

# Data Driven Road to Storage

## McGill Collections Centre

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Every journey begins with a first step



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# Data Driven Road to Storage at McGill

- Fiat Lux new library building project
- Can we weed?.... What is our role vis a vis the “collective collection”
- What type of storage will fit our budget? What is available on the market?  
How can we ingest 2.2 million volumes in 6 months?
- Planning for the robotic future with AutoStore
- Incorporating sustainability into our plans

# Step 1: Analyse the 2.4M Collection!

- GreenGlass/OCLC
- Circulation usage reports



# GreenGlass/OCLC surveys

- Only ~300,000 monographs candidates for weeding
- Large portions of the collection were not widely held by other libraries
  - 1.2M unique in Quebec
  - 1M < 5 other Canadian libraries
  - 1.9M not in HathiTrust
  - 1.8M zero use in 30 years (50% usage)



# Shared Print Commitments

for the Collective Collection

## Québec

- 400,000 titles / over 500,00 volumes
- Québec and Canadian

## Canada North/Nord

- 200,000 titles
- Canadian Government Documents
- Canadian University Presses
- Indigenous works

## HathiTrust

- 900,000 volumes
- Monographs with digital copy in HathiTrust

## Future of shared print

- More collaborations between libraries in this

# Continue journey to e-preferred

- **Big packages (Complete)** - ScienceDirect, Springer, ProQuest, Wiley, Taylor and Francis, etc.
- **University presses** – Canadian (all), US (Chicago, Harvard, etc.), UK (Cambridge, Oxford, etc.)
- **Archival materials** - Adam Matthews, Alexander Street Press, Gale
- **Backfiles with any extra funds** - e-book and serial packages (12,000+ titles from vol. 1)
- **Journals** - 200,000+ journal titles and 1M physical issues/5M virtual issues



# Step 2: Analyse the marketplace

- McGill: last research-intensive library in NA without storage
  - Visited peer installations (NYU, Princeton, Chicago, Library and Archives Canada, Toronto, UBC, UCLA, etc.).
  - IFLA LBES hosted a storage seminar at Statsbibliothek in Munich
- Three standard options:
  - High-bay - Harvard Model
  - ASRS - Automated Storage and Retrieval System (forklift on track)
  - Electronic Compact shelving





# Standard options - not an option

- High-bay - Harvard Model
  - Large real estate footprint – needs aisles for forklift
  - More expensive to operate and staff
  - Each book handled and sized into a cardboard tray
  - Very slow ingestion
- Electronic Compact Shelving
  - Very, very large footprint required
  - Extensive steel shelving
  - Each volume changed to an accession number



# Standard options - not an option

ASRS - Automated Storage and Retrieval System

- Very appealing but more expensive



Our journey veers off-road in a new direction

Chart a new path  
with robots on a  
grid!



# Dramatic developments supporting fulfillment and distributions centres

- AutoStore

- Norwegian company, partnered with systems integrator, Dematic
- Ingenious idea of stacking containers on top of each other for storage and retrieval using [robots](#).
- Rubics cube!
- 1,200+ systems in 50+ countries worldwide.
- Plastic bins manipulated by robots that “dig” the requested bin and deliver to ingestion port.



If the world's largest companies use AutoStore to store and retrieve materials, why not libraries?



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# AutoStore

Introduction

# AutoStore at McGill – key advantages

- Books stored in plastic bins – 95,800 bins storing 2.2M volumes.
- Footprint of warehouse – 4,200 square meters (45,000 sq feet).
- 33 kg limit per bin – no need to measure, sort and “box” material.
- Real estate footprint much smaller and less expensive than high-bay or standard ASRS. No aisles. The grid fills the warehouse, no wasted space. Pure flat floor not required.
- Grid easily expandable. Ideal if we partner with other Quebec libraries.
- FAST ingestion. Books scanned to bin, and then bin scanned into grid.
- Goal: 6 months!
- Minimal catalogue manipulation. APIs communicate between Dematic inventory system and OCLC WMS.

