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Can Your Warehouse Win the Business You Want?

Rethinking warehouse technology as a competitive capability for life sciences growth

An executive guide for pharmaceutical 3PLs, life sciences logistics providers, distributors, and regulated warehouse operators

Five years ago, the facility defined the opportunity. Today, digital infrastructure helps decide it.

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Introduction

Your next customer may qualify your technology before your warehouse.

Five years ago, refrigerated storage helped determine which pharmaceutical customers a 3PL could serve. Today, digital infrastructure increasingly helps determine which customers it can win. A temperature controlled facility may be validated, mapped, secure, and managed by an experienced quality team. Those capabilities still open the door, but they no longer complete the qualification story.

When the RFP arrives, the prospect asks how the warehouse will exchange serialization data, preserve the audit trail behind a product movement, protect electronic records, validate customer-specific workflows, and retrieve the history of one serialized unit. The conversation has moved beyond the building.

The warehouse management system (WMS) is now under review.

Physical infrastructure remains essential. Temperature control, specialized handling, security, and validated facilities protect the product. Digital infrastructure creates the trusted record of what happened to it. Pharmaceutical and biotech companies increasingly expect logistics partners to preserve chain of custody, traceability, documentation, auditability, and data integrity through every warehouse process.

The logistics provider may be the custodian, not the title-holder. That makes the integrity of every receipt, move, hold, release, pick, pack, and shipment important far beyond the facility walls.

The commercial consequence is direct. WMS capability influences how quickly an operator can onboard a regulated customer, adapt to a quality agreement, support an audit, absorb another integration, and manage more complexity without adding the same amount of cost and risk. Technology has become part of the service the customer is buying.

For mid-market operators, growth rarely arrives as more of the same. It arrives as another customer with a different workflow, a new product category with tighter controls, another facility, another integration, or another audit trail that must be complete before anyone asks for it.

The strategic question is whether the operation can support the customers, therapies, services, and markets leadership intends to pursue over the next five years.

The WMS has become infrastructure that helps determine what business your company is capable of winning.

Technology has become part of the product.

What are customers really buying from a logistics partner?

A pharmaceutical company chooses a 3PL to safeguard products, records, and decisions for which it remains accountable. Technology is part of the logistics service itself.

A warehouse may be physically equipped for regulated inventory. The service still falls short if its systems cannot preserve a reliable product history, control access, support electronic records, or adapt to the customer's operating requirements.

The next layer of life sciences specialization is digital.

As therapies become more specialized, the digital record surrounding each unit becomes more complex and consequential. In January 2026, FDA reported that its Center for Biologics Evaluation and Research had approved close to 50 cell and gene therapies over the preceding decade. PwC notes that cell and gene therapies, personalized medicines, and connected products require more precise, responsive, and compliant supply chains with tighter chain-of-custody and patient-level fulfillment. The operational implication is clear: growth in advanced therapies raises the value of a warehouse platform that can preserve identity, status, history, and control without relying on manual reconstruction.

That history may be needed for release, investigation, reconciliation, audit support, or patient safety. It must remain accessible across shifts, employee turnover, customer requests, and system changes. A dependable operating record cannot rest on what one experienced employee remembers.

That is why sophisticated prospects ask different questions:

- Can the system manage nested serialization?
- Can it place inventory on a controlled hold and preserve the reason?
- Can it route a batch through a customer-specific release process?
- Can it provide secure customer visibility without exposing another client's data?
- Can it record the who, what, when, and why behind a transaction?

These capabilities build trust into the service. Customers experience the WMS through onboarding speed, reporting, portals, data exchange, response time, audit support, and the ease of doing business.

Case in point

A life sciences logistics provider needed deep traceability into materials used in manufactured batches. Its customers also wanted direct visibility into inventory and order activity.

With a client-facing portal and the right operating platform, an order process that had taken two to three hours was reduced to minutes. The larger gain was customer confidence built on visibility, traceability, and control.

The physical warehouse protects the product. The digital warehouse protects the relationship.

Why every new customer feels like another IT project

Growth adds complexity before it adds volume.

A regional pharmaceutical 3PL wins another major customer. The product profile looks familiar. The warehouse has capacity. Then the differences appear.

The quality agreement adds an approval. Labels use different data. Reports follow another schedule. The serialization partner sends a different message format. The portal needs a new view. The inventory may be similar. The operating model is not.

