

# Boosting Warehouse and Supply Chain Productivity with Floor-Scrubbing Robots



Avidbots®



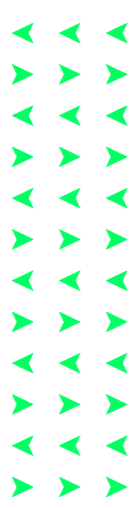
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# Introduction

Ask any supply chain executive what factors have had the greatest effect on their business in the past 10 years, and they'll tell you about how ecommerce and online shopping have grown at an unprecedented rate, how customers (both consumers and businesses) have come to expect near-instant delivery, and how the expansion of global sourcing has added to the volume and complexity of their operations. To keep up with these changes, warehouse and logistics managers are being challenged to increase efficiency and productivity – “do more with less” – at a faster rate than ever before. And, of course, this must be achieved without compromising safety or profitability.

Unfortunately, while these pressures are mounting, the labor market has not kept up with the demand for supply chain workers. In the U.S., the unemployment rate is at the lowest level in 50 years. With supply chain job openings increasing at a disproportionate rate to the rest of the economy, warehouse managers are left scrambling for a solution.



“Automation will likely continue to become less costly, while wages and benefits for human workers will increase over time.”

**- Material Handling and Logistics U.S. Roadmap 2.0**

It should come as no surprise, then, that warehouse facility managers are turning to technology solutions to help bridge the labor gap, allowing automated equipment and robots to perform repetitive or dangerous tasks while freeing their employees to tackle more valuable and complex work. In fact, according to a recent Warehousing and Logistics Robots Report from Tractica, the number of robots deployed in warehouses and manufacturing facilities will reach 620,000 by 2021, up from 40,000 in 2016.



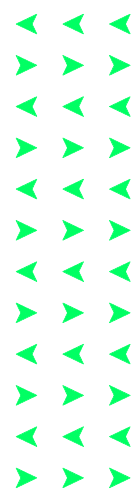
Robots and automation provide other benefits as well – reducing errors, boosting productivity, and eliminating the risks of illness and injury that come with having employees perform dangerous or repetitive tasks. While automation has traditionally been applied to tasks such as material handling and automated storage and retrieval, another area of warehouse operations that can benefit from robotic labor is cleaning.



The pace of supply chain innovation over the six years of our survey is truly astounding, creating real and measurable competitive advantage for early adopters. With supply chain complexity showing no signs of slowing, the risk of inaction is only growing. Leading manufacturing and supply chain executives agree that technology is the key to future success.”

**- George Prest, Material Handling Institute**

Neo, the autonomous floor scrubbing robot from Avidbots, is leading the way in revolutionizing cleaning operations – boosting productivity, increasing efficiency, and improving safety and worker engagement in warehousing and logistics facilities. Neo was purpose-built from the ground up as a floor scrubbing robot, with integrated safety features, simple, intuitive controls, and reporting capabilities that tell you what level of efficiency and productivity you’re getting from your floor cleaning operations.



## Warehouse Facility Challenges:

Growing demand for increased efficiency, quality, and measurable results

Limited management time for workload planning, supervision, and reporting

Difficulty recruiting and retaining custodial workers

Increasing labor cost, sickness, absence, and turnover

Stringent health and safety regulations

## Neo Floor Scrubbing Robots Can:

Improve the quality, consistency, and efficiency of warehouse cleaning

Boost productivity while reducing operating costs

Minimize labor demands and worker fatigue

Improve ROI with clear performance reporting and measurable results

Support a safer working environment for employees

## Chapter 1: Neo puts safety first

“Our warehouse deals with titanium dioxide (an extremely fine, white powder often used as a pigment), and it gets into everything – bearings, rotating equipment, any crevice or crack it can find. In terms of cleaning, this is the toughest environment I’ve worked in over my 30-year career, and Neo handles it better than any other cleaning method I’ve seen.”

- Mike Tennant, DSV

With a wide range of dirt and debris on warehouse floors, it’s essential to choose the right type of cleaning head. Use the wrong cleaning system, and you could wind up with dirt and debris ground into the floor surface or damage to your cleaning equipment. With Neo, you can choose the right tool for the job.

Unlike most robotic floor cleaners, Neo is offered with disc or cylindrical brush cleaning heads, allowing the robot to be optimized for your particular floor conditions. For example, most warehouses are better cleaned with a cylindrical brush head that helps sweep debris into Neo’s debris bin, where a floor pad would simply grind the particles into the floor, damaging the floor and the robot. But if the robot’s primary task is standard, everyday floor cleaning, Neo can be fitted with a floor pad scrubber suitable for your conditions.



Disc or cylindrical brush? With Neo, you can choose the right tool for the job.

Robotic floor cleaning as a competitive differentiator.

