your part to build out those aspects of the overall plan. Take all your goals, needs, use cases, and users into consideration, and get guidance on the right solutions for them.

While IT will tend to focus on the technical side and how solutions might integrate with your existing IT infrastructure and networks, you need to take leadership on how solutions need to help automate and optimize workflows and processes, and how they'll help you meet your business goals and outcomes.

For example, you may need devices in your operations that can be shared and used by multiple workers on different shifts. The handoff needs to be quick, simple and seamless, so you may need a solution with secure single sign-on that allows a user to grab a device and automatically sign out the previous user and quickly sign into the device and all mobile apps and services by using one login and authentication process.

It's important to keep testing and training in mind as well, serving as an advocate to ensure your end users are part of the rollout process and receive the right training and instruction to ensure they can use your solutions successfully.



## Ensuring Solution Adoption

Get your end users involved in the process as early as possible, and especially during solution selection. Give them options to evaluate and consider. You don't want to give them too many options, but you need to give them enough for them to feel that they've chosen the solution that meets their needs.

User feedback is essential to help you find the right solutions and can often make the difference between a successful implementation and a disastrous failure where

you have to change mobile devices, change software choices, or otherwise re-work an entire solution because you didn't get it right the first time.

For example, we've seen several cases where the warehouse workforce was quite young and didn't like big, rugged handheld devices. They wanted something smaller and sleeker that they could carry around more easily. In these cases, the warehouse listened to their feedback and chose smaller, more compact mobile devices that still had good durability specs and

accessories to help enhance their ruggedness without sacrificing a smaller form factor.

By listening to their end users and getting them involved in technology evaluation, they avoided potential resistance to adoption and created an immediately positive and receptive atmosphere for the final rollout.

## Integration into Existing Processes

Unless you're deliberately implementing mobile technologies to reinvent or replace a particular process, you'll probably need to choose and



design solutions to fit into your existing warehouse workflows and processes.

As an operations leader, you should determine what's needed in terms of those workflows and processes, and IT will help determine the required mobile capabilities, hardware, software, and support .

But one of the biggest concerns that most warehouses have about implementing new technologies is the possibility that a new solution rollout will disrupt existing processes. The key to avoiding disruption is to do a phased rollout, where you don't shut down any current processes. Instead, you can work off-shift to do an implementation, or you can break it into smaller, manageable stages that minimize any temporary disruptions or interruptions.

Pilot tests, validation, and testing are also big keys to successful integration into existing processes. Take the time to test your solutions first, validate their efficacy, and then do your due diligence with user training to make sure everyone is ready to switch over to your new

solution and an updated or improved process once the time comes.

### **Support**

Many warehouses just leave the issue of technology support to IT, but it's one that every leader involved in a new mobile technology initiative should keep in mind.

Any new mobile technology launch isn't just about day one. It's also about day two and beyond. You need to know how your solution and your end users will be supported. You need to know what the support process will be and how you will keep your solution operational and minimize downtime or user issues.

Whether IT is going to provide and manage support internally or you decide to outsource support externally, you will need a good support plan in place. Make sure your project has planned for these needs and that you've defined the support process and will have all the right resources in place to enable it.

## **Key Considerations of a Good Support Plan**

- Help desk support: What hours of coverage, SLAs, and application knowledge do they need to have?
- Device repair and replacement: How mission-critical are your devices? Do you need 24-hour replacement? Are repairs covered?
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## Measuring Success

Measuring the success of a mobile technology rollout can be difficult, particularly if you want to measure on a large scale, across an entire implementation. To make things easier and help you define success, it's often better to start smaller by running a pilot.

Don't roll out the entire solution and then measure. Instead, start with your existing processes and what you can measure now. Let that help you define your potential success. Will it be in terms of more productivity, more efficiency, reduced error counts, or some other metric?

Then run a pilot and roll out a small subset of your solution, with all the processes mapped out and measurements in place. Provide the devices and training, run the pilot, and then

measure the outcomes. If you achieve your goals and your users are happy, then that's success.

It's also important to remember to measure current performance and defined success for each use case, and then pilot and evaluate the specific solutions for each of those cases. You can start with one area, get it done, and then move on to another. You can't just assume that the success of one solution for one area means all your other solutions are going to work well and generate similar results in other workflows and processes.



