



**Wireless Technology Migration: Mitigating Risk And
Increasing Supply Chain Efficiency In the Food Industry**



Wireless Technology Migration: Why and When?

Food safety and traceability, lot recalls, and foodservice supply chain accountability are all topics that have grabbed headlines across the nation. At the same time, consumers are demanding more information about the products they consume in terms of nutritional information, ingredients, expiration dates and other variable information. Many food supply chain management solutions rely on wireless technology for Automatic Identification/Data Capture (AIDC) to ensure supply chain efficiency. With the rapid evolution of wireless networks along with compliance issues and ever-changing logistics, migration to advanced wireless systems is inevitable. It's also necessary: failure to adapt has negative implications with both suppliers and customers and technology missteps could potentially lead to significant downtime and costly workarounds. This paper helps identify businesses that should migrate to newer wireless technologies, and offers a road map that will help you discover the best possible technology management partner.

Driving Factors Behind Wireless Migration

Many organizations have experienced the benefits of wireless technologies for Automatic Identification/Data Capture including improved speed and accuracy of inventory counts and lower costs. Moving from a paper-based or manual process to an automated system results in tangible ROI. However, when migrating to newer technology after having experienced the initial results of automated processes, ROI is not always the driving factor. Instead, outdated technology, security concerns and

compliance requirements are forcing companies throughout industries to consider migrating to advanced wireless systems for supply chain operations. Failure to upgrade to newer, more advanced technologies could potentially impact productivity and lead to significant downtime, security vulnerabilities and non-compliance issues. Any one of these issues alone can not only have a huge impact on a company's bottom line but can seriously jeopardize the organization's success.

Outdated Technology

Since the late 1980's, AIDC technology has been experiencing a product life cycle decline. Through a series of standardizations and technology updates, the lifetime for AIDC devices has gone from an 8 to 10-year cycle to a 2 to 3-year cycle. Legacy infrastructure components adopted in the past 4-5 years, such as switches, access points, ports, and components, as well as wireless devices such as hand held terminals are currently or will soon be at the end of life.

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Because newer technology is becoming more prevalent, service offered for these older products is also shrinking and the window of availability for replacement parts is closing. Users of older technology can't easily get the parts required to repair or replace products to ensure their data collection systems are up and running at optimum efficiency. Not only is it hard to get the product, but it is also increasingly

difficult and more expensive to get it serviced.

In addition, older wireless technology doesn't support new features and functions that are proving to be so valuable to supply chain operations. While the general features such as higher speed, and brighter displays may be subjective points that don't require wireless technology migration, there are plenty of new features and functions that do. For example, features that have the ability to support newer applications like voice recognition, and RFID technology are being utilized to automate and increase productivity. Old text-based, green screen interfaces are being replaced by GUI (point

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and click) and HTML web-based interfaces. And, as companies upgrade functionality in their ERP systems, moving to newer wireless technology enables them to leverage the full benefits of back-end systems. While many companies were early adopters of wireless technology, many of those same companies limit themselves today by using older wireless technology that does not support advanced applications.

Common Platforms

To further complicate the situation, platform standardization becomes next to impossible when using older wireless technology and as acquisitions become more prevalent, standardization has become a key IT initiative. Many companies are joining together and trying to integrate countless

devices and solutions across disparate operations. Standardization is top of mind for many companies because having a hybrid of technologies causes issues including channel interference, terminal end user and encryption code concerns, as well as vendor management and infrastructure support problems. Cost of ownership increases because companies can't support all of the combined technologies and can't share technical resources (such as a common spares pool), which increases costs and complicates maintenance and management.

Take, for example, a global manufacturer operating over 100 facilities worldwide with an extensive, global distribution network. Beginning in the late 90's, the company pursued an acquisition and consolidation strategy that more than tripled its revenue to over \$5 billion. Since that time, the company has focused on integrating the acquired businesses to promote best practices globally. The supply chain applications vary by location and include close to 700 label printers from 24 different manufacturers and over 700 data collection devices from 10 different manufacturers.

As part of the company's aggressive restructuring and productivity improvement initiative, the company pursued a technology migration plan that will allow them to meet their business needs, reduce cost of ownership and help standardize platforms across their enterprise. In this case, the company turned to outside support to help them develop and navigate through a technology migration plan that would provide numerous options and benefits including:

- Reduced spares cost and training costs, increased uptime, and increased ease

in technology migration through the selection of a common technical platform

- A reduction in the number of integration, configuration and implementation items
- An elimination of finger-pointing and unclear vendor responsibilities
- Increased efficiencies in ordering and paying for product through the centralization of AIDC procurement with an outside partner

Wireless Security Standards

As wireless technology continues to change, so do wireless security standards. Best practices surrounding security of older technologies are also driving migration as companies are becoming increasingly vulnerable to breaches in network security. If information is compromised, consider how long it would take, and what the cost would be, to recover the information and get the system back up and running.

