

# CRACKING THE CODE: USING HANDHELD BARCODE SCANNERS TO OPTIMIZE FULFILLMENT



New report from Cognex and *Modern Materials Handling* unveils the true value in cordless and corded barcode scanner utilization in today's warehouses and distribution centers.

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## INTRODUCTION

U.S. consumers spent over \$586 billion online in 2019, representing an increase of 14% over 2018 and 10.7% of the country's total retail spending.<sup>1</sup> These incremental increases in e-commerce activity have driven major changes for warehouse and logistics operations. With warehouses getting larger and larger; SKUs increasing; and the average number of employees in a distribution network now up to 287 (compared to 249 in 2018), the pressure to optimize these environments is immense (and growing).<sup>2</sup>

As one of several trends that have accelerated the pace of fulfillment in today's warehouses and distribution centers (DCs), e-commerce is driving up investment in advanced technologies that support optimized, streamlined picking, packing, and shipping processes.

Valued at \$2.38 billion, the global barcode scanner market is on track to reach \$3.76 billion by 2027<sup>3</sup>—a clear indicator of just how valuable this equipment is to the modern fulfillment process. From improved picking accuracy to easier inventory management to enhanced warehouse efficiency, barcode scanners present many benefits for companies across all industries. Other key advantages of using these devices include decreased operational costs, improved security, and high levels of product traceability.

To learn more about barcode adoption in today's fulfillment facilities and explore the use of both wireless and corded devices, Peerless Research Group conducted a reader survey on behalf of *Modern Materials Handling* for **Cognex Corporation**. This study was executed in February/March 2020, and was administered over the Internet among subscribers to *Modern Materials Handling* magazine.

Respondents were prequalified for being involved in decisions for mobile and wireless solutions for use in their company's warehouse, logistics, or field operations. The findings are based on information collected from 154 materials handling executives employed in the manufacturing, transportation and warehousing services, retail, and wholesale sectors.

A range of manufacturing industries are represented in the survey, including food and beverage, automotive and parts, aerospace, metals, paper goods, and electronics. The study represents companies of all sizes and presents a current picture of the role that barcode scanning plays in today's warehouse and DC operations.

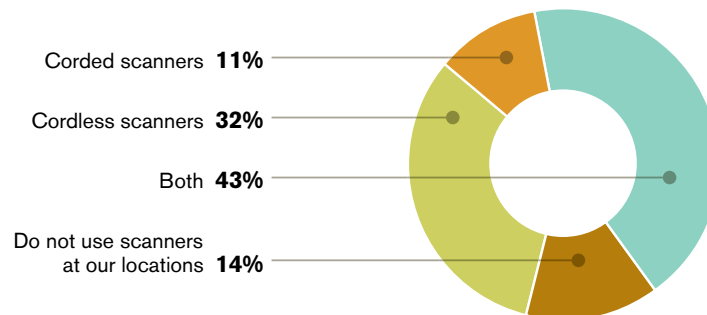
### BARCODE SCANNING GAINS GROUND IN THE WAREHOUSE

Asked to handle a high number of small orders within shrinking delivery timeframes—and all with low access to labor—today’s warehouse and DC operators rely heavily on barcode scanning to run their operations. According to the survey, 86% of companies are using either corded scanners, cordless scanners, or both.

Breaking these numbers down we see that 32% of companies use cordless devices, 11% prefer corded, and 43% use both equipment types. Just 14% of companies say they’re not using barcoding in their warehousing operations. Used by the retail industry as far back as the 1960s, barcode scanning has evolved right along with technology and today continues to play a leading role in most fulfillment operations. (Figure 1)

