

MAKING THE CASE FOR
CLOUD ROBOTICS



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**Flexible Automation Meets Strategic
Goals, Generates Operations Insights**

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When spikes in demand put fulfillment operations at a breakneck pace, a common way to cope is to throw more people into manual workflows, hoping to keep up. That worked well enough when unemployment was much higher and hourly labor was readily available. That's not the case today.

Today, companies with production and fulfillment requirements are after automation solutions that can flex to spikes in demand without adding dozens of people. The last thing they need is inflexible automation that can't be scaled up or down, or reassigned to other workflows or locations. Therefore, the automation technology must be quick to deploy and easy to reconfigure, given the way that e-commerce growth and new market opportunities are prompting companies to revise distribution networks.

Autonomous mobile robots (AMRs) are shaping up as the way to meet this set of challenges, but it takes the right set of AMR capabilities to fully achieve flexible automation. For example, Cloud-based plat-

forms permit rapid deployment without onsite information technology (IT) infrastructure; easy access to metrics and reports; and support a subscription-based "Robot-as-a-Service" solution approach.

The robots themselves should come in a variety of form factors aimed at moving different payloads, with purpose-oriented attachments and accessories that have been certified as an entire entity instead of separately. Additionally, the platform's software should be easy to use, with useful metrics for operations managers and smart algorithms to coordinate robot resources.

Here is how these solution characteristics line up with the objectives of key stakeholders:

FOR SENIOR LEADERSHIP: With rapid order fulfillment and usability becoming key market differentiators for companies, C-level executives are increasingly interested in having nimble, reliable systems for rapid delivery and production of products. Anything that stands in the way of rapid fulfillment—like bottlenecks in material flow, wasted labor time spent on tasks that could be easily automated, or the inability to find enough hourly labor to handle peak times—is a risk to competitive position.

With the large labor shortages that exist, companies are concerned about being able to keep up with overall order volumes and material flow under more manual systems, because at peak times, it's extremely difficult or costly to keep up. With much of the picking activity today, it's prone to peaks in volume, under tight cycle times. For senior executives, Cloud robotics is a way they can cost efficiently deal with increased business activity, peak seasons, market expansions, or changes to the distribution network.

Cloud robotics also fits with strategic issues such as being able to rapidly spin up new distribution and fulfillment centers close to population centers, or to rapidly adjust production workflows in manufacturing plants, which are dealing with shorter product life-cycles and customization complexities that call for a more agile approach to factory automation. With Cloud Robotics, automation can be up and running in as little as a day, versus the months-long time frames associated with fixed automation.

With Cloud robotics, it's typical to see project return on investment (ROI) in six months or less, often stemming from lower labor costs that tracked by full-time employee (FTE) cost metrics or reduced overtime, while concurrently seeing throughput and lines per hour increase. Importantly, these payoffs can take shape in just a few months, versus a three- to five-year solution payoff.

"Much of the strategic value with Cloud robotics stems from speed and flexibility," says Melonee Wise, CEO of Fetch Robotics. "It used to be with robotics, you bought a robotic arm, and it did one thing. It did it well, but it did the same thing forever. By contrast, when you look at Cloud robotics, it's about rapidly being able to configure and deploy many types of automated workflows, manage the robots and the people involved, and get all the business insights from the workflows being automated. Being able to do all of that rapidly and flexibly is where our customers gain value."

FOR OPERATIONS MANAGERS: A Cloud robotics solution helps operations managers in multiple ways, including through easy adaptability of automated workflows, as well as through operational metrics and insights available via the Cloud software.

Additionally, Cloud robotics allows operations managers to make quick changes in how resources are deployed to deal with spikes in demand. Since mobile robotics aren't fixed assets, it's possible to move them from one facility to another to perform the same or even different workflow. All that's needed is a quick mapping or digital map refresh of the other facility, and the automated process can be up and running.

Operations managers can also log onto the Cloud software via a mobile device or other computer to access operational insights like robot utilization and completed tasks to help operations teams track the payoff rate for the robotics investment. When compared to previous manual methods, it's not unusual to see KPI improvements of 2x or more with Cloud robotics.

Another key benefit for a front-line manager is that Cloud robotics workflows are easy to adjust and create. No special programming skills are needed, and once created, mobile robots can be reassigned to different tasks or areas that match up with the payload and attachment profile of the bot.

You could, for example, create a case-picking workflow for mobile robots to support for a morning shift, and later in the day when orders are consolidated orders from the cases, the same robots could be assigned to handle the material transport for the order consolidation process and movement to pack out lanes.

FOR IT MANAGERS: Since Cloud robotics does not involve installation of servers or databases, there would be a reduction in IT capital and operational costs versus alternative solutions which require an "on-premise" IT infrastructure. As long as the facility has solid, working WIFI, the solution has no IT costs that fall outside of the monthly subscription fee.

Cloud robotics is predictable from a cost perspective, and easy to use when it comes to adjusting workflows or assignments. Additionally, you can start out very quickly with a simple workflow that doesn't require integration to other warehouse systems, and progress from there at your own pace, knowing you can take it to the next level of integration using proven application programming interfaces. You can grow at your own pace.

For other stakeholders: The range of applications that can be created with Cloud robotics holds special appeal to innovation staff at user companies. Most mobile robot solutions are purpose-built to assist humans in order picking, but can't do much else.

By contrast, with Cloud robotics the Cloud software, bots, and lineup of attachments can rapidly create solutions for long-range materials transport, replenishment of parts to factory work cells or automated storage systems; expediting hot orders in facilities, or other tasks like material transport to bulk storage, in addition to robot-assisted order picking.

Some vendors have smart bots with a radio frequency identification (RFID) attachment that can do tasks like cycle counting or finding specific assets in a facility. That means innovation staff can use one Cloud robotics solution to create many automated workflows.

Safety managers also have interest in Cloud robotics because having mobile robots take on more tasks reduces overall traffic and congestion in a facility, such as lift trucks zipping down aisles also travelled by warehouse associates on foot.

The Cloud robotics software also provides safety and operations managers with a heat map visualization of aisle congestion, allowing them to spot ways to reduce bottlenecks and improve safety. With Cloud robotics, there typically is reduced forklift traffic and better overall path optimization. That helps operations, but also is of interest for safety managers and risk managers in a company.