*467% of Manufacturers & Warehouses outsource device repair/replacement services and 33% outsource call center/IT support.*

[2021 Enterprise Mobility Outlook](#), Stratix & VDC Research

The background image shows a person from behind, wearing a yellow hard hat and a dark blue long-sleeved shirt. They are holding a tablet computer in their left hand. The tablet screen displays a "Logistics" application with a map, location pins, and various icons. The person is standing in a warehouse or industrial setting, with a forklift and stacked boxes visible in the blurred background. A network of white lines and dots is overlaid on the image, suggesting a digital or data-driven theme. A bright light source creates a lens flare effect in the upper left.

# Creating a Blueprint for Successful Transformation

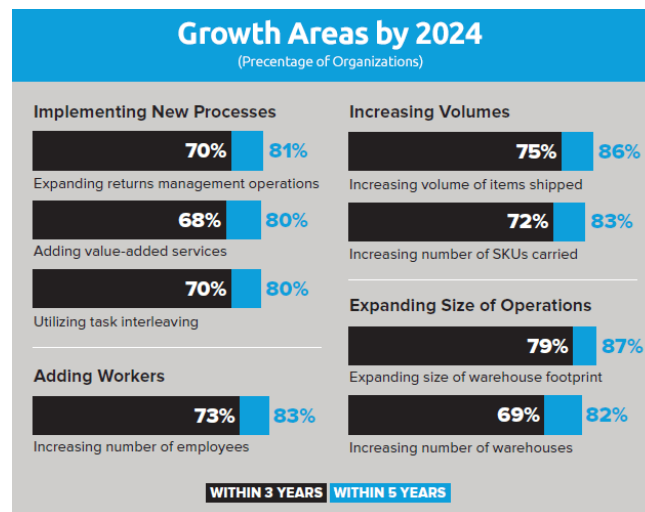
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time, there's a good chance your transformation is going to fail. If you haven't considered and outlined the right factors, strategies and steps for each piece of the project, each one of those areas could be a potential failure point.

However, if you lay everything out in an end-to-end project plan, with the final objective clearly stated and all the right factors and strategies considered and outlined, you're virtually guaranteed success. Depending on your role in the process, there are some key strategies for planning success that you should keep in mind.



## Strategies for Mobile Technology Success

Balancing organizational needs in any complex mobile technology rollout has to be well planned and executed for success. Operationally, you want avoid solutions that don't meet process needs and are too complicated for end users, and from a technology perspective your solution needs to address the cost, security and support resources required to implement and manage. Here are a few guidelines for helping make sure all these requirements are met:

### End-to-End Planning

Every technology project is a bit different, but the success all goes back to the planning phase at the beginning. You have to lay out your project requirements, exactly what's going to be done, when, and by whom up-front.

