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OVERCOMING THE WAREHOUSE LABOR SHORTAGE WITH ASRS SOLUTIONS

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Labor crunch means DC operations need to maximize available workers

UNLESS YOU HAVE A COMPLETELY "LIGHTS OUT" AUTOMATED DC—and those are very rare—it has become difficult to find and retain the people needed to carry out distribution work in a flexible and cost-effective manner. While automation has helped many operations, most warehouses still need people, and they need to find ways to appeal to a younger generation of workers.

With U.S. unemployment running at or near historic lows, the labor scarcity issue has become acute. According to an analysis by CBRE, another 452,000 warehouse and DC workers were needed in the U.S. during 2018 and 2019. The projected demand for 2018-19 exceeds the industry's job growth since 2013 of 180,300 new positions a year—an acceleration tied to growing ecommerce volume, according to CBRE.

Logistics and warehousing executives report the labor scarcity issue is a top challenge. According to MHI's 2019 industry report, based on a survey, hiring qualified workers was cited as the single biggest challenge, with 65% rating it as extremely or very challenging.

The tight labor situation leaves many companies with DC operations struggling to cope, observes Douglas Card, director of systems and special applications, North America, for Kardex Remstar, one of the world's leading ASRS solution providers. "Operations really are struggling not only in finding people, but finding and retaining qualified people who want to work in a warehouse environment," Card says. "Companies often say they can't find enough qualified help, or, they just can't find enough people period."

Seasonal demand spikes complicate the labor crunch issue. Operations already hard pressed to find enough labor during normal times can really struggle to find enough workers during the pre-holiday sales season, or other peak times. "In general, automation will help reduce the overall labor requirement, but when you have flexible automation which can scale, then that helps with the seasonality challenge too," says Card. "Today, operations are implementing flexible automation to solve both the labor and seasonality challenges."

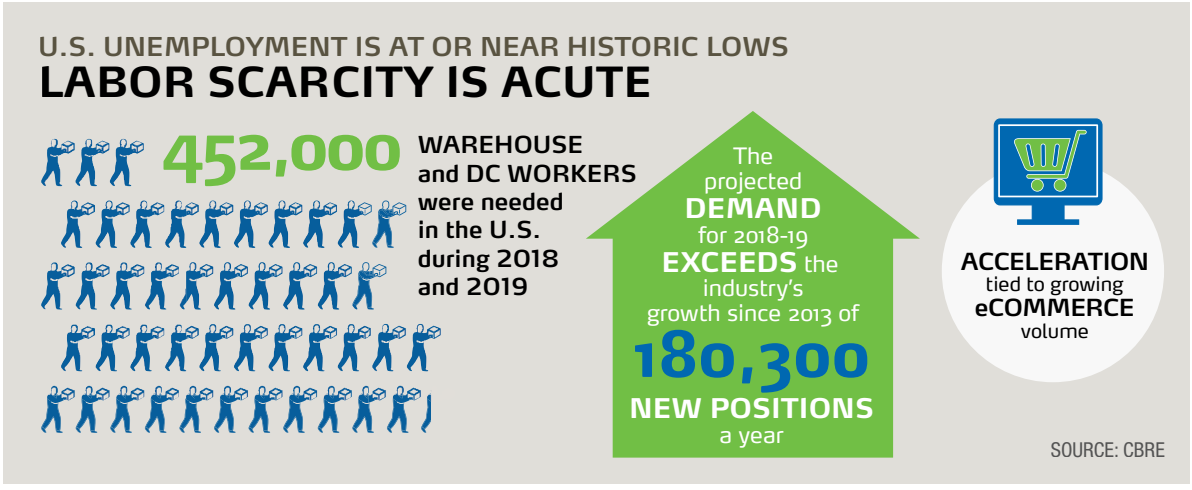
Another major complication to the tight North American labor market in warehousing and logistics is the changing age demographics of the workforce. The Baby Boom generation that for decades was the cornerstone of the U.S. workforce has given way to younger generations.