Life sciences growth becomes difficult before the building becomes full because every customer brings another combination of procedures, documentation rules, reporting formats, integrations, billing terms, and exceptions. The challenge is absorbing those differences without rebuilding the operating model each time.

Complexity often accumulates quietly.

A spreadsheet handles one requirement. A manual check covers another. A small software change solves the next. Each accommodation appears manageable. Together, they create technical debt and operational inconsistency.

Strong operators standardize the operating foundation and configure customer-specific rules around it. Standardization creates control. Configuration preserves adaptability. Heavy customization creates an ongoing dependency on code, consultants, or one internal expert.

A scalable operating model should let the business adapt workflows, screens, roles, labels, billing rules, reports, and integration mappings without rebuilding the core operation. That is what turns customer variation from an IT burden into a repeatable growth

What makes a life sciences warehouse operation scalable?

Customers will continue to bring distinct quality and service requirements.

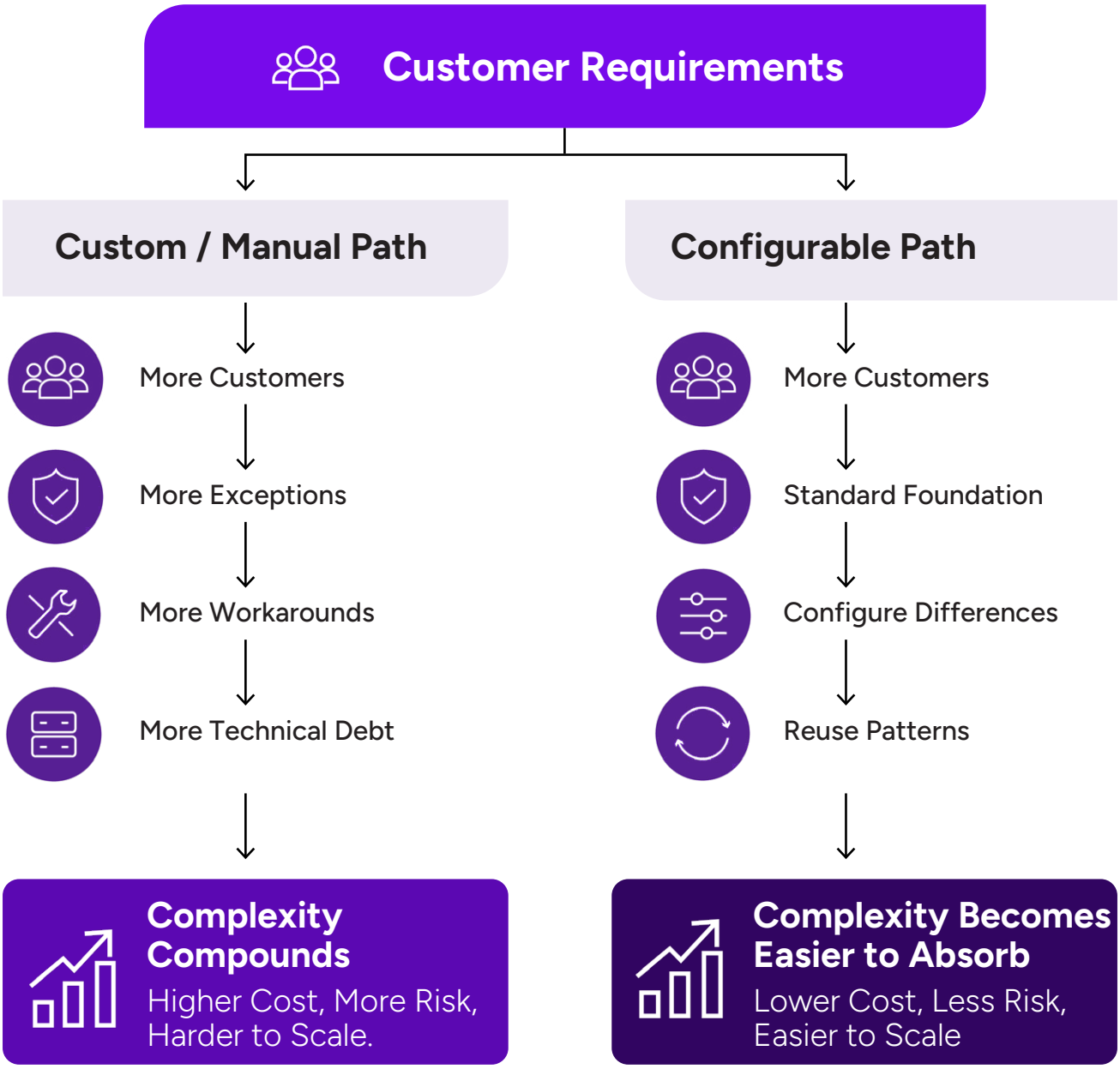
The operation gains leverage when those requirements can be expressed through controlled configuration, documented decisions, and reusable patterns rather than a growing collection of exceptions.

