

Are Smartphones and Tablets Suitable for Use in Warehouse and Distribution Center Operations?



Sponsored by:

Honeywell

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Conducted by:

PRG
PEERLESS RESEARCH GROUP

On behalf of:

Logistics
MANAGEMENT

Background

With the widespread popularity of Apple's iPhone, iPad and Android-operated cell phones and tablets, these devices are garnering greater acceptance as a highly practical and relevant technology for use in the workplace. Trial of these devices for new types of business applications, and specifically experimentation in warehouses and distribution centers, is expected to continue. These devices are familiar to users, are user-friendly, offer a breadth of features, support numerous pre-existing apps, cost less than an enterprise device, and for any application required in warehouse and DC operations, programmers are available to custom-develop solutions! So it would all seem to add up that smartphones and tablets may, indeed, be viable solutions to better manage material handling and logistics processes.

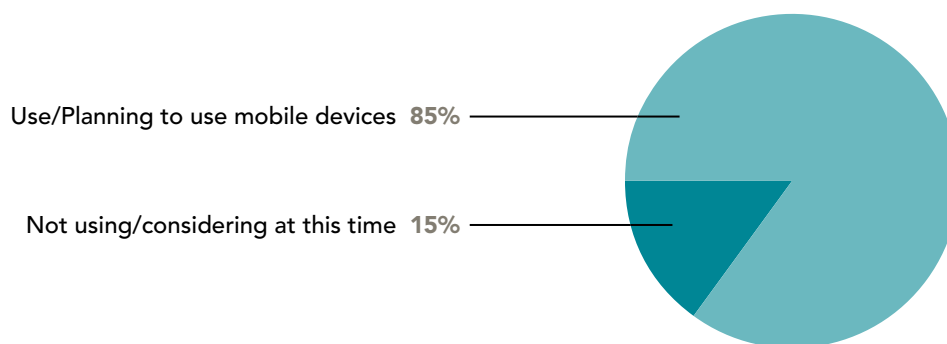
However, a few key hurdles still need to be tackled before these devices are acknowledged as a worthwhile solution. Uncertainties such as durability in highly dynamic warehouse and DC environments, and connectivity and WMS application platform compatibility have come into question. Furthermore, applicability in warehouse and DC operations is in its early stages as these devices are typically being used only for messaging, and not data collection. Implementation of smartphones and tablets are likely to gain greater traction once applications are designed for advancing warehouse and DC processes and when these devices are employed as a 'business tool.'

A recent study conducted among logistics (transportation) and warehouse managers by Peerless Research Group on behalf of *Logistics Management* magazine for **Honeywell Scanning & Mobility**, reveals that these smartphone and tablet devices are of great interest to warehouse and transportation companies, and in some cases are already being tested and deployed for demanding real-world applications.

Use of Mobile Devices in Warehouse and DC Environments

Many of the directors and managers we surveyed are either using or planning to use some type of mobile device to help manage their warehouse, distribution, or logistics processes.

Use of Mobile Devices for Warehouse, Distribution or Logistics Operations



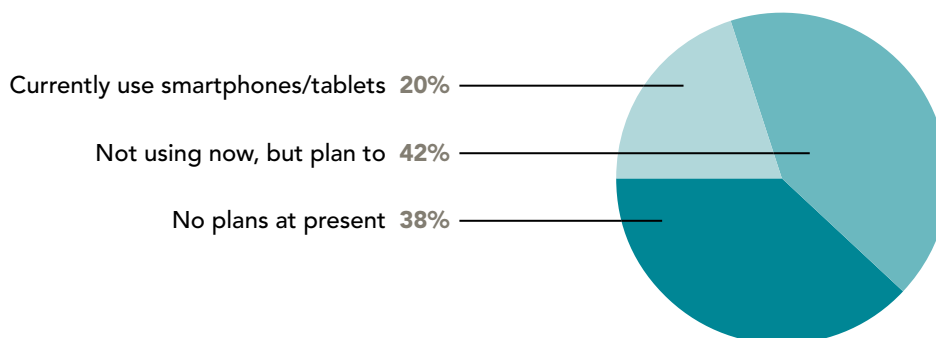
Are Smartphones and Tablets Suitable for Use in Warehouse and Distribution Center Operations

These rugged enterprise units are most prevalent in shipping and receiving departments, distribution centers and warehousing facilities that support manufacturing processes. In addition, roughly one in five are utilizing mobile computers for their fleet management operations to better facilitate track and trace tasks, improve overall customer service, upgrade communications with drivers and monitor fuel consumption and costs.