Avidbots' customer, Christie Lites – a leading supplier of rental lighting for television, theatre, and trade shows – recognizes that their warehouses are the company's face to the clients. Clients visit the warehouses to pick up and return lighting equipment. Having an organized and clean warehouse is not only beneficial for safety and efficiency, it's also a key part of the company's marketing strategy. As Dan Souwand, Vice President of Equipment, Systems and Warehousing at Christie Lites explained, "When the CEO of a production company comes in (to one of our warehouses) and sees the level of professionalism, including cleanliness, they're more likely to want to work with us over our competitors."





## Chapter 2: Floor scrubbing robots let your employees focus on more important work

### Features fit for a warehouse:

Warehouses present challenges to autonomous cleaning robots that you don't find in other commercial or industrial spaces. Most operate 24/7/365, with no downtime, and although racks and storage systems may be fixed, products and equipment move constantly. They also have narrow passageways, lots of blind intersections, and low obstacles such as pallets.

Unlike other floor-cleaning devices, Neo was designed with features to address these challenges, making it the perfect floor scrubbing robot for warehouses.

Slow-down zones highlight areas in which Neo should reduce speed and proceed with caution, such as hallway intersections where forklifts may be approaching.

According to a 2018 3PL market research report released by Inbound Logistics, finding, training, and retaining qualified labor accounts for 26 percent of operating budgets for shipping companies and a staggering 60 percent for 3PLs. As the growth in ecommerce drives up both the number and size of warehouses, the demand for employees continues to climb, requiring even more budget for training and onboarding. And that's if a company can find qualified workers for their operations.

Here, robots and automation are not just a solution, in many cases, they are the only solution. In fact, according to a recent Warehousing and Logistics Robots Report from Tractica, the number of robots deployed in warehousing and logistics facilities worldwide will reach 938,000 by 2022, up from 194,000 in 2018. The reasons for this rapid growth are twofold: robots can be deployed to address the shortage of supply chain talent, and they can be deployed to take on heavy, dangerous, or repetitive work and free human workers to focus on more complex and valuable work.

But technology only makes sense if it does the same job faster or more efficiently than a human worker. Case in point: automated robots should be able to clean more consistently than traditional cleaning teams, with minimal human intervention. Neo floor scrubbing robots do just that, with cleaning capabilities that set a new industry standard for floor care. Neo is fast and easy to deploy – simply map the facility or area to be cleaned, set a cleaning schedule, and go – no special training or programming is required. Unlike a human worker, Neo is always there – no scheduling issues, illness, or variation in cleaning time or performance. Once the cleaning plan is set, Neo gets to work – where and when it's programmed to clean. And with settings that are easily adjusted, Neo has the flexibility to meet even varying cleaning requirements.



**An available direction-indicating light projects from the front of Neo so employees can see the robot approaching around tight corners.**

**Neo's sensors can detect low-lying objects such as pallets, to avoid damage to products, equipment, and the robot.**

**Neo supports both disc pads and cylindrical brush cleaning heads to address the wide variety of floor conditions that occur in warehouses.**

**Easily manage a fleet of Neo robots – all in one location or deployed around the world.**

Neo's array of sensors, lasers, and cameras allow the robot to detect and navigate around obstacles and to dynamically and continuously update its cleaning routes. And Neo delivers unmatched productivity. The robot is always ready to clean, with up to six hours of run time on a single battery charge and the ability to run even longer with a simple battery swap, along with two, 112 L water tanks. Knowing that Neo never misses a shift and is ready to work for the long-haul, facilities managers can deploy cleaning staff where they're more needed and more valuable, without worrying about the job of floor cleaning.

DSV, a global transport and logistics company with warehouses around the world, operates a 400,000 ft<sup>2</sup> warehouse in DeLisle, MS. At this location, product is almost exclusively floor-stacked, meaning the layout changes not daily or hourly, but continuously. Mike Tennant, Operational Supervisor in charge of IT, Maintenance, and Building Upkeep says, "I was impressed with Neo's use of advanced sensors, cameras, and lasers to adapt to our warehouse's changing layout and avoid collisions. Neo performed better than I expected. Even with 25 forklifts operating continuously, along with people traffic, Neo was able to avoid collisions and work safely among our workers and our stock."

When Avidbots' customer Christie Lites doubled the size of their Las Vegas warehouse, from 80,000 ft<sup>2</sup> to 160,000 ft<sup>2</sup>, the company realized they needed to automate more of their facilities and maintenance processes to meet the labor requirements of the larger space and increased volume. After seeing Neo in action at a major airport, they contacted Avidbots and began the process of implementing Neo in the Las Vegas facility. As Souwand says, "Christie Lites executives were impressed with the turnaround time from purchase to implementation."







With the deployment of Neo, we also saw improved worker morale. Our staff take pride in their work areas, and they're now keeping their areas even more clean and tidy so Neo can do its job better."

- Dan Souwand,  
Christie Lites

Once Neo was delivered, Avidbots personnel visited the Las Vegas warehouse to train Christie Lites' personnel on its operation and deploy the robot. And in just a week, Neo was at work." According to Sowande, "Terry (the cleaner who primarily uses Neo) has a new piece of technology that's made his job easier. The employees recognize that technology is changing the nature of jobs." Neo has eliminated the need to have one person focused solely on floor cleaning. By employing Neo, Terry's productivity has increased significantly – now he can focus on other projects and tasks that are more important, while knowing that the floor cleaning operation is being handled.