The same discipline protects revenue and margin. Storage charges, handling activities, accessorial services, and other billable work can be captured inconsistently as account complexity grows. Recording billable activity as the work happens protects the economics of serving demanding customers and gives leadership a clearer view of which services create value.

Begin modernization with the customer and work backward.

Find where the current system forces employees to translate, remember, rekey, reconcile, or chase information. Each burden adds cost and slows the next customer. The less effort required to absorb those differences, the easier it becomes to onboard the next customer profitably.

Different customers.
Different requirements.
A more complex tomorrow.



EXECUTIVE TAKEAWAY: Scalability is the ability to absorb the next customer's differences without adding the same amount of cost, custom work, or risk.

Why most traceability problems never become recalls

The hidden cost of reconstructing the record

A quality leader receives a question about one lot. No recall has been issued. The customer simply wants to know when the product arrived, where it was stored, whether it was placed on hold, who released it, and which orders received it. The answer should take minutes.

Instead, the team assembles the record. One piece is in the WMS, another sits in a spreadsheet, and an approval is attached to an email. An associate remembers moving part of the inventory. Several people stop their work to reconstruct what happened. The product may be safe, but the operating record is not ready to defend.

Traceability weaknesses create costs long before a major event.

They slow release and investigations, delay customer responses, consume quality resources, create disputes, and disrupt routine audits. Because the cost is distributed across ordinary work, it is easy to tolerate and difficult to measure.

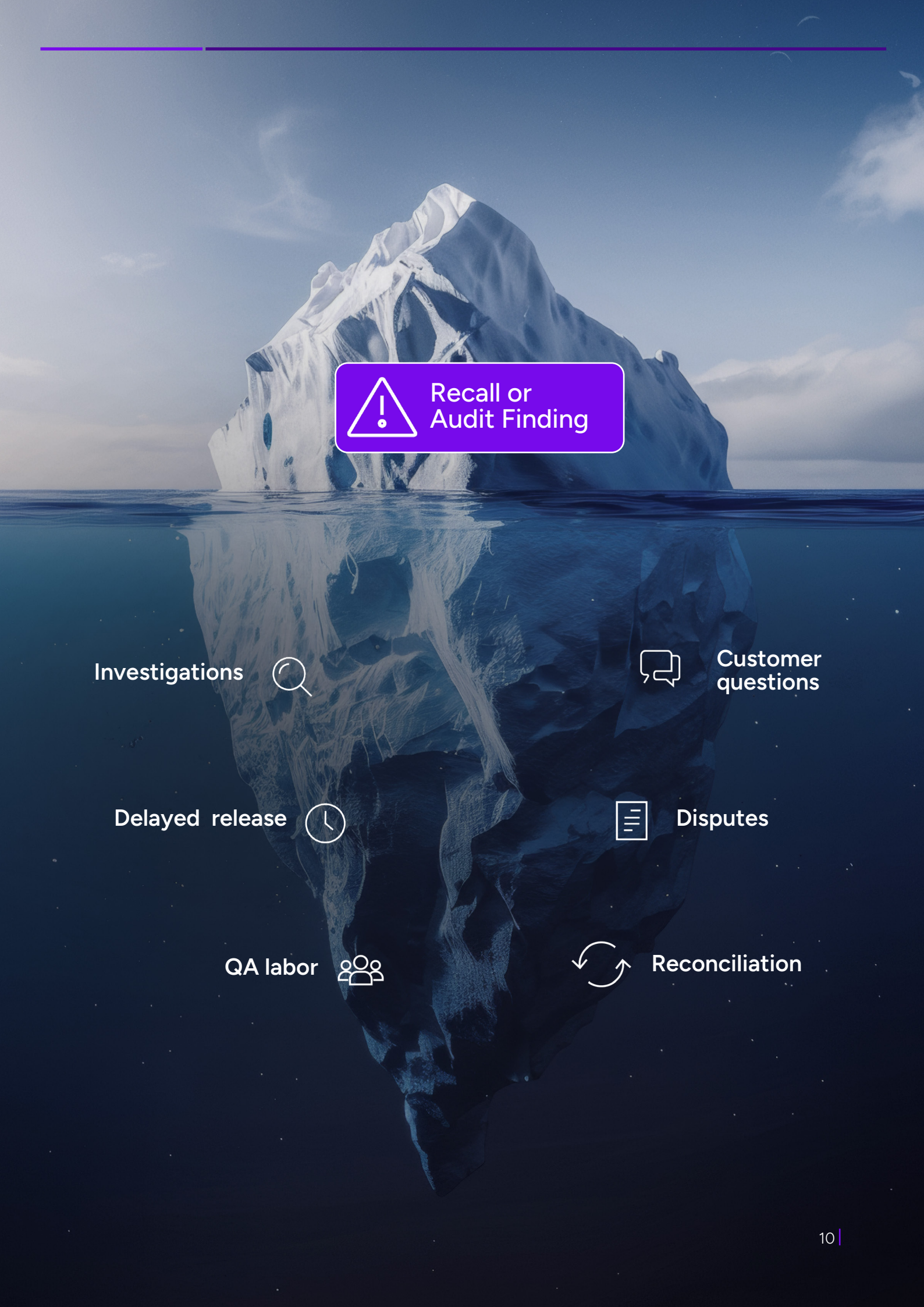
Each recurrence draws skilled people away from higher-value work. A QA manager finds a missing record, a supervisor verifies a movement, and an analyst extracts data. As volume and customer count grow, that pattern adds overhead faster than capability. The question gets answered, but the labor, delay, and interruption return when ever the history is incomplete or difficult to retrieve.

