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Tame Cold Storage Chaos

Unlock Sustainability with Better Storage Management

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Azenta Life Sciences

Enabling Breakthroughs Faster through testing & managing high value **Biological Assets**

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Discovery + Pre Clinical
Studies to Clinical Trials & Development

Asset Testing (Genewiz)

Sanger Sequencing

Next Generation Sequencing

Gene Synthesis

LIMS for Multiomics Data Management

Asset Management (Sample Management Solutions)

Best Practice Assessments through Better Asset Management

Onsite Services

Onsite Tools

Offsite Sample Repository Services (SRS)

LIMS for Biological Asset Management

Digital Ecosystem

Did You Know That On Average…

- **16% - 26%** of research lab space is used for freezers and refrigerators
- Many lab freezers are only filled to **50%** of their capacity
- **<10%** of the items stored in lab freezers are accessed on a regular basis
- When evaluated, **<50%** of the items in lab freezers are considered “usable”
- Researchers waste **2 hours** per week on inefficient inventory management
- **<40%** of labs have the tools they need for optimal inventory management

Calculate the Savings Available At Your Own Site

Cold Storage Realities: The Quiet Cost Center

When Cold Storage Challenges are Addressed → ROI is Realized

Every organization evolves and faces challenges that unlock the ROI of better cold storage management. The question is not if they will occur, but when — and how prepared you are to capture the upside.

Proactive planning turns these risks into opportunities for savings, sustainability, and resilience.

Challenges

Cost Pressures
Funding Cuts, Patent Cliffs

R&D Strategic Shifts
Site Consolidations, New Builds

Mergers and Acquisitions
Storage capacity, inventory monitoring

ESG Mandates
CO_2 emission

Compliance Requirements
Human Subject Regulations, Licensed materials

Business Continuity
Equipment failures, power outages, wildfires

Value

- Sample Safety
- Cost Savings
- Faster Time to Research
- Lower Operating Expense
- Sustainability Gains
- Grant & Funding Wins

Transforming Sample Management Workflows

Current State		Desired Future State
Multiple inventory systems, limited visibility and poor utilization of samples and other materials	→	**One compliant informatics solution** for visibility to be able to better manage samples & data
Aging freezer infrastructure with increased risk of failure	→	Optimize the **newer more reliable freezers** already owned reducing CAPEX
Valuable real estate used for archived collections with unwanted/unknown samples	→	Sample consolidation to assess a true sample inventory and **reduce freezer footprint**
Scientists wasting time and money trying to find samples and buying new ones already owned	→	**Refocus scientists' resources** back on to scientific research
Disparate sample management processes	→	**Consistent SOPs**

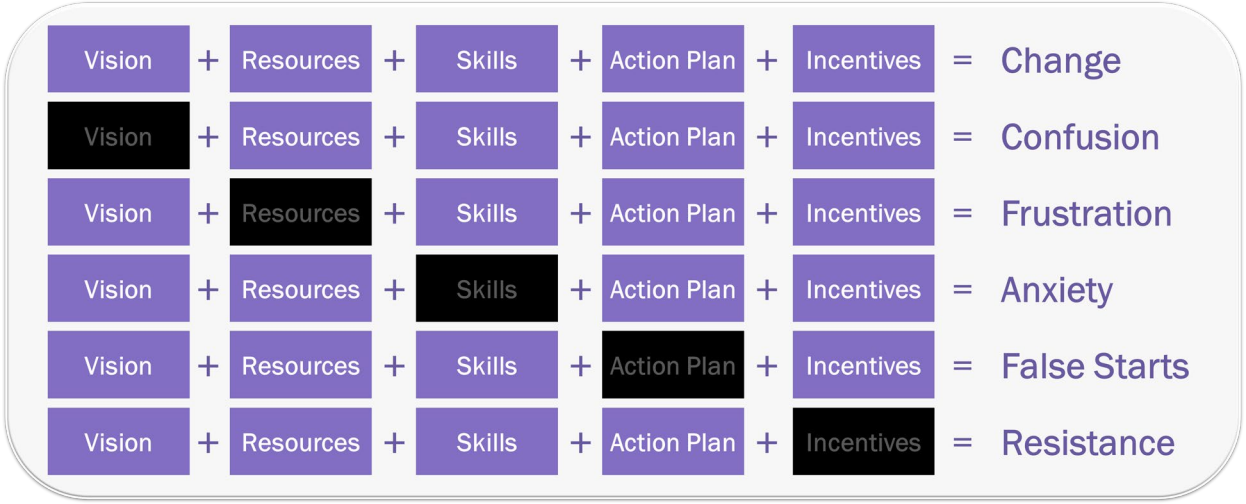
How do we get there?