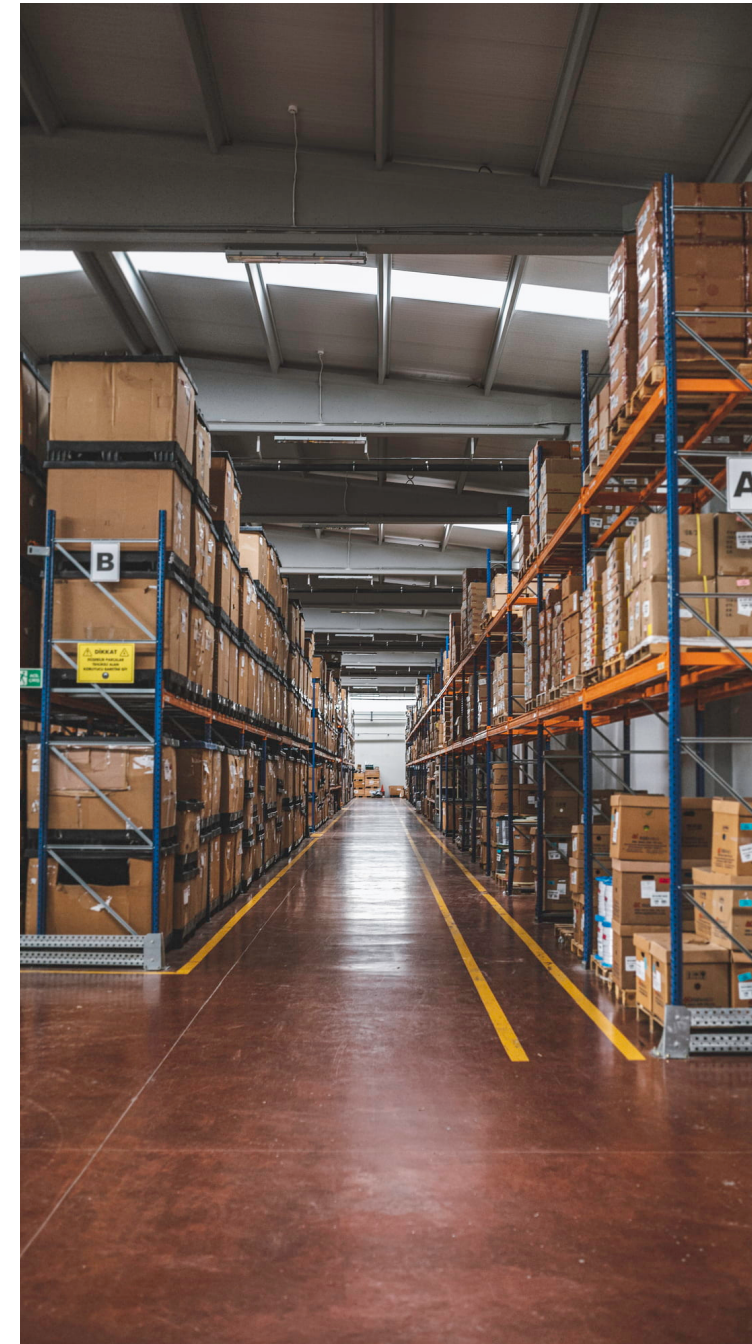
If you don't plan for every detail, including what the end user experience will be and how they'll interact with the solution, then you are likely setting yourself up for significant challenges in order to reap the desired benefits of your

mobile program. It's critical to put forth the effort to build an exhaustive blueprint so everything else that follows can be more efficient, effective, and ultimately successful.

Additionally, make sure there is someone dedicated to managing the project with specific expertise in the solution who can successfully plan and direct the entire process. Complex mobile projects require the use of proven methodologies to track and anticipate critical factors through all phases of the project and be able to manage unique challenges that can arise. That doesn't have to be someone within your organization. If your internal resources or expertise has limits, consider working with a managed mobility services partner to help you plan, design, test, deploy, train, and support your solution.

### Long-Term Planning

Warehouses don't like to change unless they absolutely have to, so make sure to plan your project and evaluate your technology solutions for the long-term.



For example, some mobile solutions require changes to software or major updates every six months. If you don't or can't implement those updates, then you may end up with software or devices that are unusable. So you want to have control over your solutions and think long-term, so you can avoid these kinds of issues.

Fortunately, there are other solutions that are designed to run for five to 10 years and aren't tied to specific OS updates or other changes that could cause pain in your warehouse. By building a plan or blueprint for 5 years or more, you can take advantage of solutions like these

and better anticipate other issues that would otherwise derail your warehouse technology initiative.

### Technology Selection

Ultimately, you can achieve success with a mobile technology implementation by looking at several crucial factors as you evaluate your options. You need to:

- Look at your environment and the different workflows you have
- Find technologies that are supportable and that your end users will accept

Make sure your solutions are cost-effective and cost-justified  
Ensure your solutions allow you to achieve your goals while saving resources

To help you along the way, leverage partners with experience designing solutions for your specific use cases. Getting advice and guidance from experts who can educate you on the latest available solutions, recommend potential hardware, and help you test and validate them can save you a lot of potential grief later.



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A photograph of four people walking through a large warehouse aisle. On the left, a woman in a blue polo shirt and jeans carries a yellow hard hat. Next to her, a woman in a light-colored blazer and trousers looks at a tablet. On the right, a woman in a blue polo shirt and jeans also carries a yellow hard hat, walking alongside a man in a blue polo shirt and jeans. They are all smiling and appear to be in a collaborative work environment. The background is filled with tall blue metal shelving units stacked with cardboard boxes and pallets. A sign with the word "Logistics" is visible on one of the shelving units.