According to 2018 analysis of U.S. Census data by the Pew Research Center, more than one-in-three American labor force participants (35%) are Millennials, making them the largest generation in the U.S. labor force.

The analysis (based on 2017 data), 56 million Millennials were working or looking for work. That was more than the 53 million Generation Xers, who accounted for a third of the labor force, and well ahead of the 41 million Baby Boomers (about quarter of the total) remaining in the labor force. Millennials surpassed Gen Xers in 2016.

For warehouse operations that need to hire people capable of doing the picking, packing, replenishment, and material transfer work that's part of order fulfillment, the changing age demographics are another troubling dynamic. Aging Baby Boomers can't be counted on to continue doing heavily manual tasks, though they might remain productive with more ergonomic automated solutions. Younger generations who grew up texting on smart phones and interacting on flat screens aren't as likely to be attracted to manual processes that involve walking endlessly up and down aisles or pushing a cart.

"In today's labor market, companies with fulfillment operations have to give younger workers something to look forward to with the systems and



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processes they use at work," observes Donald Gonzales, systems and integrator sales manager for Kardex Remstar. "They're looking for something more digitized and robotic in nature—something that appeals to their comfort level with the consumer tech they've grown up with. It's not likely that many of them are going to want to push a cart around all day."

Automated solutions such as automated storage and retrieval systems (ASRSs) can address labor issues in multiple ways. To begin with, they significantly reduce the labor requirement, mainly due to the fact that compared to manual order picking approaches, there's virtually no time spent on travel.

to be flexible and scalable, to accommodate seasonality and busy times for fulfillment in a DC.

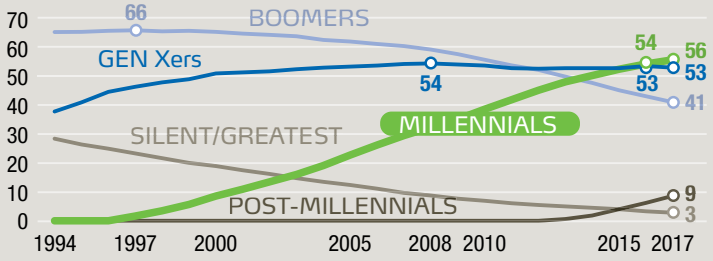
ASRSs are often deployed in a "goods-to-person" manner in which the automation and its software automatically pick and present goods for an order to an ergonomic workstation where warehouse associates can rapidly fulfill orders.

Rather than travel through the warehouse, the operator can stay at the workstation and follow guidance from light displays or with some types of ASRS—laser pointer beams—to accurately and quickly pick goods. During busy times, notes Card, an operation can scale up the output of its ASRS solution simply by adding

MILLENNIALS BY THE NUMBERS

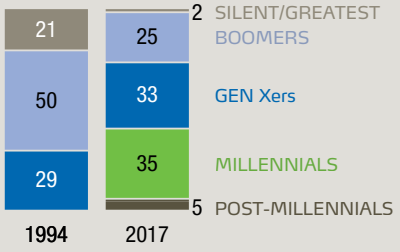
MILLENNIALS BECAME THE LARGEST GENERATION IN THE LABOR FORCE IN 2016

U.S. labor force, millions



MORE THAN A THIRD OF THE WORKFORCE ARE MILLENNIALS

% of the U.S. labor force, millions



Note: Labor force includes those ages 16 and older who are working or looking for work. Annual averages shown.

SOURCE: PEW RESEARCH CENTER ANALYSIS OF MONTHLY 1994-2017 CURRENT POPULATION SURVEY (IPUMS)

This walking up and down aisles is widely considered to consume as much as 60% of picker time under manual order picking processes. By reducing the labor requirement via the elimination of travel, ASRS automation makes it possible for a DC operation to assign the workers it can find to other tasks like replenishment, receiving, cross docking, pack/ship processes, or other workflows.

