



SMART FULFILMENT: NAVIGATING THE FUTURE OF THE SUPPLY CHAIN

Honeywell

INTRODUCTION

In many ways, the pressure on and importance of supply chain operations has never been higher.

Year after year, customer expectations have been becoming tougher to meet. Major mass market retailers, business-facing suppliers, direct-to-consumer operations, and every other kind of logistics and transport reliant business face a similar shift in terms of needing to offer benefits like faster deliveries, more transparent stock visibility, and more helpful processes. And that need to invest in improving capabilities comes at a moment when tighter margins and often fragile international supply chains need to be carefully managed.

Professionals in the space have been charged with developing and applying deep expertise to improving operational efficiency. Managing how goods move is a need that never fades away. But, when the competitive and economic pressure is on, getting it right can make or break a whole business.

Now, though, multiple technologies are maturing and expanding the arsenal of tools that supply chain leaders have available to them. Specialized artificial intelligence applications may help keep inventory and workflows more closely in line with what customers need. 5G adoption is changing the relationship between workers on the floor and the business's high-level strategic view of operations. And machine vision, robotics, and automation are enabling new ways of thinking about and working with physical goods.

That makes this a big moment for supply chain operations. The end goals of logistics leaders are not radically changing: more efficiency, more accuracy, more speed, more flexibility. How they achieve those goals, though, is changing, and mastering those opportunities will require leaders to expand their horizons to take advantage of emerging technology, while maintaining a focus on bringing their deep expertise to bear on day-to-day operations. That starts with a clear-eyed view of where the benefits lay.



1 AI

There are two key things for supply chain leaders to understand about AI in order to see how it applies to transport and logistics, and specifically to their businesses.

First, while we can talk about AI generally, it is not just one technology. Many different kinds of tool, with different requirements and benefits, are now at hand for your operations. Generative AI uses pre-trained models to turn complex information that people need access to into easily readable and bespoke outputs. Predictive analytics tracks data over time in order to automatically forecast and help to avert future challenges. Machine learning uncovers potentially invisible connections between datapoints by analyzing them at scale.

Second, one quality that these tools all share is that they deliver the strongest results when they have access to a large quantity of diverse data. That means creating ways to bring together critical information which has traditionally been spread across many systems, from inventory tracking to internal communications to workforce planning.

It's when the tools can 'see' across these different areas that they can help businesses do something genuinely new with their resources and offer truly deep insights.

Those insights are a major advantage in terms of informing a business's strategic, top-down view of its operations. The complex nature of logistics means that no one person can have a full, broad and detailed view of it in an operation of any significant size. With AI tools, decision-making can much more efficiently be supported by insights that do take account of that full picture, while demand can be forecasted more reliably to maximize revenue opportunities and fraud can be detected more reliably to minimize overheads.

At the same time, AI can be an advantage for the tactical, bottom-up view of operations that employees need in order to operate effectively. More accessible knowledge bases and more intuitive instructions, generated on the basis of a wider and more accurate data set, mean that workers can spend less time figuring out what needs to happen and more time making it a reality.

One thing to be sure of is that AI is pervasive and moving into everything that happens between order placement and fulfillment. The right early steps can set businesses up for a long list of innovations that deliver real returns.



“When I think about AI for any industry, it’s about solving the big problems that haven’t been able to be cracked”

– Michael Groskopf

5G is not now a frontier technology: initial commercial offerings started in 2019, and the technology is now serving many millions of end-users worldwide.

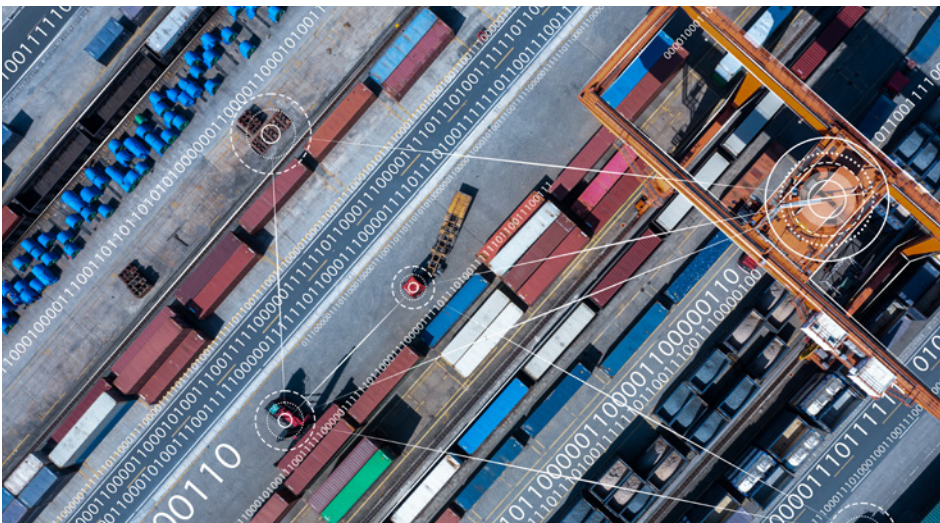
However, to take full advantage of its potential, particularly in commercial deployments, has required many factors to align. Handheld devices, of course, need to be engineered with new modems to access the networks – something that recent generations of Honeywell handheld computers, like the [CT47](#), and other devices now offer. The public network rollout is an enormous task, but many areas, particularly in metropolitan settings, are now covered. Businesses also have the option of Private 5G – running networks on their own radio spectrum for better speed, reliability and security – and this is now more accessible and achievable than ever. And internet of things devices, which 5G's speed can supercharge the value of, are more widespread than ever.