**FIGURE 1**

#### Scanner usage



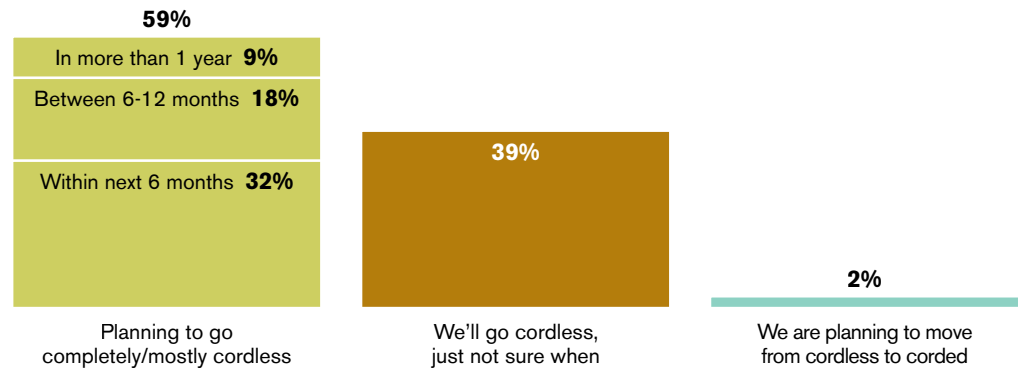
The push to “cut the cord” is evident in the barcoding industry, where cordless scanner adoption is on track to expand in 2020 (and beyond). According to the reader survey, 98% of organizations plan to migrate to cordless scanners at some point in the near future. Of those firms, 32% will shift to cordless scanners within the next six months, while 18% plan to transition in the next 6-12 months.

Another 9% of firms are planning a switch to cordless scanners within a year or so, while 39% of companies acknowledge that they will “eventually” cut the wires, but aren’t exactly sure when that will take place.

Finally, 2% of companies plan to move from cordless to corded barcode scanners. From these results, we can conclude that—much like many other business applications right now—wireless barcode scanning is an attractive model for companies across most industries. (Figure 2)

**FIGURE 2**

### Adoption for cordless scanners over the next 12 months



*"Cordless scanners will allow us to update processes by taking advantage of mobility."*

Senior Supply Chain Manager;  
Systems Integrator;  
Less than \$50M in annual revenues

*"Efficiency . . . it's much easier to use scanners in the value stream of internal manufacturing than manual data entry."*

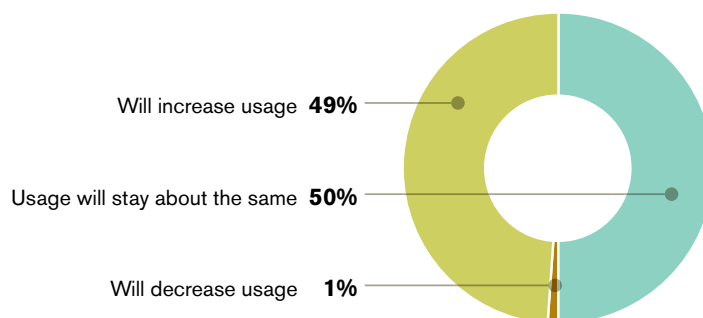
VP, Global Operations;  
Manufacturing - Paper;  
\$250M - \$500M

Driven in part by the companies that are already using wireless barcode scanning, and are expanding their usage year-over-year, this sector of the barcoding market is expected to continue growing. According to the survey, 50% of companies will increase their cordless scanner usage while an equal number will maintain their current levels of cordless usage. Just 1% say they will use cordless scanners less over the next 12 months than they did in 2019. (Figure 3)

Asked about their increased usage of cordless scanners, survey respondents said that the scanners are "quicker and simpler to use." Others are upgrading their warehouse and DC facilities to include more mobility, flexibility, and new processes; cordless scanners align with these efforts. Overall, survey respondents associate cordless scanners with improved efficiency, productivity, convenience, response time, and inventory control.