However, the current labor market also brings about the need for automated solutions that are scalable, flexible, easy to learn for operators, have good ergonomics, and importantly, appeal to younger generations accustomed to interacting with digital systems and technology. Additionally, automated solutions need

human pickers at light-driven pick stations.

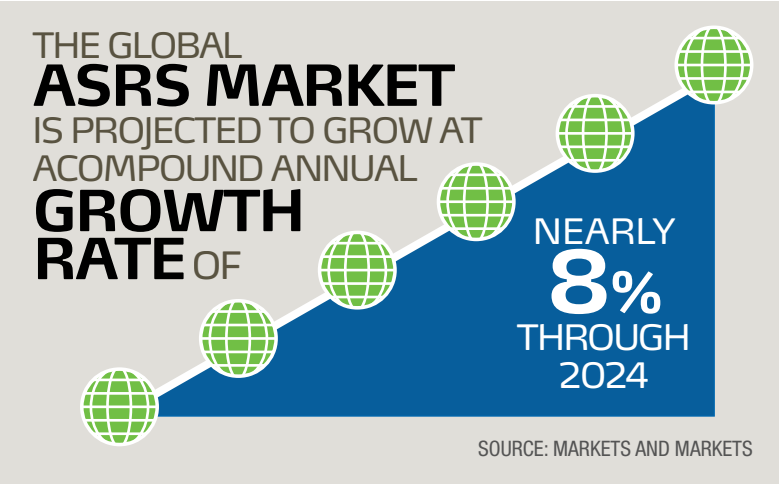
"Automation can help in various ways with the labor shortage issue," explains Card. "It helps by reducing the overall labor requirement, but it also helps during busy seasons by scaling up easily to handle peak throughput needs. Automation with light-directed picking also helps get workers up to speed quickly, while providing a digital environment that tends to be more attractive to younger generations. ASRS tackles many challenges—space, labor, ergonomics, accuracy, but because ASRS solutions are designed to work with people, they can help you find and retain good, qualified people, which has become a top concern today."

How ASRS and intelligent software maximize labor and flex to meet demand

DRASTICALLY REDUCING THE NEED FOR LABOR VIA AUTOMATION, while also coming up with a system that works well alongside people that's scalable and easy to use and appealing for a changing workforce, is a tall order. Attainment of these goals involves more than the raw, steady replication of tasks with electro-mechanical machinery.

Fortunately, automated storage and retrieval system (ASRS) solutions that are modular, driven by intelligent software that can easily adjust picking strategies, and feature workstations geared for human productivity, address these goals. Perhaps that is why the global ASRS market is projected to grow at a compound annual growth rate of nearly 8% through 2024, according to MarketsandMarkets.

ASRS solutions are often deployed in a goods-to-person mode where the automation is delivering specific goods to a human picker at an ergonomic pick station, thus eliminating nearly all of the human travel associated with more manual methods of order picking, explains Donald Gonzales, systems and integrator sales manager for Kardex Remstar. They can also be used for other functions, including storage, buffering, order consolidation, and storage and handling of returns.



Wherever they're employed, they reduce the labor requirement versus manual processes, allowing just a handful of people to do the work of many. "Operations today need to make the most of the available human workforce," Gonzales says. "In an automated environment, you spend very little time moving about, so the rest of it is picking or other value-added movements."

Kardex Remstar offers multiple types of dynamic storage solutions, including vertical lift modules, vertical carousels, horizontal carousels, and vertical buffer modules. It also offers supporting software and middleware, and as part the Kardex Group, has international reach as part of a company with more than 140,000 systems installed worldwide.

