



The SOFTBOT® Platform

Rapid and Simplified Interoperability
for Today's Supply Chain



Introduction

Adaptable and flexible automation technology is now the panacea of supply chain management.

It's the single most crucial requirement of robotics and automation technologies in our current marketplace. Industrial automation was already primed for growth, but the black swan pandemic created a surge in e-commerce orders and smaller batch items (a single package of bolts or one pair of socks). As a result, the market is relying more and more on industrial robotics and process automation to move products as fast as possible.

That means building supply chains around natural resilience and flexibility; the goal can no longer be optimizing a warehouse only to have it static for the next three years. Instead, companies must deploy automation and design material flows in ways that make it possible to change what they move and how they move it – quickly.

Is that possible?

It is

Can you do it with minimal risk and maximum scalability?

Definitely

This white paper will outline the new path to supply chain resiliency through the rapid integration and deployment of automation technologies:

OLD

Until now, deployment of robotics and automation has meant attempting to meet current market demands with static automation that requires a massive infrastructure investment to install, and large-scale custom integrations to make it all work. (The length of that sentence is a metaphor for the whole behemoth process.)

Who has the time and budget for that?

Since we can no longer forecast with any certainty the ebbs/flows of consumer behavior even six months out, you certainly don't. Without the proper infrastructure in place today, automation simply can't be adjusted at the same pace as the growing complexities of the current market; it's hard to make changes on the fly.



NEW

The modern path greatly accelerates a company's ability to deploy automation technologies that ensure optimization and future agility. Technologies that make it possible to pivot - rapidly - how manufacturers and warehouses process and ship consumer goods.

Let's dive into the whys of needing flexible automation in the first place.

Voracious-Yet-Volatile Consumer Buying Habits

Consumer buying patterns have altered the whole system around supply chain management. That's not an exaggeration. The pandemic revealed how quickly everyday consumer products could become vital necessities (masks, hand sanitizer, PPE). The lasting side effect is our zeal for receiving goods faster and easier, to the point that speed of fulfillment is the **second determining factor** in a person's final decision to order an item. (Cost is the first.)

Sitting at the top of the e-commerce sector, Amazon set the very high bar of overnight and even same-day online order shipments. That expectation is now the rule vs. the exception for businesses of every size and category, leading to significant increases in density and throughput at warehouses around the globe. Traditional warehouse automation models — employees handpicking goods or conventional conveyors crisscrossing a warehouse — simply can't keep up with modern demand. Even if those methods were still sufficient, a decline in the availability of labor is further driving the divide between the e-commerce revolution and the straining requirements of a dynamic supply chain.

The Workforce Gap

Online sales require more labor per item sold than brick and mortar retail stores.

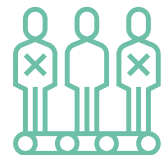
Given that e-commerce drives labor primarily back into warehouses, human workers serve in many vital functions. But a shortage of warehouse employees is quickly **becoming a significant issue** facing supply chains. As the economy bounces back, the demand for workers across industries continues to climb, yet attracting enough labor has led to backlogged and understaffed distribution teams.

The problem isn't only around blue-collar labor. Software developers, especially, are also in high demand but short supply. On the upside, the influx of new automation technology and the arrival of technically savvy college graduates building next-gen robotics is a fortuitous juncture. Still, they too are lured by companies like Amazon, who employ massive numbers of technologists in their headquarters and regional distribution centers. And that leaves smaller businesses lacking in both software staff and employees who pick products.

To address this challenge and remain profitable, supply chain architects need automation to support the workers they do have and increase productivity, ultimately pulling costs out of a fulfillment process that, before the pandemic, was primarily subsidized by customers shopping in stores. The key to automation success, then, is to deploy solutions flexible enough to cover all the requirements of today's supply chain.

Part 1: Today's Supply Chain Realities

Challenge Number One



Challenge Number Two

Point-Solution Technologies Can't Do Everything

Point-solution technologies in warehouse automation are steering us away from the traditional process — when a single supplier built all the automation hardware and a different company coded the integrations to make it run. Investments in manufacturers that make only robotic picking arms, only AGVs, or only AMRs, for example, have become more common. They do one thing very well, which is perfect for specific and targeted functionality. However, the challenge is two-fold: no one company has or ever will have the complete set of technologies that all companies need, and you can't run an entire warehouse with only one type of technology. The number of permutations of need is infinite.