**FIGURE 3**

### Plans for cordless scanner usage over the next 12 months



*“With the increase in cycle-counting and asset management, quality testing, WIP and case pick, we expect the greater use of auto id and visibility at each process to gain new insights and productivity.”*

CIO;  
Manufacturing – Beverages;  
\$1B - \$2.5B

*“Cordless scanners will enable us to have access to more real time data. This is important.”*

Director of Operations;  
Manufacturing –  
Fabricated Metals;  
\$100M - \$250M

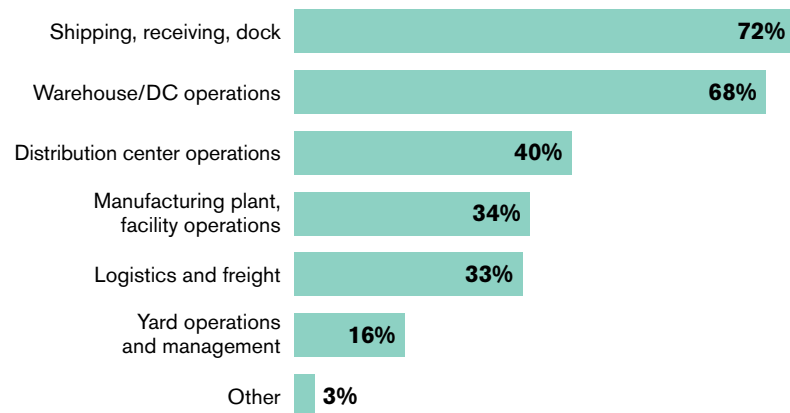
### BENEFITS OF CORDLESS SCANNERS

Whether they're seeking better mobility, increased productivity, or greater work efficiency, companies are searching for these as well as other benefits out of their investments in cordless scanners. A forklift driver equipped with a cordless scanner can easily hop off a vehicle and scan inventory on the fly, for instance, while a warehouse manager can monitor business assets from 100+ feet away.

Asked which operational areas would be most improved with cordless scanners, 72% of respondents said the primary beneficiaries would be their shipping, receiving, and dock operations. Sixty-eight percent of companies said their warehouse and DC operations would be upgraded the most, while 40% pointed to their DC operations. Thanks to their portability, efficiency, and proven capabilities, it's clear that mobile, cordless scanners can have a significant positive impact on all corners of a fulfillment operation. (Figure 4)

FIGURE 4

#### Area(s) of operation that would be most improved through the use of cordless scanning technology

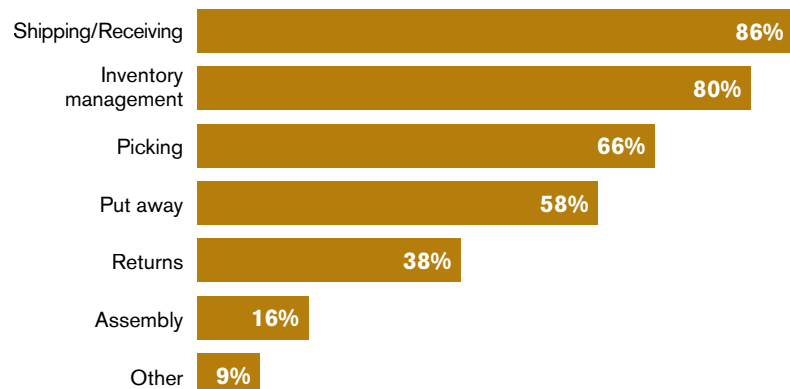


### HOW ARE CORDLESS SCANNERS BEING USED?

Because they can be moved about freely and without wires, cordless scanners assist with many different functions in the modern-day fulfillment center. When asked for which applications they're using cordless scanners, most survey respondents said they're using the devices for shipping and receiving (86%) and inventory management (80%). Sixty-six percent of companies use cordless scanners for picking, 58% for put away, and 38% for returns. Thanks to their flexible nature, cordless scanners are clearly having a major impact across all aspects of a warehouse or DC operation. (Figure 5)