Understanding what that really means for supply chain leaders, though, is about translating the always-on mindset that we're now all familiar with in consumer life over to the business setting. While every key logistics location will now employ cellular communications as a normal part of everyday workflows, 5G-driven capabilities make that communication a constant companion through supply chain tasks.

Being able to assume that remote connectivity and information is available makes a big difference to logistics workflows. In a warehouse, for example, it means making common tasks like checking inventory or confirming manifests something that employees can do from anywhere, instantly, freeing them to focus on completing order fulfillments.

“You want to treat 5G as one element of a multi element long term strategy”

– Scot Stelter



The human perspective lies in the potential for 5G to uplift the employee experience, both through alleviating frustrations that workers may have with slow or unreliable digital tools and through enabling new, real-time digital assistance.

That makes 5G an important way of addressing challenges around capacity and skills retention, while ultimately delivering a better customer experience that supports greater consumer loyalty.

3 MACHINE VISION, AUTOMATION, AND ROBOTICS

This is a set of technologies that execute on essential tasks that, previously, human employees would have been needed for.

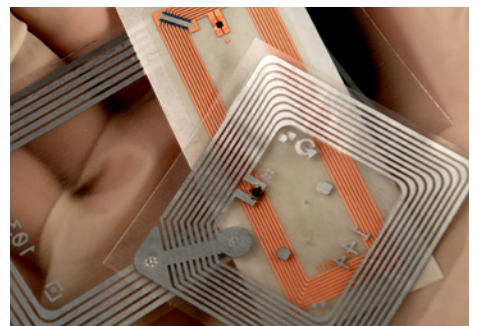
Machine vision systems are trained to recognize real-world objects, going beyond tools like barcodes and RFID tags to understand what objects are by their appearance and whether they are being appropriately handled. Automation helps cover any technology that intelligently respond to a signal (whether that is an order being placed or a section running low on stock) by executing a non-simple workflow. And robotics, involves a range of machines that handle items efficiently, safely, and intelligently.

The key to effective implementation for all of these is about understanding how they integrate with human workforces. It's common to see speculation about them entirely replacing employees, but the major benefits lie in introducing them in ways that augment human labor, improving productivity per person while also improving the quality and experience of those jobs.

A key application for robotics, for instance, is in making logistics sites safer and less arduous, such as by moving full pallets and other heavy or dangerous items in spaces segregated from people. Automation, similarly, can generate pick lists more intelligently to reduce the distances employees walk on a daily basis and make their roles less arduous.

These technologies have important consequences for the flexibility of supply chain operations. Being able to operate consistently, and potentially round-the-clock, at less extra cost means that operations with a significant amount of labor augmenting technologies can better scale with peaks in demand, minimizing overwork amongst employees focusing on higher-value workflows.

And it also has vital sustainability implications, enabling supply chains to do more, more accurately, with fewer resources. A machine vision system confirming that orders have been properly picked and packed, for example, can avoid returns or re-deliveries – and the wasted transport emissions that those events involve.



“There are so many labor shortages out there that many of the companies that we’re talking with aren’t looking at deploying automation to eliminate people. It’s actually deploying automation to reliably deliver their service that they’re trying to provide.”

– Taylor Smith

CONCLUSION

The supply chain is a major pressure point for many businesses, and it could be easy to see technological transformation as an overwhelming additional requirement being placed on the shoulders of supply chain leaders.

Smart businesses, though, will look for how these technologies are already aligned with their immediate targets and lean into the support that's now becoming available. Successful implementations will deliver near-term benefits as well as building towards a longer-term future.

This is particularly true given the significant overlaps that these technologies have. Automation technologies both rely on and generate useful data for AI platforms, and both rely on the deep connectivity that 5G enables for maximum performance. Most supply chain operators today will have some level of these technologies in play – finding return on investment for technology innovation means identifying what will synergize with a business's existing context and demands.

The question is one of effectively planning and deploying those next steps. Just as a large supply chain operation means that no one person can have a complete overview of the details, the breadth of technology now available to businesses in this area means that strategizing is not a one-person job. Businesses may also face a skills challenge around technology, given that deploying these technologies relies on some of the most in-demand roles in the job market today.

Honeywell offers a consultative approach to helping supply chain leaders plan for the future of their businesses, together with end-to-end design and manufacturing capabilities that mean we deliver bespoke solutions at scale.

**TO LEARN MORE ABOUT HOW TO NAVIGATE
THE FUTURE OF THE SUPPLY CHAIN,
[GET IN TOUCH TODAY WITH ONE OF OUR EXPERTS.](#)**



For more information

automation.honeywell.com

Honeywell Industrial Automation

855 S Mint Street
Charlotte, NC 28202
800-582-4263
www.honeywell.com

Honeywell
eBook | LTR/A4 | 09/24
© 2024 Honeywell International Inc.

Honeywell