Innovative though they are, when point solutions are coupled with levels of consumer demand that have changed the entire ecosystem of supply chain management, the industry of today can't support it. Sure, you can go to a large integrator and buy massive quantities of their equipment, but it will take a year or more to get it deployed. Why did Amazon's delivery capabilities explode? Because they hired their own teams, technologists, and industrial engineers and figured out a way to make it fast. Most other companies can't do it the Amazon way, of course, yet they need those results just the same.



Challenge Number Three

These challenges are sending warehouse management leadership in search of technology that can radically improve operational efficiencies, with a particular focus on agnostic and agile solutions that don't require a massive infrastructure investment to install.

And with that, let's move to Part 2.



Robotics adoption can make an immediate impact on improving business output.

The difficulty for most companies is integrating disparate software and hardware solutions across their facility or supply chain – and wading through the options to achieve it.

Independent integrators can help with system design and automation selection, and they can theoretically deploy anyone's hardware to do it. But they also have less experience with all the available technologies, so their integration tends to be one-off and at a pace that's too slow to keep up with today's supply chain demands. Those systems are also more challenging to support long term.

A different option is robotics manufacturers. They can supply everything – turnkey service with one interface point for your IT. However, their black-box software is typically challenging to integrate with existing technologies, especially if the applications and systems have had customized iterations over many years. These companies may also push you to use their technology rather than evaluate best-in-class solutions.

In the world of consumer tech, open-source code platforms have overcome these hurdles. Android's open-source code OS allows developers to create propriety apps on their platform; the goal being to ensure Android software can be implemented as widely as possible to benefit the masses. That same goal exists for automation today. And, we can glean a similar path to tackle the interoperability issue across disparate automation technologies.

The answer is a low-code, technology-agnostic platform for robotics integration.

By applying a macro view, such a platform is designed to work with both enterprise-level systems and automation solutions and can take on the challenge of technology interoperability. Once those technologies are connected to the platform, they can be integrated with any other solution, hardware or software, in just days or weeks—all without tasking software engineers with extensive coding.

How is that possible? It's in the design.

Part 2: The Quest for Fast and Flexible Automation



Technology-agnostic platforms are designed to work with both enterprise-level systems and individual automation technologies.

Separating the Layers to De-Friction the Process

In software, the middle layer between operating systems and application platforms is frequently characterized as the glue connecting them. But those middleware components typically equate to a system, and as more and more information moves through them, systems often become disconnected points of failure.

The low-code, technology-agnostic SOFTBOT Platform eliminates the middleware component but maintains the same connectivity construct, creating a product that isn't vulnerable to system congestion.

By treating specific automation tasks (e.g. releasing an order, making a product pick, moving pallets across locations) in a specific yet universal way, the SOFTBOT Platform can leverage any specific robot or automation hardware by abstracting its behaviors into a behavior set. The result is highly modular components that are uncoupled and function individually yet orchestrated in a way that makes them very flexible and scalable. The specific value that each system provides then gets realized at the point of the actual execution.

That allows for maximum freedom to pick and choose how you want the system to act. Expedite a change to your warehouse automation, or easily pilot new technologies before scaling up. It's all possible.

Creating Material Flows Through Process Blocks

Tasks in warehouse automation are commonly managed with business rules and branching logic; graphical process trees that address the unique needs of every business and warehouse. But these complex workflow tools have spawned a plethora of one-off, known-but-undocumented knowledge-based systems that contain a lot of "what if" scenarios. As a result, when business needs change at the rate they do today, the complexity of those proprietary systems becomes unwieldy and expensive.

A simple "I have an AMR, and I want it to go and pick an item" is straightforward, but what happens when it gets there too early? Or too late? What if the product isn't ready? Changing functionality to adapt to the current environment means adding yet another expensive module with custom code development to make it work. Over time, you end up with a complex and task-built solution that perpetuates the fostering of "experts" on only portions of the overall system, continuing the cycle of relying on individuals vs. the technology.

On the contrary, the microservices on the SOFTBOT Platform equate to process blocks strung together organically so they by themselves create material flows, giving the ability to construct and finetune the material flows graphically without complex "if-then" decision trees. Even when the need arises to build a new, more specific material flow, that adjustment process takes place only with the application in a single process block — not the whole system.