FIGURE 5

#### Applications for which cordless scanning devices are used at facility

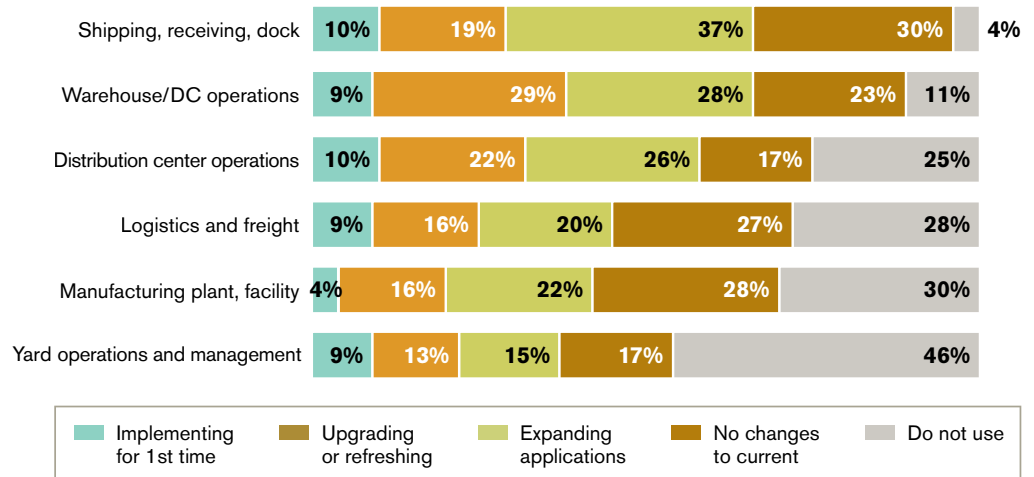


Asked about their plans for using cordless scanning devices in the future, most companies plan to integrate these tools into their shipping, receiving, and dock operations. Ten percent of respondents plan to implement cordless scanners in these areas for the first time; 19% are going to upgrade or refresh their usage; and 37% plan to expand their usage in shipping and receiving. Just 4% of respondents do not use cordless scanners for shipping, receiving, and dock tasks.

Other first-time users of cordless barcode scanning plan to use the technology in their distribution center (10%); warehouse operations (9%); logistics and freight (9%); yard (9%); and manufacturing (4%). (Figure 6)

**FIGURE 6**

**Plans for using cordless scanning devices in each operational area**



*“Cordless scanning is more precise and a faster method for us to manage inventory and shipping.”*

Operations Manager –  
Manufacturing - Paper;  
\$50M - \$100M

*“We have been using cordless linear scanning for years; we need to migrate to 2D cordless scanning.”*

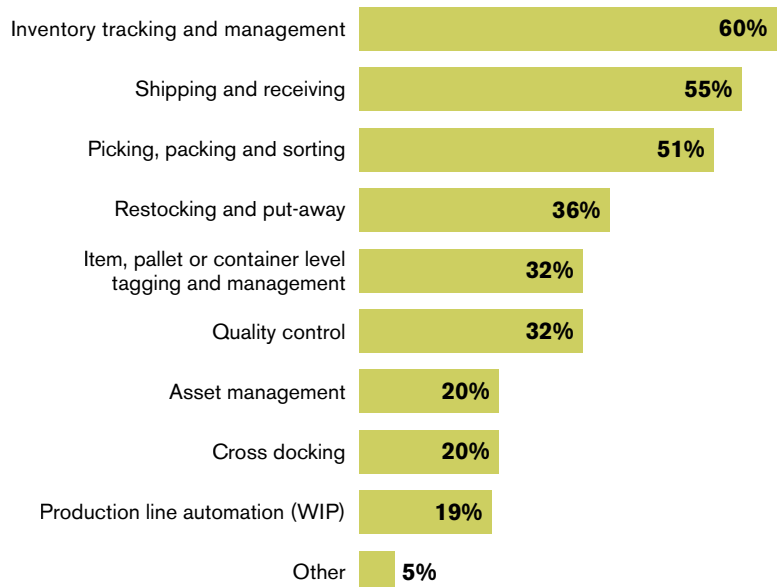
Senior Supply  
Chain Manager;  
Wholesale;  
\$2.5B+

Overall, 60% of organizations plan to implement, upgrade, or expand their cordless scanning devices for inventory tracking and management, while 55% plan to do so in shipping and receiving. Fifty-one percent of companies will implement or expand usage of mobile scanners in their picking, packing, and sorting operations. Other areas that will benefit from future implementation are restocking and put away (36%), item, pallet, or container level tagging and management (32%), and quality control (32%).