In a regulated warehouse, traceability should be a natural output of the process.

Each transaction should preserve inventory identity and status, who acted, when the action occurred, and the rule that allowed it. FDA requirements for applicable electronic records and DSCSA package-level tracing reinforce the same operating principle: dependable product and transaction history must be created as the work occurs, not reconstructed later.

When the WMS enforces the workflow, people can focus on exceptions and judgment. Quality teams spend less time finding records, while operations can answer routine questions without escalation. A dependable record shortens the distance between a customer question and a credible answer.

The bottleneck is often how much compliance the system requires people to remember.


Recall or
Audit Finding
Investigations
Customer
questions
Delayed release
Disputes
QA labor
Reconciliation

The warehouse that can handle the product but cannot win the customer

A 3PL identifies an opportunity in a higher-value segment. The facility has the space, controls, security, and expertise. Then technical qualification begins. The prospect requires validated workflows, serialized data exchange, customer visibility, and retrievable electronic records.

While the warehouse can handle the product, the operating platform cannot yet support the relationship.

Five years ago, physical capability may have made the shortlist. Today, digital infrastructure helps determine whether the operator can qualify, onboard, and serve the customer. Warehouse technology has become a growth decision.

Advanced life sciences services combine multiple forms of complexity.

Products may be high value, patient specific, serialized, temperature controlled, time sensitive, or restricted. Workflows may require quarantine, sampling, inspection, chain-of-custody documentation, electronic approval, and rapid data exchange. As the market shifts toward more specialized products and service models, that complexity raises the qualification threshold for logistics providers.

The investment behind that shift is substantial.

McKinsey reports that life sciences capital expenditures grew 13% annually from 2022 through 2024, with more than $150 billion in new capital projects announced before 2030. New modalities, capacity, and localized supply chains create opportunity, but they also raise expectations for the infrastructure supporting them.

A general-purpose or aging WMS can narrow the market in ways an efficiency report will never show. The company may avoid a specialized opportunity because onboarding looks painful. A prospect may eliminate the provider during technical due diligence. Sales may win the account, then discover that extensive customization stands between signature and go-live.