Part 3: Bringing Rapid Integration to Life With the SOFTBOT® Platform



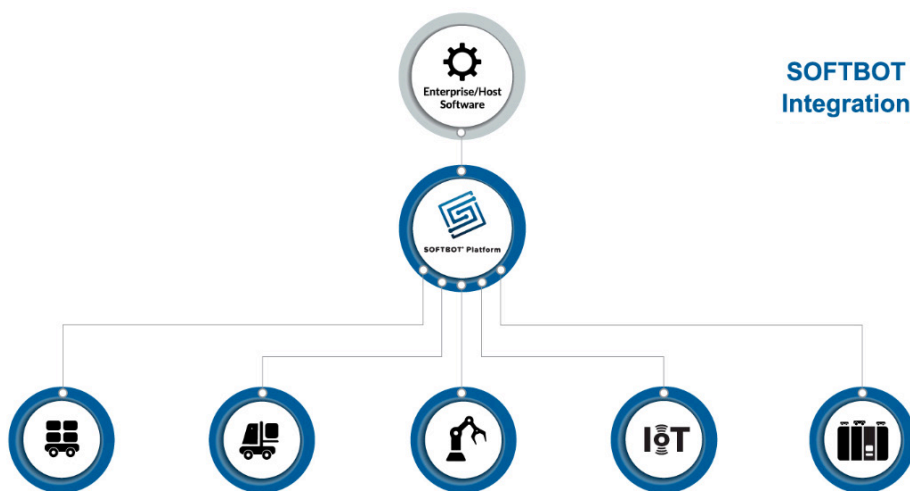
The SOFTBOT Platform gives the ability to construct and fine-tune material flows graphically without complex "if-then" decision trees.

This functionality is where actual marketplace readiness occurs. With the ability to easily add, revise, and replace microservice components, companies experience the ultimate in versatile supply chain management. From combining different technologies to create novel solutions that better address their specific needs (and better use of precious budget), to creating custom systems built from the ground up without custom code, even with existing hardware. Got an AMR? Simply plug it into a solution designed for you. Integrate that speedy sorter. Let your fleet manager do the job it's intended to do.

Automating Tasks by Isolating Microservices

After connecting systems that communicate easily, automating tasks is the next step in modern supply chain utopia. Some companies have begun using Robotic Process Automation systems (RPA) to automate tedious rules-based business processes - everything from automatic email responses to deploying robots within ERP systems. More CIOs are using RPAs to streamline enterprise operations and reduce costs.

The SOFTBOT Platform embraces that process and then exceeds it. Like an RPA, microservices can be isolated to create a material flow and make it repetitive, with literal drag-and-drop ease. That renders obsolete the specialization many companies think they need - and frankly can't afford given the fluctuating demands on supply chain readiness over the last few years. If your business calls for repeatable tasks with a particular picking hardware, simply integrate and deploy the right robot. The challenges are no longer around software technology, only getting the correct end device to do the job. If you pilot one robot that doesn't solve your need, remove it, and test another one - each pilot equates to a simple connector on the SOFTBOT Platform.