Besides the enormous reduction in travel time offered by ASRS solutions, there are other important factors that make ASRS attractive given the current historically tight labor market, explains Gonzales. These include:

- ASRS workstations leverage various types of pick-to-light or "PTL" technologies to make the human worker's order selection and picking fast and accurate. These include light bars, or what Kardex Remstar calls a Transaction Information Center (TIC) system, light towers, LED or laser light points, put lights, and position indicator light bars. These PTL options are designed to enable rapid picks or material placements that are highly accurate, as well as appealing today's workforce which has grown up with technologies like smart phones, tablets, and gaming consoles.
- Workstations allow human workers to carry out their tasks at a stable, comfortable height, rather than the bending and reaching movements associated with manual order picking. This "Golden Zone" for worker ergonomics helps all operators, but especially older workers. This helps keep Baby Boomer warehouse workers, who are often the most experienced associates with the deepest knowledge of warehouse workflows.
- ASRS work areas are compact and have dense storage. Not only does this save large amounts of space versus more traditional rack and shelving, it makes it easier to have a climate-controlled area of the warehouse where the automation is located.

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"Factors like an ergonomic workstation, and having better climate control in a small automated

zone, is going to help the working conditions, which helps retain labor," says Gonzales. "Overall, you need to make the workplace more comfortable and appealing for workers across multiple generations, including younger workers who are going to be drawn toward working with light displays and automated systems."

People and software are important ingredients for the scalability of Kardex Remstar's solutions. While ASRS can scale via hardware additions such as additional storage units, more workstations, or arranging multiple units into a "pod," flexible software also is essential for scalability, explains Douglas Card, director of systems and special applications for Kardex Remstar.

"With our technology, you can have a single operator working a group of machines, or you can have multiple operators picking with the help of colors," says Card. "It's a function we call Color Picking. When you are not that busy, you can just have a single operator picking out of the system, but when things get busy, you can put two, three, or four operators into the same picking zone, and they pick as their assigned/dedicated color. This allows you to scale up very quickly, for a season, for a week, or even on a daily basis."

Kardex Remstar's software, known as Power Pick Global, also helps scale the output of a system by adjusting picking strategy. The software can facilitate batch picking, for example, in which the system's movements allow an operator to fill multiple orders at one time, thus increasing productivity.

Via the software's open architecture, the automation can communicate with warehouse management systems (WMS) on factors like orders and inventory, and with warehouse control systems (WCS) or other downstream zones of automation on material flow. The software platform also generates data about picker productivity and throughput metrics for the ASRS zone.

"With our solutions, all the key picking and productivity data is tracked," says Card. "This data can be analyzed and reported on as metrics in a dashboard. We have a Windows-based application for reports, and a web-based dashboard as well. The web-based application has become quite popular. With our software, you not only can adjust and scale the function of the system, you have better information to manage your people and your processes with."

"The technology behind our solutions ultimately allows you to attract and keep more younger people to jobs in these automated workflows because it's more high tech and fits in with the type of consumer technology there are using to."

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Better information for managers, better metrics for rewarding the workforce, and the ability to dynamically change picking methods to scale for greater throughput are all software-based benefits. The software, of course, also drives the light-directed displays and features of Kardex Remstar's solutions, making software central to the high-tech appeal of ASRS.

"The technology behind our solutions ultimately allows you to attract and keep more younger people to jobs in these automated workflows because it's more high tech and fits in with the type of consumer technology there are using to," says Card. "ASRS brings many benefits in areas like space savings, and labor efficiency through elimination of travel, but the digital nature of ASRS, and the way light-directed systems help get new or temporary workers up to speed quickly, are increasingly important benefits of ASRS."

Jewelry Manufacturer Finds ASRS Aids on Recruiting and Operations Fronts

GOODS-TO-PERSON AUTOMATION is recognized for generating two key areas of benefit. For one, it accelerates throughput versus manual processes or older equipment. And second, it offers dense storage that makes maximum use of square footage. For Dustin Trahan, executive director, logistics, for jewelry supplier Stuller, Inc., there is another key benefit: the appeal automated storage and retrieval (ASRS) holds for workers, especially younger ones who've grown up with technology.