These results prove the overall value of cordless scanning in today's fulfillment operations, many of which are either already using or planning to use the technology across their end-to-end operations. (Figure 7)

**FIGURE 7**

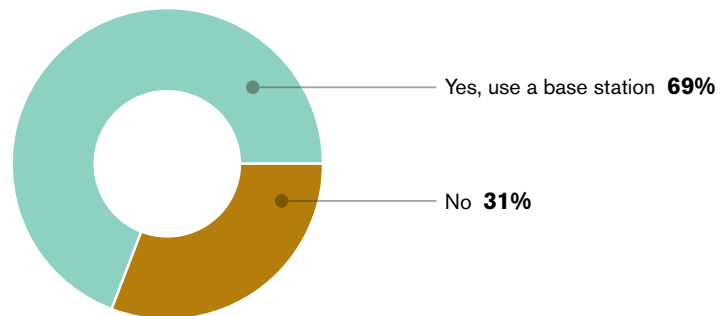
**Tasks/applications for which cordless scanning devices will be implemented for the first time, upgraded or refreshed, or usage expanded or broadened**



In tracking the use of base stations with cordless scanners, 69% of companies are using this technology while 30% are not. These stations allow a reader to connect to a station and communication back and forth, where a “Direct Connect” device connects to the station directly. (Figure 8)

**FIGURE 8**

### Usage of base stations for cordless scanners



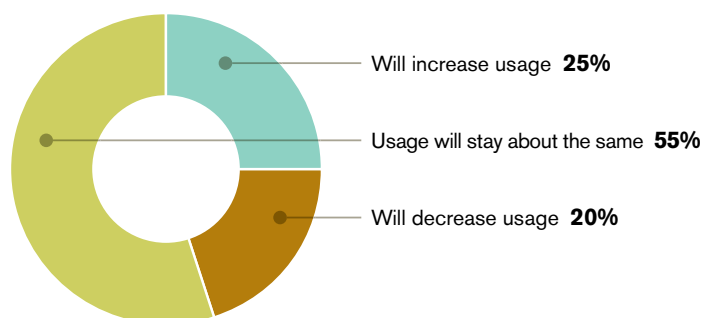
### CORDED SCANNERS ARE STILL IN DEMAND

Cordless scanners may provide flexibility, portability, and convenience for users who need a high level of mobility, but corded options are still in demand in the warehouse setting. The survey found that 25% of organizations will increase their corded scanner usage over the next 12 months, while 55% say their corded scanner usage will stay the same. Just 20% plan to decrease their usage of corded scanners, with the main driver of this being a switch over to cordless scanners (as outlined earlier in this report). (Figure 9)

Asked why they plan to increase corded scanner usage, survey respondents say they're planning to upgrade their existing devices to newer, corded devices. Other companies are increasing usage of corded scanners in order to improve productivity, enhance workflows, and managed a greater volume of orders.

**FIGURE 9**

### Plans for corded scanner usage over the next 12 months



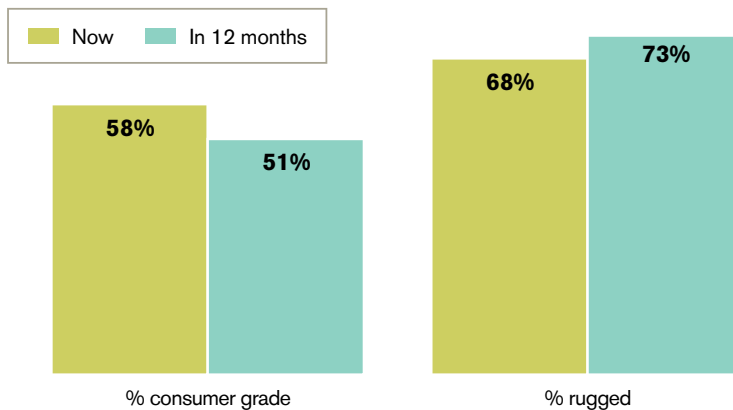
### RUGGEDIZED VS. CONSUMER GRADE SCANNERS

The debate over whether to use ruggedized or consumer grade scanners in the warehouse setting is moving in the former's direction. According to the survey, use of consumer grade scanners is expected to drop over the next 12 months. Conversely, usage of rugged scanners will increase. Within the next 12 months, 73% of companies expect to be using rugged scanners—5% more than the number of rugged scanners they're currently using.