Equipment that was manufactured when wireless first came into existence does not meet the latest wireless security standards. For example, 802.11-based equipment manufactured prior to 2003 met the original wireless security standard, known as *WEP (Wired Equivalent Privacy)*. WEP was intended, as the name suggests, to offer the equivalent of wired security but WEP quickly proved to have a large number of vulnerabilities. The WLAN industry responded with a new standard, WPA (Wi-Fi Protected Access), which implements the majority of the IEEE 802.11i standard, and was intended as an intermediate measure to take the place of WEP while 802.11i was

being prepared. WPA2 implements the full 802.11i protocol and is based on the final IEEE 802.11i amendment to the 802.11 standard. Now any equipment manufactured after November 2003 that bears the Wi-Fi compatible logo must implement WPA or WPA2 security.

Compliance

Another driving force for wireless migration is regulatory compliance. The security, privacy and reporting of data have all been recently addressed through regulations such as the Health Insurance Portability and Accountability Act (HIPAA), the Sarbanes-Oxley Act (SOX) and the Payment Card Industry Data Security Standard (PCI-DSS).

Each of these requires companies to ensure the data within their walls is secure. *HIPAA* provides security and privacy of consumer healthcare information and the *Sarbanes-Oxley Act, (SOX)*, was enacted to combat corporate accounting scandals. *SOX* helps detect errors, monitors transactional integrity, and prevents fraudulent or unauthorized activities. And if a company takes credit card information anywhere across its wireless network, *Payment Card Industry Data Security Standard (PCI-DSS)* compliance is also required to monitor security risks across the consortium of credit card information.

While it is an involved and sometimes complicated process for companies to comply with their industry regulations, consider the alternative of non-compliance. The legal ramifications could include tremendous cost through hefty fines, loss of customer or client trust, and potential jail time for C-level executives.

Organizations across industries continue to be faced with new regulations and standards

that require compliance. Even the US House of Representatives has taken decisive action by passing the Food Safety Enhancement Act on July 31, 2009. In addition, 55 foodservice manufacturers, distributors, and operators have launched the Foodservice GSI Standards Initiative, and have funded the GS1 US Team for Foodservice to guide execution. Industry organizations and founding members of the Foodservice GS1 US Standards Initiative cite three main objectives and industry-wide benefits as a result of companies choosing to adopt and implement GS1 standards: one of which is to improve food safety AND traceability. Companies striving to achieve Supply chain efficiency in food manufacturing and distribution, like other organizations, are faced with the challenge of meeting internal company goals while complying with changing and growing industry standards and regulations.

Take, for instance, one of the biggest known theft of credit card numbers to date. A major, multi-billion dollar retailer reportedly fell vulnerable to hackers who broke into their system and stole at least 45 million credit card and debit card numbers from about a years worth of records. The hackers, who were never caught, were believed to obtain the information by sitting in parking lots outside the company's stores and using antennas and lap-top computers to decode data streaming through the air between the store's hand-held terminals, cash registers and the company's computer system. Allegedly, the company was operating on a wireless network with less security than many people have on their home networks.

While the total cost of the fraud may take years to surface, a technology research firm estimated that the breach-related bill for the company could reach more than \$1 billion

over five years including costs for security upgrades, consultants, attorney fees and additional marketing to regain trust from customers who may have been effected. In addition to credit card and debit card numbers, the hackers were able to gain access to personal information including addresses and social security numbers that could be used in identity theft. The ripples of the breach are still effecting multiple parties; from the company, to their customers, to the banks who spent several hundred thousand dollars in replacing cards and investigating fraudulent charges. The bottom line: the situation may have easily been prevented had the company operated with updated security standards supported by the wireless industry.

Getting Started with Wireless Migration

Choose the Right Partner

Ensuring information is secure within the supply chain, complying with all the latest government and retailer mandates, and taking advantage of all the latest features

Examples of key items to discuss with your integration partner:

- *Determine a single point of contact*
- *Ask for a pre-installation checklist for each location*
- *Look for proven methodologies for your type of installation*
- *Ask for a timeline—Find out who is doing what and when*
- *Ask for documents that define clear requirements and acceptance criteria*
- *Document how critical issues are going to be addressed for the life of the system*

and functions to save time and money can seem like a daunting task. A successful technology migration path is one that is well thought out and defined before the process even begins. To truly mitigate risk when migrating to newer wireless technology, many companies turn to industry experts to help define their migration path, and work with them through deployment and on-going support.

When selecting outsourced expertise for a technology migration project, companies should consider their expectations, resources and limitations to determine what type of partner would be the best fit for them.

Fulfillment versus Consultative Approach

Organizations that have internal resources, who have experience and knowledge with technology migration and are able to defer their daily responsibilities to devote their time to a successful migration project, might choose a fulfillment approach. In this scenario, the company simply requires a partner that can provide hardware.

However, many companies recognize the potential complications of using internal resources that may not have the specific knowledge, experience and even certifications that a technology migration partner offers. They recognize the danger of losing internal resources through issues including turnover, reassignment to other projects, or other distractions that can leave the project without the expertise that was supposed to drive it to completion. To prevent these possible downfalls to a smooth technology migration project, many companies turn to a consultative partner for expertise as well as current best practices and unbiased knowledge on wireless systems. Consultative partners approach technology migration by determining the

business requirements and defining the best-fit solution to meet those requirements and deliver the greatest benefits. They will weigh the advantages and disadvantages of a hybrid solution for your particular technology migration project and can offer multi-vendor product support.