Acceptance of Smartphones and Tablets for Use in Warehouses and DCs

A subset of early adopters within the warehouse and DC environments surveyed are using smartphones and tablets today. Increased evaluation as a potential solution is anticipated in 2013. While one out of five are using these devices for logistics applications, those indicating they will be evaluating or adopting these devices will more than double (42%) over the next year. It was further noted that, in some instances, these devices are also being viewed as a possible replacement for management laptops for use in warehouses and DCs.

Use of Smartphones and Tablets in Warehouse, DC Operations



"All of our employees have smartphones for personal use and they are comfortable with them. Apps work well once the interface with Windows apps is figured out."

—Logistics Manager
Computers & Electronics
<\$50M in revs.

"There is a high level of acceptance and familiarity by everyone from our OTR drivers to warehouse and office personnel. There is a huge upside in operations if familiarity can be leveraged for efficiency gains."

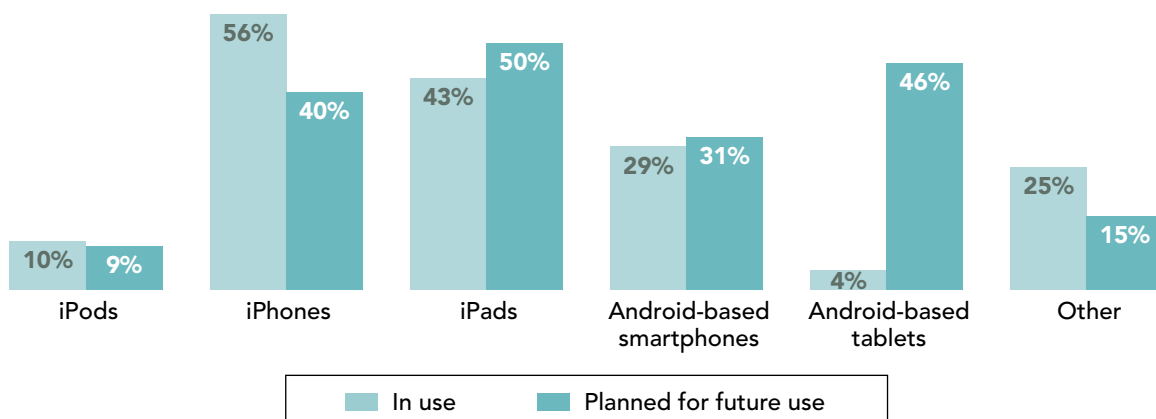
—Project Manager
Manufacturing
\$50M

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Among the products currently in use, Apple's iPhone (56%) and iPad (43%) are the most common. Android-based smartphones (29%) also enjoy widespread usage.

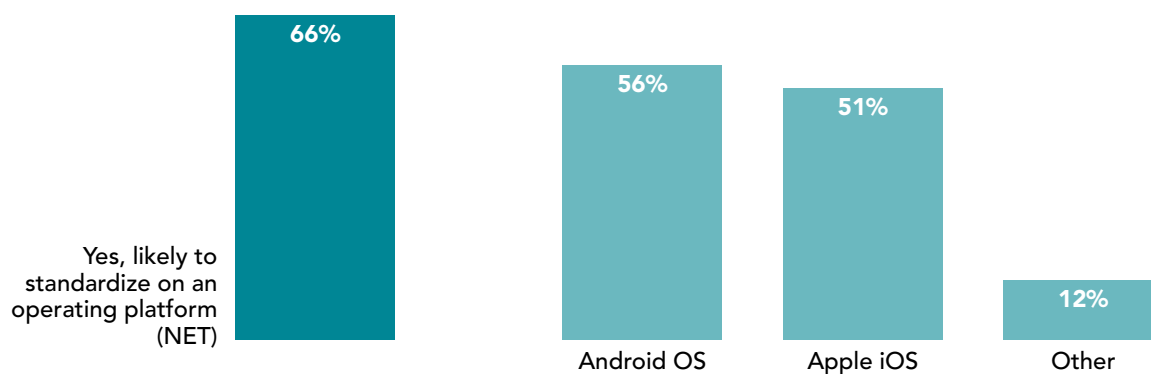
However, it's the tablet-type systems that are expected to gain greater scrutiny in warehouses, DCs and transportation systems in the upcoming months. Roughly one-half of those we surveyed claim they'll consider adoption of either Apple's iPad or Android-based tablets for future material handling applications.