Stuller is a major manufacturer and distributor of jewelry to retailers. Based in Lafayette, La., and with a total of five operations worldwide, the company provides next-day delivery of more than 200,000 items to more than 40,000 jewelry professionals worldwide. With its extensive inventory, the company has constantly sought to improve its methods for accurately and quickly fulfilling a "long tail" assortment of goods to jewelry businesses.

The company been a long-time user of ASRSs, but found its 1990s era units were growing more challenging to maintain and lacked the throughput potential and updated user interface (UI) features of newer ASRSs. After studying solutions with consulting firm Blue Horseshoe, Stuller decided to implement multiple types of ASRS from Kardex Remstar.

The system includes multiple pods of vertical carousels to house faster moving stock keeping units (SKUs); multiple vertical lift modules (VLMs) to house slower moving but active SKUs, and some vertical buffer modules (VBMs) to hold tooling and other larger items. These larger SKUs are sometimes used internally, but are also sold and shipped to jewelry retailers. As a result of the updated equipment, which will be fully deployed by fall 2019, Stuller expects to see multiple benefits, explains Trahan.

The new ASRSs are expected to deliver a high throughput level, increase storage density, and importantly, embody the type of technology and UI features that can help attract millennials and other young people into Stuller's workforce. "The new equipment will bring us to a higher level of operational efficiency and reliability, and we also believe it will help us attract and retain upcoming talent." says Trahan.

Younger workers who have grown up using smart phones, tablets and gaming consoles prefer working in a modern fulfillment center with automation, advanced software and interactive UI features. "Younger people who grew up with smart phones and other advanced devices prefer working with state-of-the-art automated equipment, versus walking around in a warehouse pulling boxes," says Trahan.

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The type of digital UI that the new ASRSs provide makes the work at Stuller more appealing, and is a good fit for younger workers, agrees Nicholas Meaux, an industrial technologist with Stuller's logistics team, and himself a millennial. "The [ASRS] equipment has a very friendly UI which makes it easier to learn the process," says Meaux. "Working alongside automated technology not only makes the job easier and more efficient, it also makes the work more interesting. That's what people in my generation are looking for – passionate companies with interesting work – and that's just what Stuller is providing in their fulfillment center."

The Kardex Remstar ASRS solutions are being paired with a small item robotic sorting solution to enable rapid fulfillment of Stuller's many SKUs. The ASRS solutions store and retrieve goods across multiple customer order lines, and the goods are sent downstream to the robotic sorting units that sort the lines to individual orders. The overall solution will ensure high throughput, high picking accuracy, excellent storage density, and high reliability to support Stuller's need to rapidly ship orders from its extensive inventory.

As Trahan sees it, the investment will not only meet these operational objectives, it helps the company with recruitment too. "The new equipment helps us on two key fronts—it ensures the efficiency and stability our process demands operationally, and now we have something to help us attract top labor talent. Bringing together these factors will help our business."

FULFILLMENT IMPERATIVES:

Flex Throughput and Maximize Scarce Labor Resources

THE BENEFITS OF WAREHOUSE AUTOMATION span from strategic to tactical. For executives at companies with warehouse and fulfillment operations, investment in automated storage and retrieval (ASRS) ensures customer satisfaction and order fulfillment continuity. For managers on the front lines, ASRS ensures high, predictable throughput rates and better reporting with which to manage operations.

Automation—at least in the form of ASRS solutions that work in concert with human pickers at workstations—also means a high-tech, attractive, and comfortable working environment for warehouse associates, says Douglas Card, director of systems and special applications for Kardex Remstar.

"The pick to light technology and workstation features of our ASRS solutions means that it's going to be easier to bring people up to speed, which is good for both the workers and supervisors," says Card. "And importantly, compared to manual processes where you are asking someone to go walking around a warehouse searching for locations and pulling items, ASRS is more digital, more comfortable and thus appealing for many potential workers, especially the younger generations."