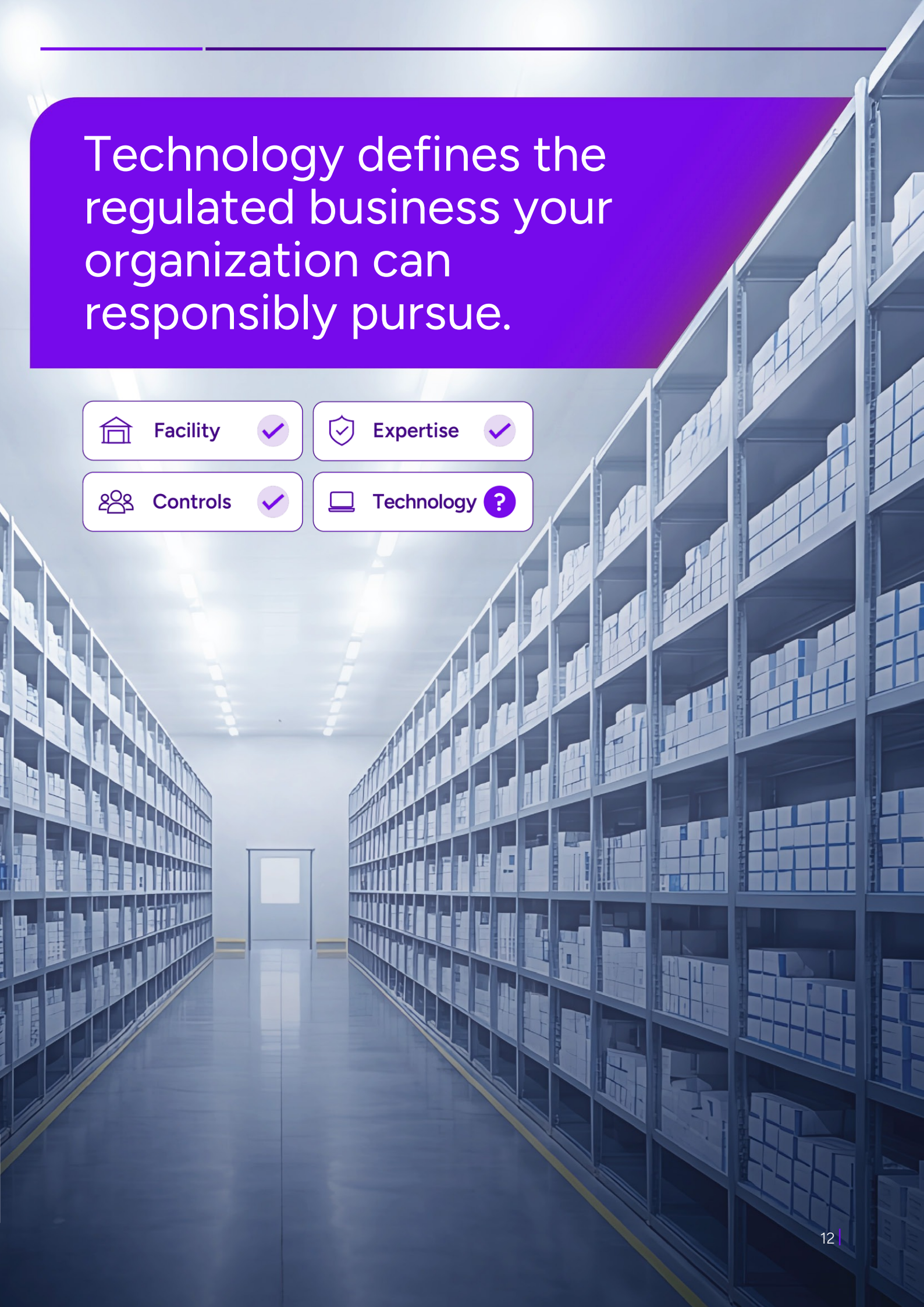
Those opportunity costs rarely appear in a financial statement. No report captures the revenue from the RFP the company chose not to pursue, the prospect that quietly removed it from consideration, or the service line leadership decided would be too difficult to support. Over time, those decisions shape the direction, growth rate, and enterprise value of the business.

The strategic value of warehouse technology is optionality.

A capable platform gives the operator credible choices: pursue another market, add a site, integrate robotics, adapt a customer workflow, or connect to another serialization network without destabilizing the core operation.

EXECUTIVE TAKEAWAY: Growth is constrained by the opportunities your operating platform can support economically, confidently, and repeatedly.