Smartphones and Tablets Usage



It's also likely that many operations will standardize on either the iOS or Android platform for their smartphone class devices. Of those inclined to standardize, their system of choice is equally split. Slightly more than one-half expect to establish either Android-based systems (57%) and/or the Apple iOS (51%) as primary operating systems.

Likelihood of Standardizing on the iOS and/or Android Platform



Characteristics Considered Important When Evaluating Smartphones for Warehouse/DC Use

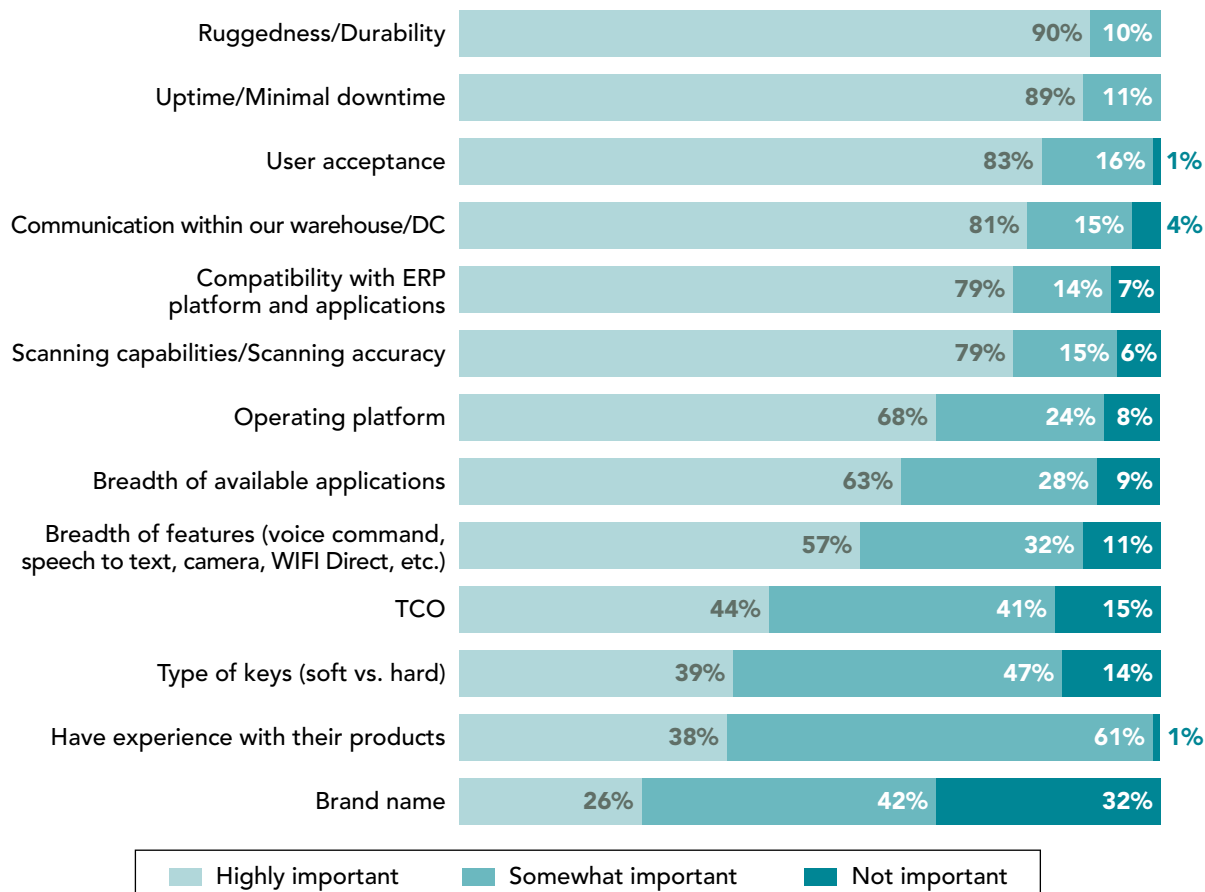
Factors such as ruggedness, product reliability, user acceptance, communications capabilities, systems compatibility, and scanning functionality are all critical when considering Apple or Android mobile devices for warehouse usage. The survey indicated there is a statistically high percentage of respondents indicating that these issues are a significant concern.