Manage the Culture Shift

- **Assess** the current situation
- Identify **value drivers** for lab personnel
- **Quantify** the need for change
- Define the **impact** it will have on the organization
- **Communicate the vision** and get buy in from leadership

- Assign **resources:** tools + systems + **skilled** people
- Develop and communicate the **action plan**
  - Schedule of activities
  - Standards to be implemented
  - Governance, KPIs & reporting cadence
  - **Incentives** for stakeholders

Critical Components for Sustainable Change



Azenta's Path to Better Storage Management

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Formal Assessment of Customer Facilities

Survey Cold Storage Units	Interview Stakeholders	Formal Report
54% Average Capacity Use at Box/Rack Level	**350** Stakeholders Interviewed	**100%** Opportunity to Save • 100's Thousands → Millions $ • CO_2e of 100–1,000+ metric tons
67% Space used in boxes • 52% in ULT • 83% in LN_2	**>90%** Lack of Resources & Tools • E-tracking: 3% → 50% • ~30% have barcodes/scanners	**~50%** Stakeholders want structure & empowerment

Gap Closure to Right Size Storage and Create Catalog of Materials In or Close to Labs

Step 1
Complete asset inventory to confirm number of cold storage units (CSUs)

Often across multiple locations

Step 2
Initial maintenance and inventory planning

Step 3
Box-level sample inventory and racking assessment

Results in typical reduction of 33% of CSUs

Step 4
Facilitated Rationalization of Materials

Results in further reduction typically ~50% reduction

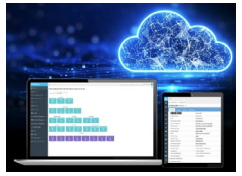
Step 5
Non-value-added material discard; sort, label, transport

Final disposition with 40% stay in lab, 20% hub, and 40% long term storage

Step 6
Vial-level inventory of human biological materials, cell lines, and critical reagents

Consolidation & ongoing support resulting in 10% to 50% space savings

Implement Tools, Processes& Resources to Sustain Better Storage Management Fit-for-Purpose for Each Lab