# The Value of Working with Technology Partners

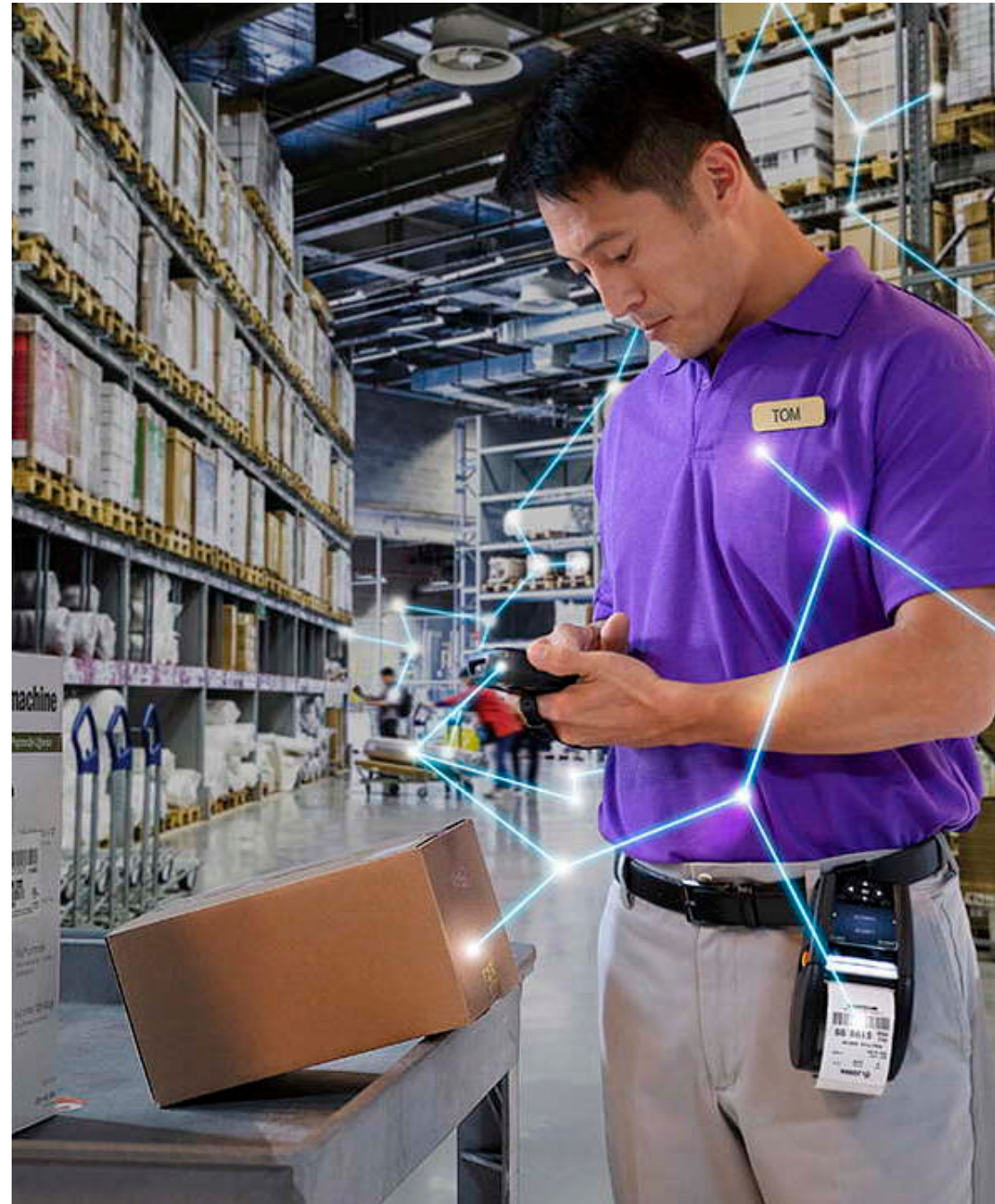
## The Value of Mobility Experience

When grappling with the challenges and opportunities of mobile warehouse transformation, one of the best allies you can call upon is an experienced and valuable technology partner. With the world of mobile technology and the demands on today's warehouses continuously evolving, it pays to work with experts who are always up to date on the latest technologies and have proven experience in helping tackle the unique challenges of warehouses across all types, sizes and industries.