Type of keypad (soft vs. hard), being a well-known brand name and, and cost of ownership are less important factors to these buyers.

“Mobile, real-time in your shirt pocket access saves time and distance. We can make decisions on the floor in real-time to control outcomes now vs. printing reports after the fact.”

—Sr. Supply Chain Management
Retail
\$2.5B+

Characteristics Considered Important When Evaluating iOS or Android Devices



“We are just now installing a new ERP system and mobile devices will greatly enhance our users’ ability to quickly and accurately perform necessary system operations without the need to travel to terminals or other stationary input.”

—Sr. Supply Chain Management
Paper Goods
<\$50M

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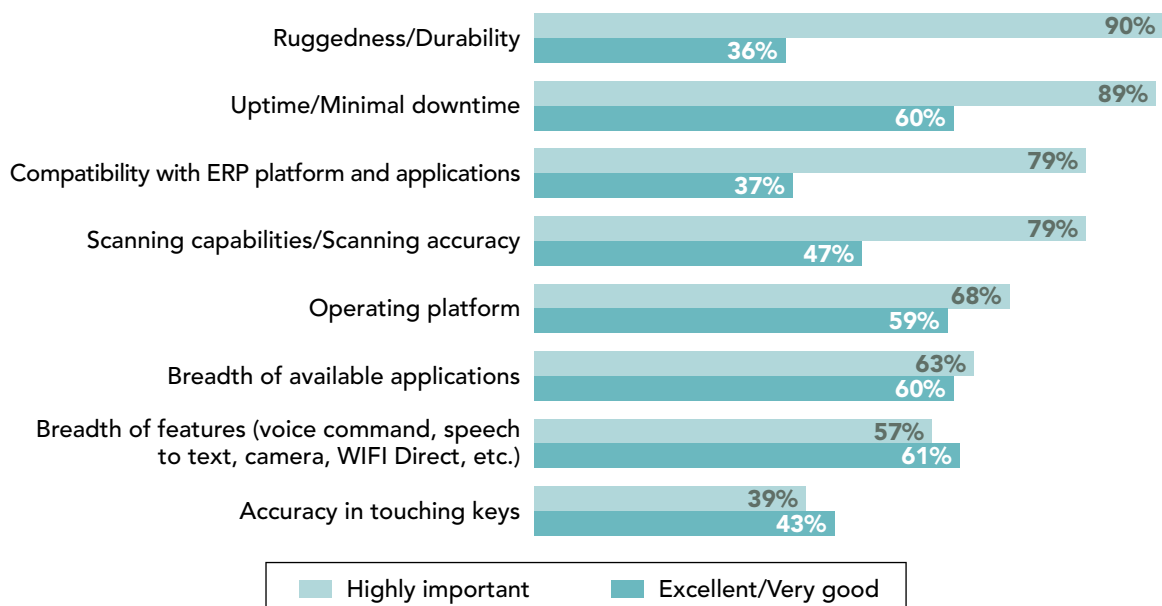
At present, these devices come up short in meeting some of the more critical user requirements and, as a consequence, adoption for warehouse and DC applications may be tempered. For many, these devices do not possess the durability needed in warehousing or DC facilities. There are added concerns over an absence of robust and relevant warehouse-specific applications, compatibility with organization's ERP systems and applications, or that they may not possess the necessary scanning capabilities.