Limfinity®
FreezerPro®


SampleArc™ SE


SampleArc™ Flex


CryoArc™ Deca


High Efficiency Cryogenic Freezers


BioArc™ Duo


BioArc™ Flex


CryoArc™ Pico


CryoArc™ Tera

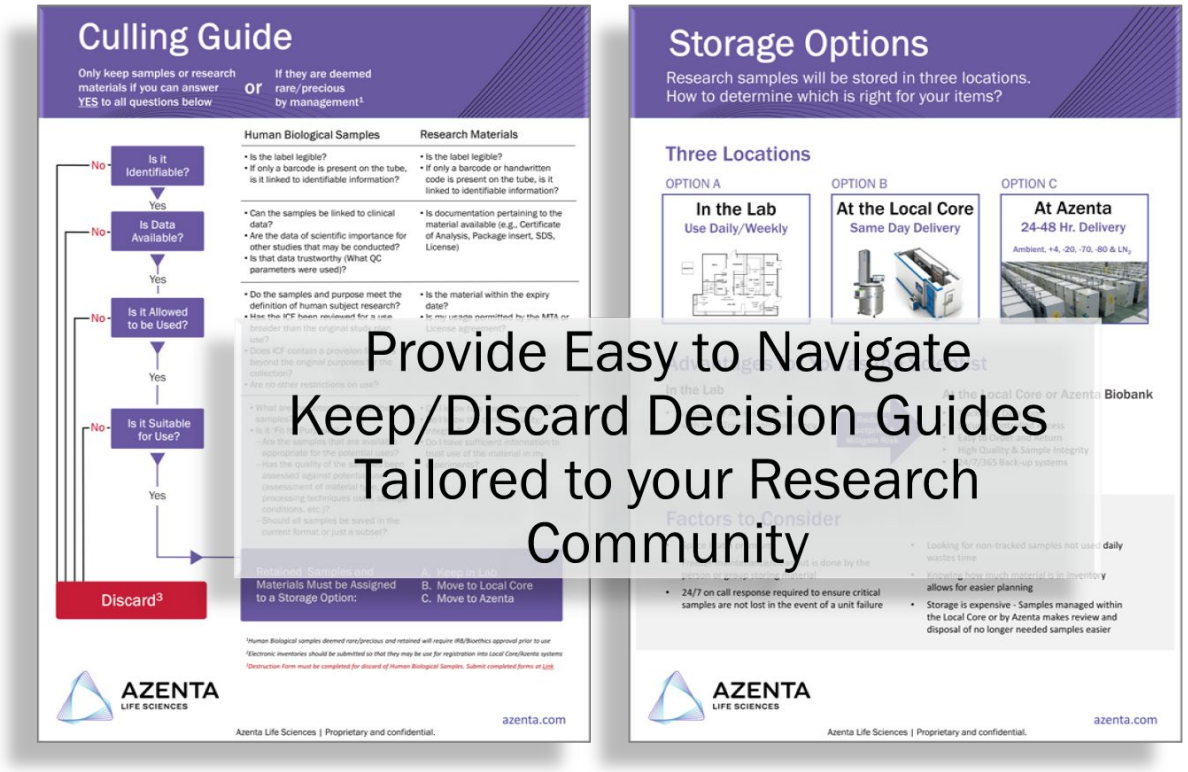

BioArc™ SE


BioArc™ Ultra

Continue to Manage the Culture Shift

"When I first heard about a freezer inventory, it really seemed like an insurmountable, daunting, impossible task…."

Your Technicians *"must have the patience of saints. It's really a tremendous accomplishment to have the freezers inventoried and it has enabled us to now do the easy part of sorting through the unclaimed items and clearing out what's outdated or unidentifiable. We've been able to re-home some things with other team members and ensure we aren't tossing out anything we might want to go back to."* Pharma Scientist, Protein Engineering



Provide Easy to Navigate Keep/Discard Decision Guides Tailored to your Research Community

- **Communicate** the action plan throughout the organization:
  - What is the benefit to them
  - When the project will occur as it relates to their lab
  - What resources are being provided
  - What is the scope and how does it impact their samples
  - How long will the inventory process take in their lab
  - How will they access and how long will it take
  - How to rationalize their samples and where to store them
- **Select Champions** for each Department/Lab
- Provide training sessions for each group
- Execute and monitor progress
- **Communicate the results regularly**

Typical Better Storage Management Solution

OPTION A: CUSTOMER SITE

Materials Used Daily/Weekly

- Short-term **Customer-Site Services** with a mission of inventory and consolidation of cold storage units
- **Cryogenic Storage Systems** and **Carriers** to enable researchers to work efficiently
- **Informatics** and **Logistics/Transport Support**

OPTION B: REGIONAL HUB

Materials That Need Same-Day Delivery

- Long-term **Customer-Site Services** with a mission of sustaining efficient and visible storage in the lab for better compliance and researcher ease of access
- **Automated Sample & Biological Material Storage** that allow for maximum space efficiency and controlled access within your facility or at a repository near you

OPTION C: LONG TERM STORAGE FACILITY

Materials That Need 24-72-Hour Delivery

- Consolidate off-site storage to manage the full breadth of **Samples, Biological and Manufactured Material** to save valuable real estate that provides rapid retrieval and distribution at all temperatures
- **Informatics** and **Logistics/Transport Support**

Right size cold storage and increase utility through greater visibility and access

Case Studies

Case Study: Moffitt Cancer Center

The Goal:

Accommodate an influx of new Principal Investigators by expanding lab and storage capacity to support research growth.

The Challenge:

- **Freezers scattered across departments**, with limited central oversight.
- **No standardized inventory system** — labs using ad hoc approaches (Excel, manual lists, or none)
- **Aging CSU fleet** with insufficient backup units and average **utilization across the CSU fleet at 68%**

The Solution:

Assess | Rationalize | Centralize | Sustain

- 539 of 582 CSU assessed
- 10 Faculty interviews
- Current state reporting & ROI calculation
- Plan and implement centralized inventory
- Identify and secure off-site storage options

Impact

Space & Operational Efficiency

Freed up previously occupied ULT storage, unlocking space for high-value research and revenue-generating activities

Stakeholder Alignment

Leadership embraced the idea of relocating long-term storage ULTs beyond immediate research facilities

Inventory Optimization

Initiated center-wide freezer inventory management system (FY26 – scheduled implementation)

Business Continuity

Operational agility with interim off-site cold storage. 17 of the 582 CSU's relocated to Azenta's Cleveland location until the new facility is ready.

