Applied Automation in the Warehouse Boosts Value Across Stakeholders

Prologis Moissy II Distribution Center, Moissy, France

Introduction

Warehouse users continue to see operational constraints rising, from labor shortages to service level imperatives. Five years ago, Prologis Research projected that warehouse automation would increase in response to the need for efficient buildings. In revisiting our original thesis, we find that automation adoption is not only accelerating but also reinforcing structural demand for well-located warehouse space capable of incorporating emerging technologies.

A common question centers on disruption risk: Does automation lead users to need less space? Automation does not reduce the need for warehouse space. Automation is growing alongside logistics real estate footprints, with technological advances achieving top-line revenue growth and solving operational constraints.

Three forces are driving how and why customers are adopting automation:

1. **Automation helps solve structural operating constraints.** These include labor shortages, especially in the largest consumption markets, growing supply chain complexity and an increased need for quicker throughput speed.
2. **Adopters are prioritizing flexible solutions that optimize existing warehouse space.** Autonomous mobile robot (AMR)/automated guided vehicle (AGV) deployment is rising fastest, as these technologies provide faster ROI and preserve flexibility within leased spaces.
3. **Fully automated sortation and retrieval systems (AS/RS) are rare, present in roughly 3- 5% of warehouses.** These technologies can reduce warehouse space needs, but high upfront costs and low flexibility limit both current and future adoption.

That shift is already visible in four ways across logistics real estate:

1. **Automation lifts service levels and expands networks.** As a result, top companies' distribution networks are growing at the same pace or faster than rapid revenue growth, even as new technologies are deployed.
2. **Modular systems unlock expansion in infill locations.** The ability to a) solve greater labor challenges, b) enable higher service levels and c) deploy automation in smaller spaces offers a compelling value proposition.
3. **Automation creates value for users and owners.** Facilities with automation see higher retention, longer lease durations and higher rental rates than facilities without automation. Given higher penetration and growth among flexible automation solutions, adoption has a minimal impact on property obsolescence.
4. **Capital spending will rise with improving conditions.** Greater clarity and lower cost of capital should further entice automation investments, enabling higher levels of space utilization, greater throughput intensity and strategic network expansion to meet long-term business objectives.

Automation types

Full automation: A warehouse system where storage, retrieval, and internal movement of goods are handled entirely by automated equipment and software.

Partial automation: A warehouse setup where automated technologies support specific tasks while human workers still perform other core operations.

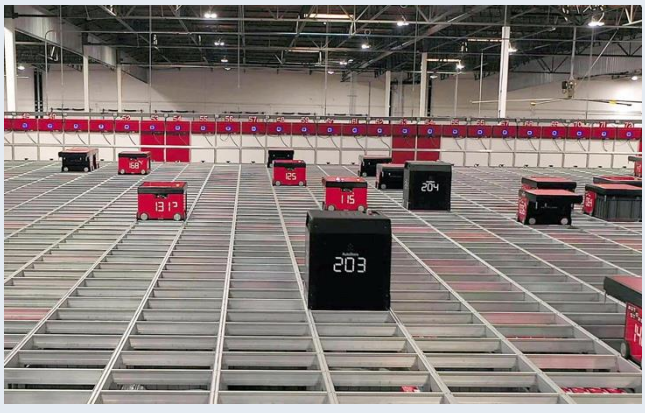
Fixed AS/RS

Automated storage and retrieval systems with cranes, shuttles, lifts, or cubes

Automation type: Full automation

Adoption: 3-5%

Warehouse specs: Clear height (32 ft+), Flat floors, Column Spacing, Mezzanine



AMR / AGVs

Automated material handling with sensors, LiDAR, cameras, or magnetic strips

Automation type: Partial automation

Adoption: 10-15%

Warehouse specs: Clear height (25-35 ft+), Flat floors, Column Spacing, Mezzanine

Automation types continued

Conveyance/Sortation

Fixed infrastructure for goods movement

Automation type: Partial automation
Adoption: 7-9%
Warehouse specs: Largely flexible