However, these devices do satisfy user standards for being able to accommodate a wide range of applications, possessing a full set of product features and running on a reliable operating platform.

"We would adopt Apple iOS devices or Android tablets/smartphones for use if they were more durable for manufacturing and integrated well with our SAP system."

—Logistics Management
Food & Beverage
\$250M - \$499.9M

Satisfaction with Apple and Android Devices on Key Characteristics



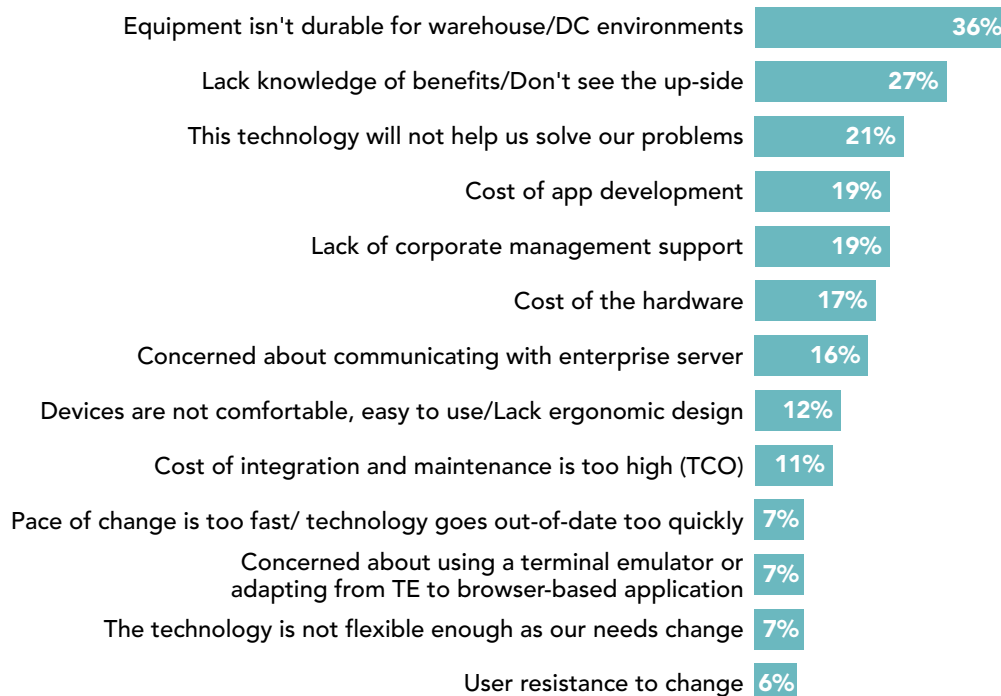
Reasons for Non-Adoption of Smartphones and Tablets

Reasons for not using any of these devices vary. Product durability, availability of applications and their functionality, price and ROI of hardware, costs associated with custom application development, a lack of corporate management support, and a failure to understand benefits to be gained are all listed as possible deterrents for these managers.

"I'm not sure I understand the capability of these devices as they apply to warehouse functions."

—Planning Supervisor
Chemicals
\$50M - \$99.9M

Reasons for Neither Using nor Considering Apple or Android Devices



"These devices need to be more ergonomic, more rugged, and if all other apps could be locked down to keep employees from being distracted."

—Logistics Manager
Retail
\$50M - \$99.9M

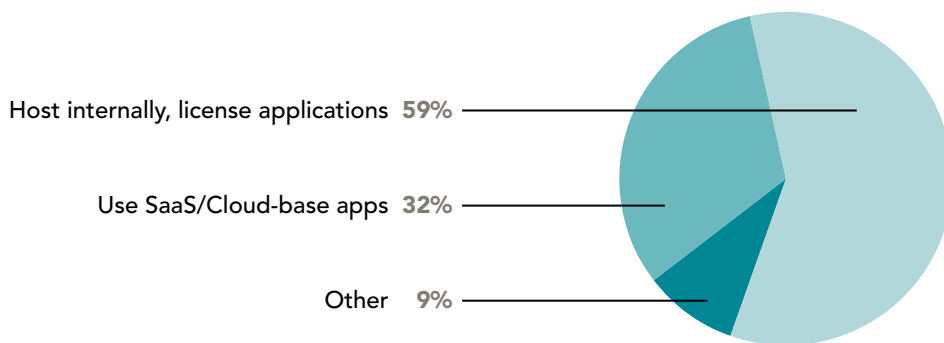
"It has some technology benefits, but they are not geared to a rugged DC environment."