Case Study: Cleveland Clinic

The Goal:

Enable faster translation from lab discoveries to patient treatments across Clinic and partner networks. **Secure grant funding** that can make this translational research possible.

The Challenge

Cleveland Clinic **needed expanded capacity** for biologic sample storage to accelerate translational research and discovery.

Existing infrastructure fragmented; limited storage hindered researchers' ability to efficiently study human tissue samples.

The Solution

The Benchmark in Sample Management ™ Right Here in Cleveland.

- 22,000 sq. ft. dedicated to cold/ultra-cold storage 400 unit capacity
- Managed onsite by Azenta ensuring secure, standardized sample collection, processing, and storage.
- ISO 9001:2015 certified
- CAP Biorepository Accreditation
- 24/7/365 Secure Storage

Impact

Accelerated Translational Research

Enhanced capacity and centralized storage enable researchers to more rapidly translate findings into patient care.

Scalable, Standardized Sample Management

Streamlined sample handling, from collection to storage, supports partner institutions and scaling of high-value collections

Stronger Grant Competitiveness

Compliant biorepository infrastructure and expanded storage capacity

Case Study: Top 10 Biopharma Company

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The Goal:

Build a holistic, R&D-wide framework to manage the entire lifecycle of our biological sample collection in an efficient and compliant manner

The Challenge:

- 1400 Freezers to be reduced by ~50% in 1yr
- Optimizing highly varied sample types & data (difficult!)
- 50% at MA sites not inventoried with remaining spread across 8+ disparate systems

The Solution:

Consolidate 8 sites with 14 R&D groups to 1 facility.

Strategic planning, implementation, and change management for cold storage consolidation supporting high volume clinical research, CAP/CLIA lab services, and shipping

Impact

(47%)

FREEZERS IN BOSTON FOR SHORT-MEDIUM TERM USE

(4%)

FREEZERS TO AZENTA LONG TERM STORAGE

($2.7M)

OPERATIONAL COST NET FREEZERS IN BOSTON SITE

(2.2K)

ANNUAL METRIC TONS OF CO_2 EMISSIONS

"Aiming to build a holistic, R&D-wide framework to manage the entire lifecycle of our biological sample collection in an efficient and compliant manner, Azenta accompanies every step of our transformation"

- Global R&D Processes and Operations Leader

Moving Towards Carbon Neutral: Results Achieved with Consolidation of 1,400 Units Across 8 Facilities

Freezer fleet optimization not only saves money — it delivers measurable **energy and sustainability gains** aligned to ESG goals

- CO_2 reduced annually
- Improved energy efficiency in cold storage fleets
- Reduced lab energy footprint
- Recovered space and lowered redundant freezer use
- Consolidated transport logistics Alignment with ESG mandates

2.2K

ANNUAL METRIC TON REDUCTION CO_2 EMISSIONS WITH REDUCTION IN STORAGE FLEET AND ADDED TRANSPORT REQUIREMENTS

View a Whitepaper Detailing this Project

EQUIVALENT CO2 EMISSION SAVINGS

- **418** HOMES' ELECTRICITY USE FOR 1 YEAR
- **2,379,394** POUNDS OF COAL BURNED
- **4,979** BARRELS OF OIL CONSUMED
- **241,989** GALLONS OF GASOLINE CONSUMED
- **5,338,120** MILES DRIVEN BY AN AVERAGE GASOLINE-POWERED PASSENGER VEHICLE

Source for CO_2e Saving Equivalents: Greenhouse Gas Equivalencies Calculator | US EPA

Realize Cold Storage Matters Across the Organization

Faster results. Measurable ROI. Lower risk.

STORAGE SOLUTIONS
Empower scientists to streamline research, recover research time, reduce risk of sample loss, and support material handoffs and collaboration

EFFICIENCY
Improve business continuity, utilize space efficiently, and reduce carbon footprint

CONSOLIDATION
Mitigate vendor risk, strengthen compliance, and support ESG metrics and enterprise cost goals

OPERATIONAL SAVINGS
Reduce operational expense and capital expenditures while optimizing labor resources

ROI
Sponsor initiatives producing highest sample and drug development safety, researcher productivity, collaboration, and lowest cost of operation

What would your organization's savings look like with Better Cold Storage Management?

Calculate Your ROI:

Azenta Booth: #219

Email: Kathi.Shea@azenta.com
Website: [https://www.azenta.com/contact-us]