Right now, 58% of their scanners are consumer grade. Companies expect around an 8% decrease in the use of consumer grade scanners in the next 12 months. These shifts in favor of ruggedized equipment follow a broader trend toward using technology that can withstand the rigors of the warehouse and DC environment. (Figure 10)

**FIGURE 10**

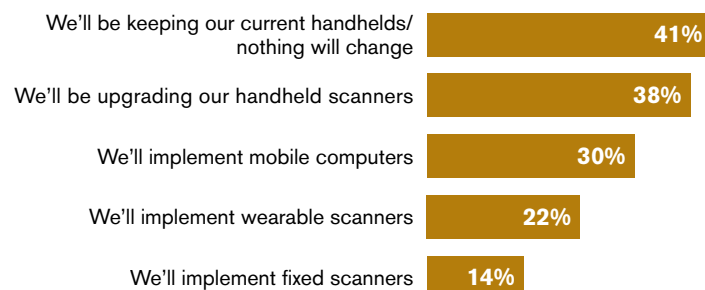
### Percent of scanners that are now/will be in 12 months consumer grade and rugged



In adopting scanners for material handling applications, 41% of respondents say that their companies will keep their current devices, while 38% say they will be upgrading their handhelds. Of those companies that want to upgrade their equipment, 30% plan to implement mobile computers, 22% plan to introduce wearable scanners, and 14% will implement fixed scanners. These results align with the overall push to integrate more mobile technology into the material handling process. (Figure 11)

**FIGURE 11**

### Adoption of scanners for material handling applications



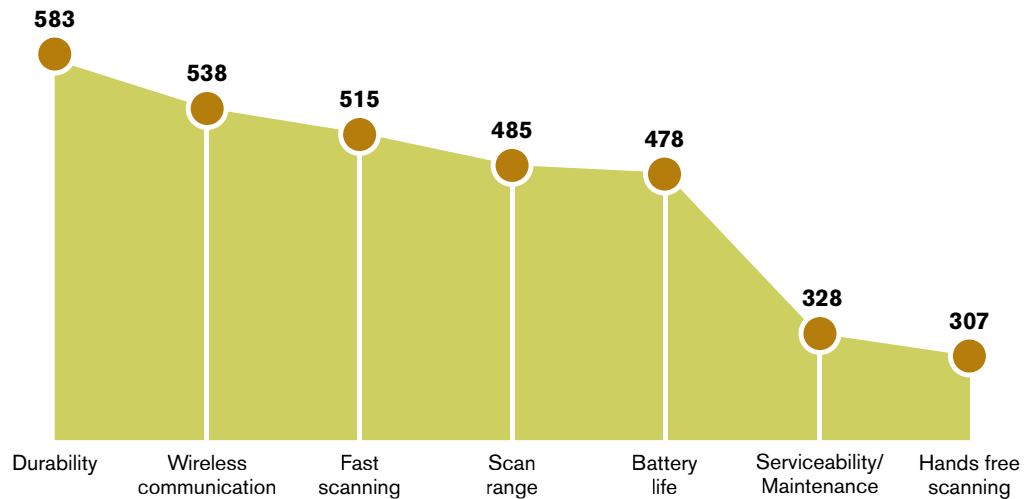


### WHAT COMPANIES WANT FROM THEIR CORDLESS SCANNERS

When shopping for cordless barcode scanners, companies are seeking durability, wireless connectivity, and fast scanning. Other desirable features include a broad scan range, long battery life, serviceability, and hands-free scanning. Ease of use, ergonomic design, size (in particular, having a screen), and price also come into play when organizations are procuring new cordless barcode scanners for their warehouse and DC operations. (Figure 12)