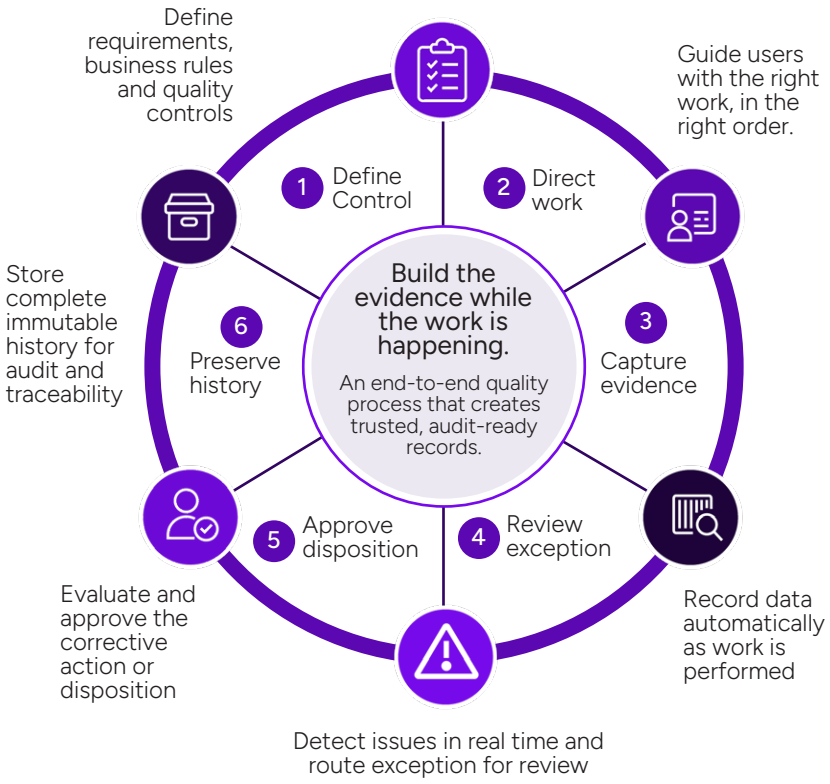
Technology defines the regulated business your organization can responsibly pursue.



What audit-ready operations look like in practice

An audit request arrives on Monday. The quality team identifies the relevant product, period, process, or user and retrieves the record from the same system that directed the work. That is audit-ready: the evidence already exists because the operating process created and preserved it.

Audit readiness is an operating model, not a scramble before an inspection. The system directs authorized work, records transactions, preserves changes and approvals, and makes history easy to retrieve. The business benefit reaches beyond the audit: faster responses, more predictable onboarding, and less skilled labor spent reconstructing evidence.



Regulatory controls in the workflow

Part 11, GMP data-integrity expectations and related quality requirements establish important controls around electronic records. For executives, the practical question is simpler: can the operation create records that are trustworthy, attributable, protected, and easy to retrieve without building a parallel manual process?

Validation affects the economics of change

Validation provides documented confidence that the system performs as intended for its defined use. Its business impact is just as important. Every avoidable customization, unclear requirement, or late design decision can add testing, documentation, rework, and delay to the next implementation or change.

The exact validation approach depends on intended use, risk, and the applicable quality framework. The executive lesson is more durable: design decisions determine how much effort validation requires. A standardized, configurable foundation makes that effort easier to plan and reuse, helping make customer onboarding and future change more predictable.

Implementation decisions compound over time.

Solution design and user acceptance testing matter because early ambiguity becomes later rework. When business, quality, operations, and technology leaders make requirements and responsibilities clear up front, configuration and validation become easier to plan, execute, and reuse.

Poor implementation decisions increase validation burden, delay onboarding, and make future customers harder to support. Good decisions create reusable patterns that reduce the effort required to introduce the next workflow, integration, or control.

In an audit-ready operating model, the system should make a few things routine:

- The system enforces a hold and records the reason as the work occurs.
- An electronic approval is tied directly to the transaction.
- The audit trail preserves what changed, who changed it, and why.
- Exceptions are visible, controlled, and preserved with the disposition.

The strongest operators build evidence through normal execution. Audits become less disruptive because the organization can show how it works every day. The same discipline reassures prospects that requirements can become controlled work without rebuilding the warehouse around them.

EXECUTIVE TAKEAWAY: Audit readiness creates operating leverage when evidence is produced through normal work. It makes customer onboarding, change, and growth more predictable.

Audit findings often begin in everyday operational shortcuts. Compliance becomes easier to demonstrate when the operating record is complete by design.

Is your WMS keeping pace?

A five-stage maturity model for regulated operations

Maturity is about how well your warehouse can adapt, prove and perform.

1 Reactive

People hold the process together. Records require reconstruction. Audit preparation disrupts the operation.

Complexity adds risk faster than capability.

2 Managed

Core processes are documented and the WMS controls more work. Some approvals, reports, and customer requirements remain outside it.

Control exists, with continued manual coordination.

3 Standardized

Repeatable patterns span customers and sites. Customer differences are handled through configuration wherever practical.

The operation absorbs variation without rebuilding the foundation.