Picking/Piece-handling

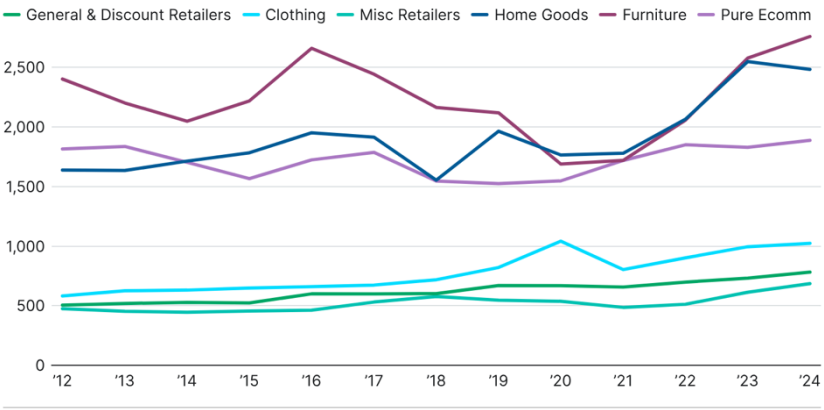
Robotic arms for palletizing, unloading, cartonization

Automation type: Partial automation
Adoption: 4-5%
Warehouse specs: Largely flexible

Automation improves service levels, driving sales and requiring more real estate. The goal of automation is to improve speed, safety, efficiency and operational productivity in the warehouse, not to reduce warehouse square footage or remove employees. The evidence suggests it is working. Nearly all of the top 30 North American retailers are deploying automation in their supply chain operations, albeit at different stages of maturity. These top retail adopters have gained more than 700 basis points of market share between 2019 and 2025.[1] At the same time, warehouse square footage occupied per unit of sale has held steady or grown. Automation is emerging as a competitive differentiator within retail supply chains.

Logistics Real Estate Utilization within Supply Chains

MSF, per $1B in revenues



Source: Prologis Research

Europe's labor tightness and land scarcity accelerate automation adoption

Europe's warehouse automation adoption is most prevalent in high-wage, low-unemployment logistics hubs. The Netherlands is a clear example: Job openings there have tripled over the past decade and wages are among the highest in Europe. In transportation and storage, demographic challenges are set to intensify: Roughly 40% of current employees are expected to retire within 15 years. High land values, scarcity and planning constraints raise the premium on throughput per square meter, accelerating automation adoption in infill locations. Within Prologis's Dutch portfolio, more than 25% of space is automated (including 9% fixed automation), reflecting meaningful penetration in a dense, throughput-intensive region. A quote from DHL's global head of digital transformation illustrates the scarcity dynamic: "We still have the ambition to grow our business even further, but if you look at where these distribution centers should be located … it's typically very tough to find additional labor or even additional spaces just to build these warehouses there."[2]

– Automation helps solve operating constraints. Logistics users deploy automation to address structural bottlenecks including increasing labor scarcity, supply chain complexity, safety standards and throughput intensity. These results illustrate that automation is not only a cost-reduction tool, but also a productivity- and revenue-enabler. In addition to physical technologies, AI-enabled warehouse systems are improving throughput, reducing error rates and lowering operating costs while enhancing productivity.

Leading adopters have cited productivity metrics that reinforce these dynamics:

- **Walmart:** "More than 50% of our fulfillment center volume is automated, which is twice as much [as] at this point last year… These factors contributed to the third consecutive quarter of approximately 40% reduction in U.S. net delivery cost per order… [and] enhancing service levels with customer NPS for delivery reaching all-time highs this quarter."[3]
- **Chewy:** "[Automation in fulfillment centers] drives improvement to the tune of up to 50% in productivity, 30% in volume per square foot, and up to 60% improvements in ergonomics and safety."[4]

Modular technologies can enable expansion in productive infill locations. Adopters are prioritizing flexible solutions that optimize existing warehouse spaces and have short payback periods. In 2025, 30% of modern logistics spaces included one or more types of automation, up from 20-25% five years ago.[5] These technologies work best with features such as super flat floors and LED lighting, but do not require the same specialized facilities as most AS/RS systems. This creates a bifurcation in the market where selective retrofits can extend the functionality of older stock while advanced fixed automation systems require newer existing or built-to-suit facilities. Most infill real estate is of an older vintage and competition for proximate labor is fierce. In labor-constrained markets, automation enables higher output within existing footprints.