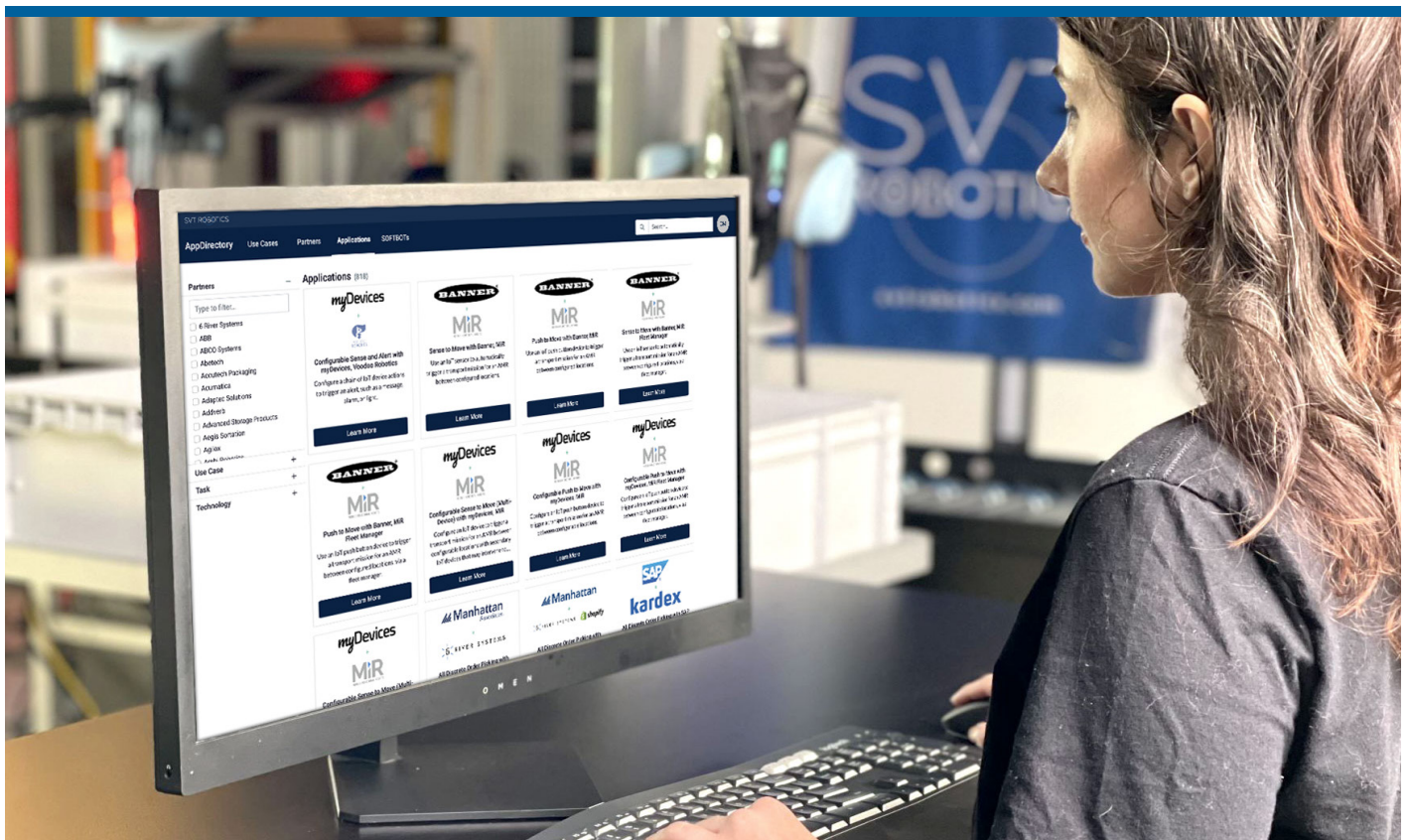
The SOFTBOT Platform embraces the RPA process, and then makes it better.

Drive to Value Quickly - and Keep Pace With Market Demand

Adopting automation commonly bumps up against the historical norm that investing in robotics is expensive and high-risk. But today's rapidly shifting consumer marketplace is pushing late adopters into the market. To deploy robotics quickly and with less risk, companies must be empowered to both determine which technologies create the optimal solution and implement future system changes at the speed of their business need, without returning to their integrator, software provider, or WMS staff. Those processes take too long and cost too much.

The SOFTBOT Platform radically reduces the time required and financial risk to pilot and scale fully integrated robotics. It can mean investing \$50,000 versus \$5 million in a solution to ascertain the direction of your company's warehouse automation efforts. If the technology fails, you can abandon it without much investment. If it works, you can quickly scale without the worry of unexpected integration issues.

For too long, investment in robotics potentially also meant a decision-maker finding themselves in the hot seat. Now, it can be a smart and strategic tool to ensure the right automation is put in place.



We make it easy!

SVT Robotics' low-code, technology-agnostic SOFTBOT Platform comprises a configurable, pre-built integration layer that enables rapid and simplified integration with enterprise systems and disparate software and hardware technologies. Utilizing our extensive warehouse automation and industry knowledge, we've auto programmed the tasks we know many companies need for today's supply chain.

Once connected to our platform, your company can quickly and effectively, at low risk and low cost, try out new technology:

- Combine it with other systems
- Run smaller pilots
- Rapidly scale a fully integrated solution

Through the SOFTBOT Platform, end-users and company stakeholders making budget critical – and sometimes career critical – automation investment decisions are now empowered to control their own destinies with less risk. And, by simplifying deployments, you can unlock valuable employee resources so they can focus on other, more important tasks that advance your business.

That's the true power of automation at the speed of your business need.

That's the SOFTBOT Platform.