4 Audit-ready

Electronic records, controlled workflows, access, traceability, and validation practices are embedded in daily work.

Teams review evidence instead of gathering it.

5 Strategic

Technology supports faster onboarding, new sites, specialized services, automation, and evolving requirements.

The WMS creates options and competitive capacity.

Business Outcomes:

Faster onboarding
New sites
Specialized services
Automation
Evolving requirements

Increasing Capability • Decreasing Risk • Enabling Growth

Most organizations span more than one stage. Compare maturity with the growth plan, then measure how long it takes to onboard a customer, validate a change, retrieve a product history, answer an audit request, connect a system, train a user, or produce an accurate invoice. Those measures reveal where operating friction is constraining commercial ambition.

The broader industry has already been linking digital supply-chain capability to measurable operating gains. Deloitte's research into biopharma supply chains, based on a survey of 105 supply chain leaders, found that 48% of respondents reported improved warehouse efficiency from supply-chain digitalization efforts.

The lesson for 3PL leaders is not to chase technology for its own sake, but to measure whether digital capability is reducing the effort required to operate and grow.

Use evidence rather than opinion. A warehouse may be audit-ready in traceability and reactive in onboarding. One site may use standardized workflows while another relies on local knowledge. The model connects those differences to the next needed capability. Maturity determines how much complexity the operation can absorb before growth erodes service, margin, or control.

EXECUTIVE TAKEAWAY:

Modernization priorities should follow the growth plan. Focus first on the gaps between where the operation is mature today and what the business needs to support next.

The gap between operating maturity and business ambition is where risk accumulates.

What to look for in a life sciences-ready WMS

Seven questions that reveal operating fit

A feature can exist without being practical to implement, validate, change, or use.

Evaluate what the platform and provider allow the business to do, how much effort it requires, and whether that effort can be repeated economically across customers and sites.

Q1 Can it adapt to different customer requirements?

Look for a platform that separates the standard operating foundation from customer-specific workflows, labels, reports, inventory rules, billing terms, and portal needs. Ask how changes are made, who can make them, and how they are tested.

Q2 Can it preserve trustworthy electronic records and signatures?

Ask how the system identifies users, controls access, records approvals, preserves audit trails, and protects historical records. Understand how the controls operate in your intended use.

Q3 Does it support a defensible validation process?

Review the provider's validation experience, documentation approach, change control, and customer responsibilities. The goal is to understand how much effort a validated change will require in practice.

Q4 Can it preserve data integrity from receipt through shipment?

Evaluate how lot, batch, serial, expiration, status, location, user, and transaction data remain connected. Ask how corrections are handled and whether the original value and reason are retained.

A demonstration should follow a realistic product history across receiving, movement, hold, release, picking, and shipment. Ask the provider to show the record behind each step and explain how the same information supports operations, quality, customer service, and audit response.

Q5 Can it manage controlled workflows without slowing routine work?

Ask how quarantine, inspection, sampling, release, returns, suspect product, recalls, and customer-specific approvals are configured. The system should guide routine work, make exceptions visible, and make controlled processes easy for warehouse employees to learn and execute.

Q6 Can it integrate as the ecosystem changes?

Life sciences operations connect to ERPs, serialization platforms, verification routing services, laboratory and manufacturing systems, temperature monitors, automation, carriers, customers, and trading partners. Examine APIs, EDI, monitoring, error handling, and the effort required to add the next connection.

Q7 Can the provider grow with the business?

Evaluate industry experience, implementation style, product direction, responsiveness, support, and cultural fit. Ask for evidence from comparable regulated operations and examples of how the relationship has handled change.

Rate each capability

Proven today | Configurable with defined effort | Requires custom work

Then evaluate the supporting evidence: comparable customers, implementation method, validation support, integration model, and approach to ongoing change.

The evaluation should reveal effort as clearly as capability. Ask what is available today, what can be configured with defined work, and what requires custom development. That distinction exposes implementation risk, validation impact, support, and adaptation cost.

The right platform expands choice without creating a new dependency whenever the business changes.

Evaluation Questions	Proven today Out-of-the-box capability	Configurable with defined effort Achievable via configuration within a defined effort	Requires custom work Custom development or significant work
1 Can it adapt to different customer requirements?	○	○	○
2 Can it preserve trustworthy electronic records and signatures?	○	○	○
3 Does it support a defensible validation process?	○	○	○
4 Can it preserve data integrity from receipt through shipment?	○	○	○
5 Can it manage controlled workflows without slowing routine work?	○	○	○
6 Can it integrate as the ecosystem changes?	○	○	○
7 Can the provider grow with the business?	○	○	○

The right WMS expands what the operation can support without making every new requirement harder to absorb.