—Logistics Manager
Wholesale
\$1B - \$2.49B

Applications for Smartphones and Tablets

The majority say their preferred method for application deployment is or will be to host internally. However, one out of three also plans to deliver these applications using SaaS or a cloud-based strategy.

Deployment of Applications



"We developed an app that provides supervisors with real time status of managed areas with regard to work flow. It also links to our LMS to provide real time productivity at an individual level throughout the day. Accordingly, we are able to move resources real time between work areas to ensure we meet daily KPI's without waste."

—Sr. Supply Chain Management
3PL
\$1B - \$2.49B

"We allow remote access to 'four wall' information when making decisions or discussing with customer. There is no need for laptops with a VPN connection to corporate systems."

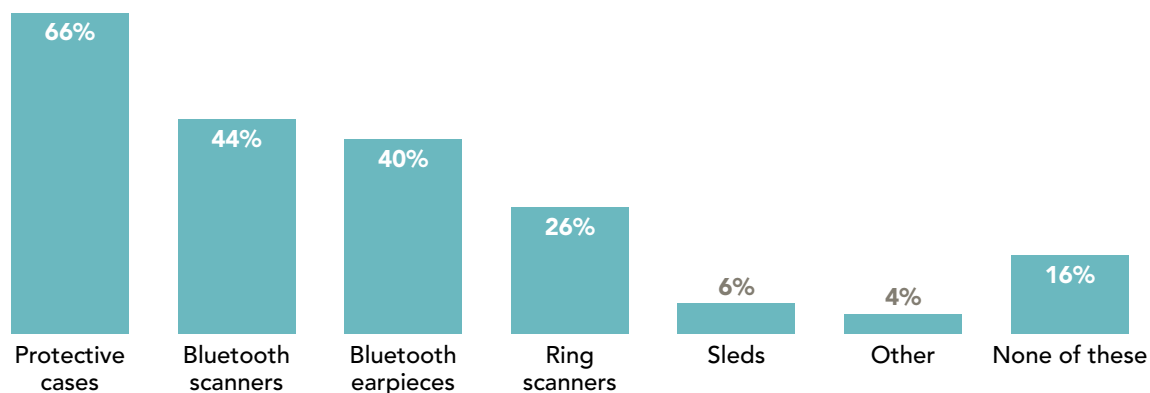
—Executive Management
Healthcare
<\$50M

Are Smartphones and Tablets Suitable for Use in Warehouse and Distribution Center Operations

These devices are predominantly now used for communications tasks such as text (77%) and instant messaging (61%), along with image or video capabilities (61%). Aside from messaging, iPhones, smartphones and tablets are, at present, seen to have only minimal utility in warehouses and DCs.

As a result of using these devices in rough, highly active facilities where durability is a prerequisite, protective cases are a decidedly popular peripheral for these devices.

Peripherals & Accessories



Benefits in Using iPhones or Android Smartphones

Among those early adopters engaged in using smartphones, the devices are seen as a means for improving productivity and warehousing processes, managing labor, streamlining inventory management procedures and upgrading scanning capabilities. All these benefits add up to better service to customers. And, the reasonably inexpensive price of these devices also makes smartphones and tablets attractive to buyers.

As an added benefit, due in large part to their widespread popularity, many consumers already use iPhones or Android-based smartphones, so implementing these devices in warehousing operations should only require only a slight learning curve.

“We have piloted the devices in actual operations and identified multiple tangible, measurable benefits.”

Logistics Management
Retail
\$2.50B+

“These give us speed and accuracy in capturing information in our daily use of ASN labeling.”