Of course, ASRS can significantly cut the overall labor requirement for a distribution center (DC) versus manual order picking because nearly all picker travel is eliminated. It's not uncommon to be able to cut the labor requirement by 2/3 versus manual processes and extensive worker travel to shelving locations.

This labor reduction in picking can allow a distribution center (DC) to reassign workers to other areas of the DC operation, while maximizing the use of human labor in the zone with ASRS. In this era of historically low unemployment in which DCs struggle to find warehouse associates, automation becomes a way of maximizing the available labor pool.

Mitigating this labor scarcity risk is a strategic concern, observes Donald Gonzales, systems and integration manager for Kardex Remstar. "From the perspective of upper management, ASRS investment is about business continuity and the ability to execute on order fulfillment," says Gonzales. "If you can't find enough people to staff a DC, you can't get product out the door, and your revenue stream is at risk. That makes automation a strategic issue."

ASRS is a solver for labor scarcity issue in multiple ways—with various benefits for different roles in a company.

FOR SENIOR EXECUTIVES: With online order fulfillment and logistics as core competencies for many companies, relying on manual warehouse fulfillment processes in scarce labor market is risky. It threatens business continuity and customer satisfaction. Automation offers a means of both reducing the labor requirement so that your operations managers don't have to scramble to find enough people, and they can be highly productive with the people they have.

FOR DC MANAGERS AND SUPERVISORS: ASRS solutions offer a way to meet order requirements with speed and accuracy. They're comfortable and appealing to operators, and the software presents metrics useful for managing daily operations and rewarding high performing workers. Perhaps most importantly, ASRS solutions can scale, so when it's time for that seasonal spike in demand, you'll be ready.

FOR WAREHOUSE ASSOCIATES: Warehouse jobs can be tough. Miles of walking in hot conditions, and reaching and bending to place goods on carts. It's not that way with ASRS solutions. ASRS solutions are designed to work with a handful of operators who stay at ergonomic workstations or access windows, using light-direct productivity enhancers.
The work is more comfortable and more in line with "digital age" user interfaces. Also, gaining knowledge of warehouse automation systems can offer a way for a front-line worker with digital skills to progress to supervisory level that might involve deeper interaction with the system or learning of inventory and stock management software functions.

FOR IT DIRECTORS OR PROCESS/SYSTEM ENGINEERS: Any automation solution, ASRS included, needs to be assessed on the ease of integration with existing systems. Kardex Remstar's ASRS solutions offer an open architecture that supports multiple methods of real-time integration to either warehouse management systems or other higher-level order management systems, and with warehouse controls and other zones of automation. With Kardex Remstar's long track record of successful integration to all types of WMS, ERP, and control systems, the ASRS zone can keep pace with the rest of your solutions.

While ASRS solutions carry all these benefits, in this era of extreme difficulty in finding labor, automation can make the difference between being able to handle peak volumes, or falling behind. Kardex Remstar's automation can scale up by adding more pickers at light-directed workstations, or by adjusting the picking strategy via Kardex Remstar's intelligent software. This software supports batch picking, multi-user picking, and zone picking strategies to flex the output of a system. And for the front-line managers in the DC, an ASRS solution means there isn't a mad scramble to find enough labor for manual picking. Labor efficiencies gained in a deployment often allow for good workers to be assigned to different areas of a DC, while those in the automated ASRS zone are kept highly productive. Additionally, with ASRS, when new workers do come on board to the automation zone, the light-direct nature of the systems makes it easy to bring new people up to speed.

"The ability to scale up with ASRS is more predictable than a manual system," says Card. "With manual picking, you are reliant first on simply being able to find enough workers, second on getting them up to speed on how your process works - and they have to be up the task physically. With ASRS, it's an automated, software-driven process with predictable throughput, and it's easy for new workers to learn."

For senior executives, factors like maximizing existing labor, managing customer demand spikes and attracting and retaining younger workers adds up to a strategic advantage with the ability to flex the business in the face of growth and labor scarcity.