**FIGURE 12**

### Features considered important when purchasing cordless scanning devices

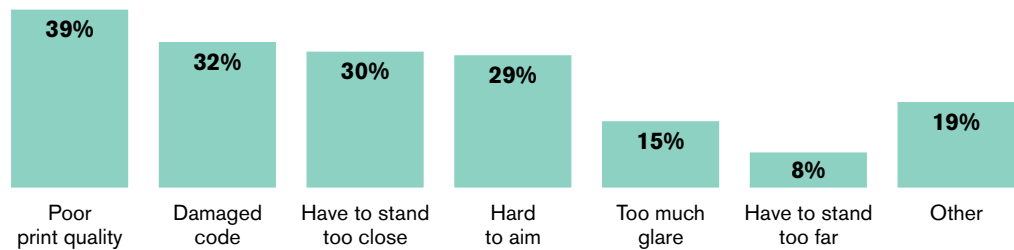


Note: Numbers are relative to one another and based on a weighted score

Scanning devices provide numerous benefits in the warehouse or logistics facility, but they also present challenges for companies that are implementing and/or using them for the first time. As with any new technology that's introduced in the workplace, scanners come with their own learning curve. According to the survey, the primary challenge points include poor print quality (39%), damaged code (32%), having to stand too close to the barcoded item (30%), and devices that are too hard to aim (29%). (Figure 13)

**FIGURE 13**

### Issues companies face/have faced with scanning devices



### THE EVOLUTION CONTINUES

A time-tested technology that's evolved significantly over the last decade, barcode scanning is a warehouse stalwart that companies have come to rely on to run their warehouses, DCs, and fulfillment centers. When asked how they see the use of cordless scanning devices changing the way they manage their warehouse, logistics, distribution, manufacturing, or field operations over the next few years, survey respondents say the devices will improve their flexibility, mobility, productivity, and data quality.

Barcoding also supports faster processing times across all applications, as well as more precise and quicker inventory and shipping management. As the survey results indicate, more companies will be tapping into these benefits through the use of cordless barcode scanners in the near future. "It makes the scanning of items more portable," one logistics CEO said. "Scanners can come to the documents rather than having to shuttle paper back and forth."

"We will reduce dependency on hard forms and printed barcodes," another logistics operation manager added. "Our current operation requires us to print information for customers. The new scanners allow us to scan customer IDs to pick orders for them."

With many organizations transitioning to using cordless scanners, others will continue to rely on their corded scanners—with some even planning to upgrade their corded options in the future. Whether they use cordless options, corded devices, or a combination of both, the push to infuse more mobility into the warehouse and DC makes handheld scanners a perfect choice for companies across all industries.

### FOOTNOTES

<sup>1</sup>eMarketer. <https://www.emarketer.com/content/us-ecommerce-2019>

<sup>2</sup>Cognex. <https://www.cognex.com/blogs/industrial-barcode-reader/3-strategies-for-improving-warehouse-operations>

<sup>3</sup>Publicist 360. <https://publicist360.com/2020/04/07/global-barcode-scanner-market-industry-analysis-and-forecast-2020-2027/>

### ABOUT COGNEX

Cognex is a leading provider of vision systems, software, sensors, and industrial barcode readers used in manufacturing automation. Cognex vision helps companies improve product quality, eliminate production errors, lower manufacturing costs, and exceed consumer expectations for high quality products at an affordable price. Typical applications for machine vision include detecting defects, monitoring production lines, guiding assembly robots, and tracking, sorting, and identifying parts. Cognex serves an international customer base from offices located throughout the Americas, Europe, and Asia, and through a global network of integration and distribution partners. The company is headquartered close to Boston in Natick, Massachusetts, USA. Cognex is publicly traded on the Nasdaq stock market under the symbol CGNX.

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