—Engineering Management
Wholesale
\$1.50B - \$2.49B

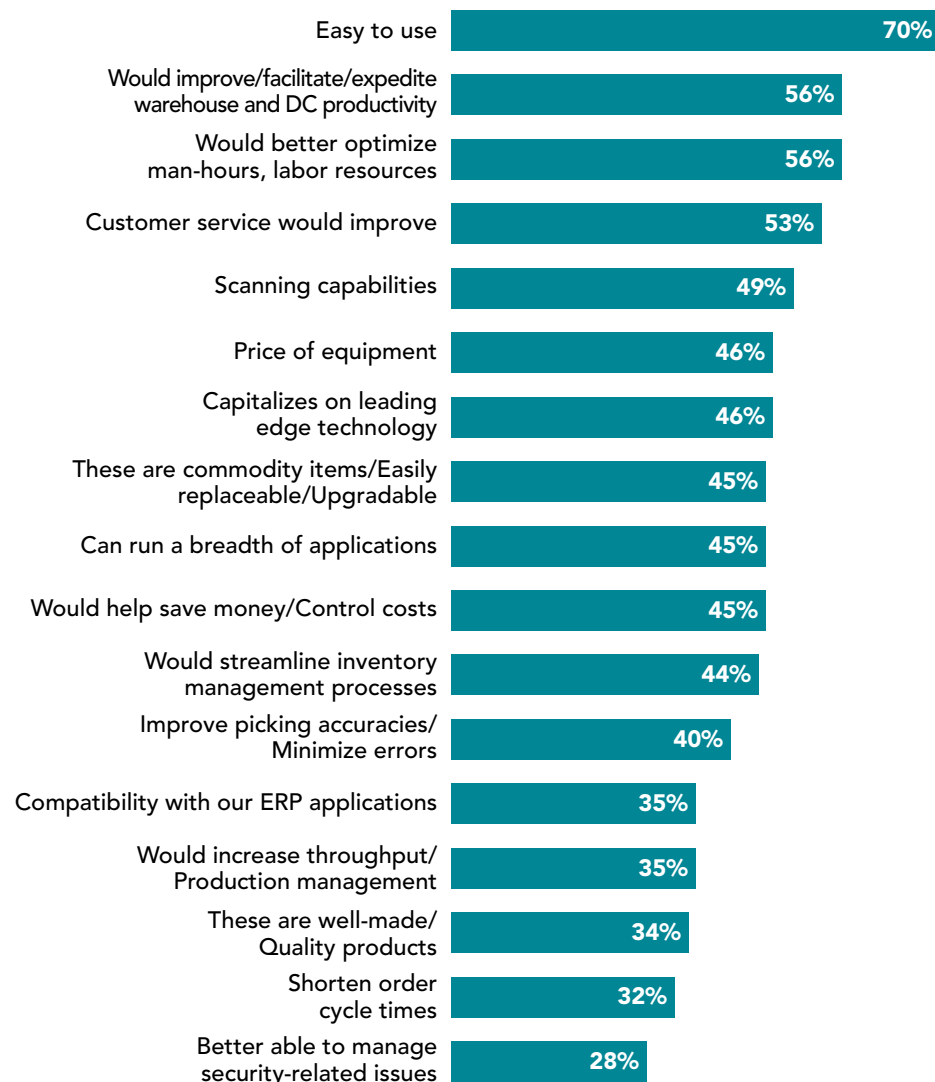
“More accuracy and better inventory control will reduce costs in labor. Improved communication and real-time info will improve our bottom line and response time.”

—Executive Management
Apparel
<\$50M+

“Smartphones allow us to reduce labor and time while providing real-time accuracy.”