A good technology partner will help you analyze and assess your current warehouse processes, systems, and mobile solutions, helping you identify the best opportunities for improvement and prioritize the key areas where you can make the smartest and most cost-effective investments.

This way, you can evaluate the true value of investments in mobile technology, identify potential hidden or unexpected costs, get an accurate estimate of your total cost of ownership, and get help in choosing solutions that will enable the improvements you want to achieve at the most affordable cost.

A good technology partner will also leverage its expertise and partnerships to help you with system design, implementation, and support, so you can improve warehouse productivity, efficiency, and cost-effectiveness while also creating a flexible and scalable infrastructure to enable continuous improvement and future adaptability.



At Stratix, we do this every day by working with strategic partners such as Zebra Technologies to help our customers modernize and create smarter, more efficient warehouses that have a clear competitive edge in today's marketplace.

We do it by bringing together industry leading mobile technology expertise, solutions, system design, deployment, and support services. And we leverage them all to help you tackle your biggest challenges, both today and tomorrow, with proven solutions that have transformed warehousing operations worldwide.

If you're ready to take your next step on the path to mobile transformation, we're here to help. Contact us now to start a conversation, and let's find out how Stratix and Zebra can team up to help you build a better warehouse.



## How a Digital-Led Business Continuity Plan Benefits Your Warehouse

Until March 2020, most business continuity plans focused on things like the chance of fire, natural disasters, and cyber attacks. Few foresaw a global health crisis on the scale of COVID-19 and the incredible levels of disruption it brought. Now, company leaders are vowing not to be caught out again. Their business continuity plan checklists include everything from rethinking how to maintain resilient supply chains to building in the nimbleness needed to keep operating in a world where social distancing is required.

While many organizations were able to transition numbers of employees to work-from-home when the pandemic began, that wasn't possible for frontline workers in warehouses, distribution centers, and manufacturing.

[Read Blog](#)

## About Stratix

Stratix is the most experienced managed mobility service provider in North America. Stratix's SmartMobile programs ensure that your company has the right technology, tools, and support to run your business, improve customer service, and grow revenue. We take the time to learn your unique business processes and develop managed services programs that enable flexibility, scalability, and growth in your business.

With Stratix, there's no need to manage rollouts, coordinate multiple third parties, staff a help desk, support spare pools, and oversee service and repair delivery. We handle everything on-shore, 24x7x365—providing real-time visibility to your mobile fleet, ensuring Nonstop Mobility and the freedom to run, improve, and grow your business.

This knowledge drives the recommendations Stratix makes, ensuring that each solution includes the devices, services, and technologies best suited to your needs and environment. That's why companies that rely on mobile technologies to drive business, rely on Stratix to support their mobility. For more information, visit: [www.stratixcorp.com](http://www.stratixcorp.com)



Stratix Overview

Learn more about SmartMobile Services for the Entire Supply Chain through the Stratix and Zebra partnership.

[Learn More](#)

## About Zebra

You may not always see Zebra, but Zebra solutions can be found working behind the scenes in many industries around the world. Founded in 1969, Zebra develops technologies that ensure every asset and worker on the edge is visible, connected to the data they need, and guided with clear and accurate insights to help them optimize real-time workflows, operations, and decisions for efficient, impactful results.

Zebra empowers the front line of business to achieve a maximum performance edge in warehousing, retail/ecommerce, manufacturing, transportation and logistics, healthcare, public sector, and many other industries.

With more than 10,000 partners across 100 countries, Zebra provides better visibility through industry-tailored, end-to-end solutions that intelligently connect people, assets, and data to help you make business-critical decisions.

Across the globe, where businesses and people find their edge, Zebra is there.



Stratix and Zebra Mobility Solutions

## Zebra At-a-Glance

**Year Founded:** 1969

**Patents:** 4,400+

**Channel Partners:** 10,000+

**Global Offices:** 100+ in 45 countries

**Employees:** ~8,200

**Zebra Portfolio:** Barcode Printing, Mobile Computing, Data Capture, Locationing, Data Platforms, Software, Services, Supplies

## Thank you for reading "A Guide to Warehouse Modernization"

If you have any questions or would like to speak with a mobility specialist, fill out the form or schedule a meeting at your convenience.

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