"Automation's ability to scale up is important for seasonality, but it's also important for handling growth," says Card. "Many companies are in growth mode right now. They don't want to be continually outgrowing their warehouse space, or scrambling to find enough labor. ASRS allows your company to grow and scale up and down to accommodate peaks in the most cost-effective way."

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Labor Scarcity Heightens ROI Payback for ASRS

DEPLOYING AUTOMATED STORAGE AND RETRIEVAL (ASRS) has always carried a solid payback. The dense storage from these systems can save up to 85% of floor space versus traditional shelving, and reducing the labor needed versus manual processes by roughly two-thirds.

Now very low unemployment in the U.S. market the last few years, and rising hourly wage rates for warehouse associates, have heightened the benefits behind ASRS. With distribution centers (DC) struggling to find enough people for manual processes, or having to rely on temporary help, operations increasingly are at risk of not being able to fill orders on time and accurately.

Additionally, appealing to younger workers for warehouse associate jobs is even harder when the workflows consist of manual tasks and miles of walking per shift.

It's no wonder that MHI, in its 2019 Industry report based on a survey done with Deloitte, found that the top barrier to adoption of digital supply chains was the skills gap and workforce shortage (cited by 65% of respondents), topping customer demands for lower prices (56%), and demands for faster response times (54%).

In short, labor scarcity has made the need for automation in DCs even more acute, especially when combined with growing online order fulfillment volumes. ASRS solutions are there to help meet the need, but what charactistics should you look for?

SEVEN WAYS ASRS CAN IMPROVE OPERATIONS

There are multiple benefits of Automated Storage and Retrieval Systems (ASRS). Given the major struggle many operations face in finding and retaining qualified hourly labor, an increasingly important benefit is the ability to find and retain workers interested in working alongside automation systems. Here is a short list of seven key benefits.

COMPACT FOOTPRINT
ASRS technologies provide highly dense storage and can save up to 85% of floor space occupied by shelving.

REDUCED LABOR REQUIREMENTS
ASRS systems require 2/3 less labor to operate when compared to manual shelving.

IMPROVED PICK ACCURACY
Automated ASRS uses pick to light technology to direct the operator to the exact location of the stored item, achieving 99.9% pick accuracy rates.

INCREASED THROUGHPUT
ASRS enables you to pick faster to keep up with customer demand.

GREATER INVENTORY CONTROL
ASRS solutions manage inventory so you always know what you have and more importantly - where it is.

IMPROVED SAFETY & ERGONOMICS
ASRS technologies create a safe and ergonomic working environment. Attract younger workers interested in learning/working with automated systems.

While there are several ASRS capabilities to look for, here are four key factors to look for in a solution, points out Douglas Card, director of systems and special applications, Kardex Remstar:

"It's extremely challenging to flex to demand when you have to go out and hire dozens more temporary workers. With automation that can scale by opening up one or two more workstations, or by adjusting the picking strategy, you can scale up or down to accommodate those busy times."

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- Automation that works well with people and features light-directed, software-driven user interface features that appeals to younger workers.
- Automation that easily flexes to meet peaks and valleys in demand and order fulfillment throughput needs.
- A proven software platform that supports multiple picking strategies and allows the system to scale.
- A global track record of successful deployments and integrated solutions.

An intelligent software platform really enables all four factors above. Perhaps most importantly in terms of labor scarcity, the ASRS solution should be able to scale by easily adjusting the picking strategy, such as by switching to multi-user picking or batch picking modes to bump up the output of the system by only adding one or two people directed by pick to light technology.

"It's extremely challenging to flex to demand when you have to go out and hire dozens more temporary workers," says Card. "With automation that can scale by opening up one or two more workstations, or by adjusting the picking strategy, you can scale up or down to accommodate those busy times. The light-directed technology makes it easy for new people to learn the system, and because it's high tech, it allows you to find and keep more young people. ASRS can do all these things, but it must be powered by flexible, intelligent software that is easy to integrate with other systems."