Whether you choose a fulfillment partner or a consultative partner, it's important to do a background check. When you are researching your partner, consider the following questions:

- What are their comprehensive offerings? In addition to product questions also consider support, maintenance, consulting and all of the associated professional and life cycle services.
- Do they offer project methodologies that have been benchmarked, documented and proven with a quality metric? (i.e. ISO, TQM, etc.)
- Do they have functional, industry and market certifications? Make sure your potential partner is certified in products, processes and people.
- What is their geographic reach? Does the partner offer broadly distributed resources to provide quick response to multi-site requirements?
- Does your potential partner provide a service agreement document that describes the minimum performance criteria and describes any remedial actions and penalties that will take effect if their product's performance falls below a promised standard?
- What is their track record? Are their customers satisfied? Do they offer references or testimonials?
- What is their long-term market presence? Will they still be in business

when it's time for upgrades or even routine maintenance and support?

Finding the right partner for wireless applications, integration and services will promote new levels of productivity and bring the peace-of-mind that accompanies a well-planned and executed wireless technology migration.

In addition, gathering the appropriate information about prospective partners and setting expectations upfront will eliminate questions, finger pointing and confusion in the long run. To ensure a smooth technology migration project and prevent any unexpected problems, companies should be thorough in their preparation. Many companies benefit from the guidance of an experienced technology partner who can walk them through the project and help them avoid common downfalls.

Choose the Right Hardware

With the wide range of products and solutions available, it is important to consider whether you want to choose a single vendor solution or a mixed environment. This decision will affect your spares pool, system costs and support management depending on how many vendors you are working with.

When thinking about your current needs, consider the following questions:

- What are your ergonomic, feature-function, technological and environmental needs? Take into consideration characteristics like the weight, size and mobility of the units.
- Are there temperature parameters? Are there condensation, precipitation and vibration specifications?

- What are the ergonomic issues for the entire solution? If you are considering handheld units, should they be wearable? Do you need vehicle mounts?
- How far along in the life cycle is the product you are considering? Is it an emerging technology or is it six months away from obsolescence?

It is also important to consider your future needs such as whether you are going to incorporate applications including RFID or voice recognition into your solution. Working with a technology migration partner can help you build a scalable solution that will grow with future requirements and save time and money in adopting future applications.

Service and Support: Beyond Implementation

When selecting a partner, companies should carefully consider the extent of support they will require after the initial implementation of the updated technology. Again, companies need to carefully examine their own internal abilities and resources to determine if maintaining their wireless solution is something they can accomplish efficiently in-house or if outsourced support would be more cost-efficient. There are three basic support options to consider:

- Self-support
- Shared support
- Outsourced support

Self Support

Self-support is the best option if there is extensive knowledge within the end-user's IT department to handle any and all problems that may arise.

Shared Support

Some companies want to handle the tier one level support, but would like help with tier two and tier three IT issues. A shared support program would be best for this type of company.

Outsourced Support

The final option is to completely outsource support and enlist a knowledgeable partner to provide expertise and stay on top of the continually evolving technologies and ever-changing compliance requirements and security standards.

Conclusion

Wireless migration is in dynamic transition. The strategy to use your own resources to save money may actually over extend in-house capabilities, especially when new technologies are encountered.

An outside solutions provider and systems integrator experienced with multiple vendors can provide invaluable expertise from consultation and analysis to implementation, service and support. Many companies find that it pays to choose a partner who understands the complexities of the ever-changing technology management environment, along with its standards, certification and integration issues. A proven partner is one that offers differentiated knowledge of new technologies, industry best practices, as well as network and wireless interface protocol changes. These comprehensive capabilities can mitigate the risk of wireless technology migration and provide long-term value for your AIDC applications.

ABOUT LXE

LXE helps companies extend corporate networks to mobile workers in demanding conditions by providing easy-to-use, tough and reliable wireless computers. LXE rugged mobile computers are used by organizations to drive down costs and improve customer satisfaction.

LXE develops innovative handheld, vehicle-mounted and wearable mobile computers with integrated wireless and automatic-identification technologies, backed by worldwide customer support. The company collaborates with customers and a network of technology, software and reseller partners to create winning solutions.

About PEAK Technologies

PEAK Technologies, a Platinum Equity Company, is a systems integrator of supply chain automation and inventory management solutions delivering tangible return on investment to some of the world's largest corporations. PEAK's primary applications include solutions for warehousing, manufacturing, and distribution operations. PEAK's portfolio of solutions and services include business process consulting, enterprise resource planning (ERP) systems integration, wireless professional services, project management, printing/media solutions, and life-cycle support services. PEAK Technologies has locations throughout North America providing a comprehensive "foot print" for national, multi-site life cycle service and support.