## Chapter 3: Before you can improve it, you have to measure it

### What does Neo have to do with the Internet of Things (IoT)?

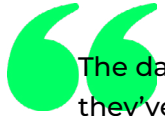
The Internet of Things (IoT) is, simply put, the connection of devices and sensors ("things") to the internet or other networks, allowing data and information to be collected by and transmitted among them. Devices and equipment connected to the internet can be tracked, monitored, and even controlled remotely. Internet-connected "things" can also provide useful data – information about product aging, equipment use, or inventory location, for example.

Understanding what is really going on with their cleaning operations – what's being cleaned and how well it's being cleaned – is a significant challenge for warehouse facilities managers. As Tennant of DSV pointed out, "Self-reporting is inaccurate, available too late to make meaningful decisions, and in many cases, there is simply no data on the state of manual cleaning operations. Neo's reporting capabilities have taken the guesswork out of determining floor cleaning efficiency and effectiveness." Neo provides visual maps and data showing the area cleaned and time spent cleaning, and even calculates a "true performance" metric and cleaning score that helps managers set and track key performance indicators (KPIs).

Manual cleaning – with walk-behind or ride-on scrubbers – is highly variable, making it difficult to measure and control cost. But Neo standardizes cleaning operations, with consistent quality and productivity. And with accurate, reliable, real-time data on their floor cleaning operations provided by Neo, managers can identify trends and make informed decisions that will increase the productivity and efficiency of their operations. Staff can be dynamically allocated and deployed to maximize productivity and reduce downtime and disruptions.



As a connected, autonomous device, Neo also supports IoT initiatives. With instant insight into the robot's performance – even remotely – and the availability of cleaning metrics and reports, Neo plays a valuable role in IoT-enabled warehouses and logistics centers, where visibility into cleaning operations is a key requirement for productivity improvement and cost reduction.



The data reaffirms where the cleaners have been, and when they've been there. We're actually trying to follow where the cleaners go and have them align in a proactive way to where they need to be, and not just in a scheduled way."

**- Kimberly Train, Oxford Properties Group**

Of course, the decision to automate a task or process is justified by its return on investment (ROI). But measuring and proving ROI is difficult without metrics. Avidbots Command Center makes it easy to calculate the ROI achieved with Neo by providing data on every clean, by every robot, in every sector. With Neo, measuring and monitoring ROI is easy and objective.



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## Conclusion: Neo floor scrubbing robots are the next wave in warehouse automation

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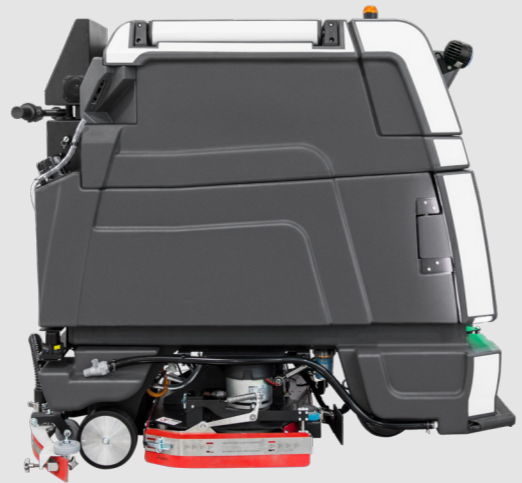
Avidbots’ Command Center online app makes it easy to monitor and manage one, two, or an entire fleet of Neo robots, all in one location or deployed across a network of locations globally. The Command Center also provides in-depth performance reports, so facilities managers can track and optimize cleaning performance. Users can also manage cleaning maps and plans remotely via the Command Center, to adjust for changing floor layouts or cleaning requirements.

To learn more about how Neo robotic floor scrubbers boost warehouse and supply chain productivity, visit our website or schedule a meeting with our sales team.



## Why Avidbots?

Buying an Avidbots Neo isn't just buying a floor scrubber. It's investing in a technological future that can redefine your cleaning function, making it more productive, more cost effective and easier to run. More importantly, our robotics and AI technology open up new opportunities to make your business even more successful. We realize this isn't just about buying a product, or a technology, or even a business proposition. You want to buy into a trusted partner who can take you into the future of automated operations using cutting edge robotics. At Avidbots, we work side-by-side with our customers to earn that trust and realize all the benefits that robotics can bring them.



## About us

Avidbots is a robotics company with a vision to make robots ubiquitous to unlock humanity's potential with a hyperfocus on autonomous cleaning. Our groundbreaking product, the Neo fully autonomous floor scrubbing robot, is deployed around the world and trusted by leading facilities and building service companies. Headquartered in Kitchener, ON, Canada, Avidbots is offering comprehensive service and support to customers on 5 continents.

## Contact us

Learn more about Neo.



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