—Sr. Supply Chain Management
Wholesale
\$100M - \$249.9M

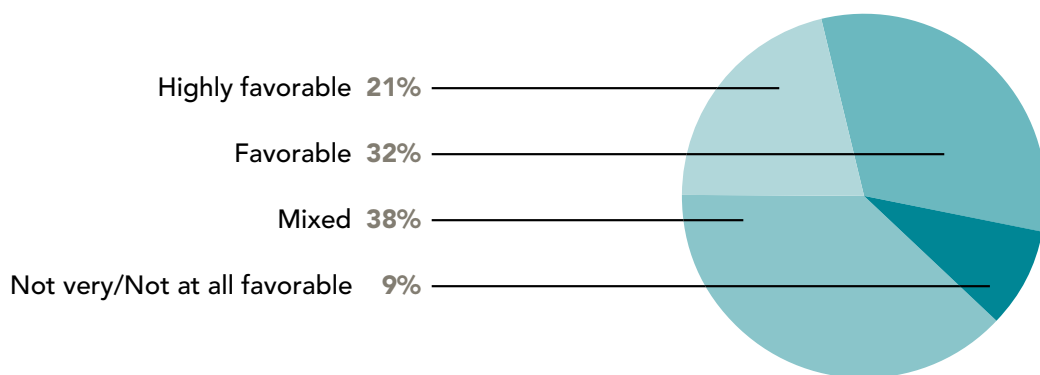
Benefits in Using Smartphones and/or Tablets



Summary

Devices such as iPads, iPhones, and Android smartphones and tablets are growing in their consideration and utilization in warehousing and distribution environments. Aside from messaging, iPhones, smartphones and tablets are, at present, seen to have only limited utility for the majority of warehouses and DCs.

Opinion on Using Smartphones and Tablets in Material Handling and Logistics Environments



- Warehouse and DC managers feel these devices can help improve productivity as well as better optimize labor resources in their warehouse and DC facilities. They further contend that customer service will also be enhanced through the use of these devices.
- However, ruggedness remains the overwhelmingly top priority for mobile device used in supply chain applications. As a result, uncertainty exists whether smartphones and tablets are durable enough to withstand the rigors of harsh, active work environments. In addition, the benefits of using these devices in warehousing and DC operations also need to be better conveyed. Until smartphones and tablets are used for purposes other than for messaging and are optimized as a 'business solution' for warehouse-specific applications, pervasive acceptance will be deliberate. Once these issues have been addressed, material handling and operations managers will be more inclined to embrace these devices.

Methodology

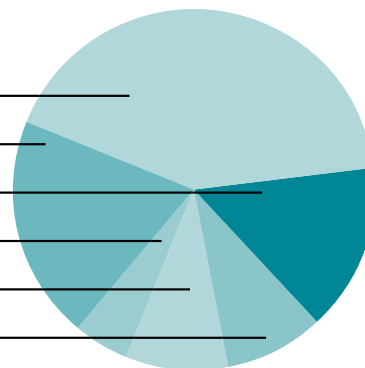
This research was conducted by Peerless Research Group on behalf of *Logistics Management* magazine for **Honeywell Scanning & Mobility**. This study was executed in September, 2012, and was administered over the Internet among subscribers to *Logistics Management*.

Respondents were qualified for being involved in decisions regarding the evaluation and purchase of mobile or wireless solutions for their warehousing or distribution center operations and for either currently using or considering the use of mobile devices for use in managing warehouse, distribution and/or logistics processes. The findings are based on information collected among 260 top logistics managers who qualified for the study.

Respondents predominantly work in logistics and operations management (36%), supply chain management (24%) and executive management (31%). A range of manufacturing companies as well as retail and wholesale trade businesses are represented. Companies of all sizes are also covered.

Company Size by 2012 Projected Revenues

| | |
|---------------------|-----|
| <\$50 million | 42% |
| \$50-99.9 million | 15% |
| \$100-499.9 million | 20% |
| \$500-999.9 million | 5% |
| \$1-2.49 billion | 9% |
| \$2.5 billion+ | 9% |





About Honeywell Scanning & Mobility

From the point-of-manufacture to the point-of-sale, every second saved matters. Honeywell delivers those critical seconds in three ways. First, we combine advanced imaging technology and processors purpose-built for industrial tasks, with powerful wireless communications and support services. Second, we apply four decades of experience studying supply chain workers to our devices, ensuring optimal user experience proven to increase productivity. Third, we make sure our technology is born rugged to withstand the toughest environments.

Honeywell is also the only manufacturer in the AIDC industry with both a fully-rugged solution and an Enterprise Sled for Apple devices, meaning that as the trends discussed in this paper mature, Honeywell will be there with the industry's best solutions.

Honeywell

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