AMR/AGV adoption grew from an estimated 10% of modern facilities in 2020 to 15% or greater in the U.S., adding these technologies into up to 100 million square feet per year. Modular automation systems require roughly one-third the capital of fully automated solutions while delivering approximately 1.5x more throughput gain per dollar invested.[6] This capital efficiency has accelerated adoption of scalable systems that can function across building sizes and geographies with lower upfront risk, particularly in leased environments where flexibility is critical.

Fully automated sortation and retrieval systems (AS/RS) are rare, present in 3-5% of warehouses. Since 2020, the adoption rate of advanced AS/RS systems has been stable, equaling the addition of about 10 million square feet per year.[7] This limited growth reflects high upfront capital costs, limited flexibility and specialized real estate needs. Power requirements for most AS/RS systems are the highest of the automation types, with up to 20 times more capacity needed than other automation solutions.[7] In addition to power intensity, specified facility needs such as high clear heights, enhanced floor load capacity, jointless floors, wide column spacing, advanced IT infrastructure and climate control limit the number of existing facilities that can accommodate advanced AS/RS.

Obsolescence risk based on automation adoption alone is low. While limited AS/RS penetration also means limited obsolescence risk for properties without these features, stable adoption also reinforces the value of Class A modern properties that can accommodate these systems for users able to incorporate them.

Built-to-suit demand is rising to accommodate modern operations. In 2025, an estimated 40% of built-to-suit (BTS) projects incorporated automation[7], reflecting structural alignment between facility design and system deployment. While AS/RS composes only a fraction of this 40%, the ability to construct a facility around multiple automation technologies and potential future operational needs is a key driver of built-to-suit demand.

Automation adds value for both the user and the owner of logistics real estate. Users deploying automation demonstrate higher credit quality, a double-digit higher likelihood to renew and roughly one-year longer lease terms, strengthening income visibility and asset-level performance.[8] Given automation's higher value proposition in urban areas, rental rates are 10% higher for automated facilities versus non-automated, after controlling for market and size.

Capital investments, including automation, should increase as cyclical conditions improve. Greater clarity, improved confidence, better technology and lower cost of capital should further enable automation adoption, as structural forces, such as the need to maximize labor productivity, will persist. This is directly translating to action on logistics real estate: Roughly 10% of brokers indicate new leases signed with the express purpose of incorporating automation.[9] Prologis Research forecasts that up to 50% of modern warehouses will incorporate some form of automation, dominated by flexible solutions, by 2035.

Conclusion

Automation is reinforcing rather than reducing structural demand for modern logistics real estate. With penetration at approximately 30% of U.S. facilities and investment per square foot rising, the runway for further automation adoption is long. As the economic cycle becomes more supportive, broader deployment should coincide with higher utilization and greater throughput intensity across the network, driving automation adoption and concentrating value creation and competitive advantage within the supply chain.

End Notes

1. Rough estimate based on revenues, public filings from Wal-mart, Costco, Amazon, Chewy.
2. CNBC reporting on automation adoption.
3. Walmart Q3 2025 earnings call.
4. Chewy Q3 2024 earnings call.
5. Prologis Research based on proprietary portfolio insights and customer surveys.
6. Proxy based on estimates from Autostore and Kiva Robotics.
7. Prologis Research
8. Prologis Research based on Prologis portfolio leasing data from 2021-2025
9. Prologis Research proprietary survey of leading U.S. industrial brokers executed monthly from May 2024 to February 2026.

Forward-Looking Statements

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Prologis' Research department studies fundamental and investment trends and Prologis' customers' needs to assist in identifying opportunities and avoiding risk across four continents. The team contributes to investment decisions and long-term strategic initiatives, in addition to publishing white papers and other research reports. Prologis publishes research on the market dynamics impacting Prologis' customers' businesses, including global supply chain issues and developments in the logistics and real estate industries. Prologis' dedicated research team works collaboratively with all company departments to help guide Prologis' market entry, expansion, acquisition and development strategies.

About Prologis

Prologis, Inc., is the global leader in logistics real estate with a focus on high-barrier, high-growth markets. At September 30, 2025, the company owned or had investments in, on a wholly owned basis or through co-investment ventures, properties and development projects expected to total approximately 1.3 billion square feet (120 million square meters) in 20 countries. Prologis leases modern logistics facilities to a diverse base of approximately 6,500 customers principally across two major categories: business-to-business and retail/online fulfillment.

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