How Datex approaches the challenge

Engineered for Easy. Built for complex operations.

Life sciences warehouses need technology that preserves control as the business becomes more complex. Datex is built around that problem, particularly in multi-client 3PL operations where different customers, workflows, integrations, billing arrangements, and service expectations must coexist on one operating foundation.

The objective is straightforward: make complexity easier to absorb without giving up visibility, control, or the ability to change. Footprint® WMS and Datex Studio support that objective through four outcomes that align directly with the operating model described throughout this guide.

Easy to adapt

Datex Studio uses low-code tools to adjust workflows, screens, rules, and extensions with less dependence on traditional custom development. That makes it easier to translate the next customer requirement into controlled configuration rather than another custom project.

Easy to trust

Footprint WMS supports traceability, controlled workflows, audit trails, role-based access, and the electronic records required by regulated warehouse processes, helping teams build the record as work occurs.

Easy to see

Real-time inventory visibility and customer-specific views give operations and customers clearer access to the information they need without creating separate processes to find it.

Easy to integrate

Footprint WMS connects with enterprise, laboratory, manufacturing, temperature, robotics, serialization, and other systems that surround the warehouse. The point is not the length of the integration list. It is the ability to add the next connection without destabilizing the operating foundation.

"Engineered for Easy" is a practical promise.

Life sciences warehousing remains complex because the products, customers, and obligations are complex. Datex works to make that complexity easier.

Technology still has to work in the real warehouse. Datex brings warehouse experience to design decisions and stays engaged as customers, sites, workflows, and requirements change.

The platform matters. So does having a partner that understands what the warehouse must prove and what employees must do every day.

Your operation is complex. Your WMS does not have to make it harder.

Closing

Build for the business you want five years from now

Five years from now, life sciences products will be more specialized, customers will expect more visibility, and data will move across more partners, systems, and automation. The operators best positioned to grow will absorb that change without losing control.

Warehouse technology now directs daily work, preserves the record behind customer confidence, connects the operating ecosystem, and converts customer differences into controlled workflows. It also influences how quickly the business can move when a new opportunity appears.

A flexible, controlled foundation turns what the organization has already learned into a stronger starting point for the next customer.

This is when compliance becomes a growth capability. Controls that protect regulated products can also create consistency, customer confidence, and a faster path to opportunity. When the record is dependable and the platform can adapt, the business has more room to move.

Five years ago, the facility helped define which customers the business could serve. Today, the operating platform helps define which customers it can win. The question for leadership is what the business intends to support next.

Ask yourself these five questions

Q1 Which customers, products, and services are in our five-year growth plan?

Q2 What operational and digital capabilities will those opportunities require?

Q3 Where does our current system force people to remember, reconcile, or rebuild the record?

Q4 How much effort does each new customer, site, workflow, and integration add?

Q5 Is our warehouse technology expanding the business we can support or quietly defining its limits?

The answers will tell you whether your operation is ready for what comes next. They may also reveal that the most important warehouse expansion is the infrastructure inside it.

End notes

1. U.S. Food and Drug Administration. "FDA Increases Flexibility on Requirements for Cell and Gene Therapies to Advance Innovation." FDA News Release, January 11, 2026.
2. PwC. "Rewiring Pharma and Medtech Supply Chains for Speed, Resilience, and Patient Impact." May 14, 2026.
3. Kok, Erikhans, Parag Patel, Piotr Pikul, and Tacy Foster. "The Speed-to-Market Imperative for Life Sciences Capital Delivery." McKinsey & Company, August 4, 2025.
4. Pernenkil, Laks, Leena Gupta, Wendell Miranda, and Iknam Gill. "Digitalized Supply Chains Are Essential to Biopharma's Future." Deloitte Insights, Deloitte Center for Health Solutions, January 8, 2024.

See what your warehouse can support next.

Build a life sciences operation ready to adapt, maintain control, and support the opportunities ahead.

Explore what a life sciences-ready warehouse could mean for your business. →

datex®
Engineered for Easy™

Datex provides warehouse management software for complex, multi-client, and regulated warehouse operations. At the center is Footprint® WMS, supported by Datex Studio and Footprint Analytics to help warehouse operators manage complexity, adapt faster, and scale.