# Timeline of the journey



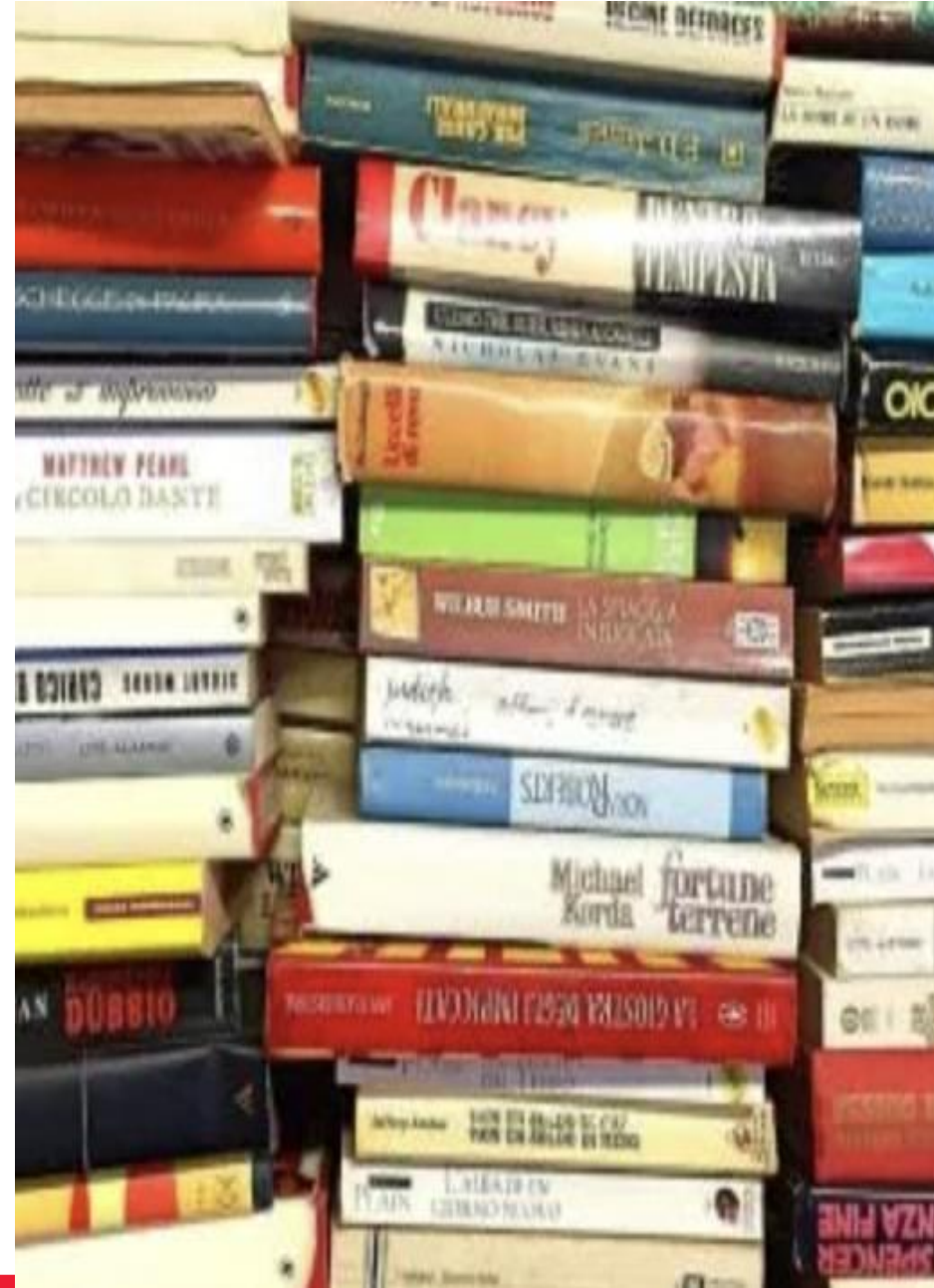


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# The collection prep journey

Three years to review and prepare the collections:

- Ensure everything in the online catalogue
- Barcodes and items on all journals and books
- Replaced old, missing or damaged barcodes
- Updated some formats along the way and filled gaps
- Preparation complete Summer 2023
- Migration of materials Sept. 2023 - Spring 2024



# Collection Ingestion

- Moving company loads books from shelves onto carts and ships
- Carts arrive at the 14 workstations
- Bins are scanned
- Items are scanned and placed into bins
- Bins are pushed along a conveyor
- Bins are scanned and ingested into the robotic system



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# McGill Collections Centre

- Deliveries 5 days a week to all branches
- PDFs of articles and chapters
- State of the art security & fire protection
- Climate-controlled environment
- LEED Building with sustainability in mind with design and operations



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# Sustainable Storage at McGill's Collections Centre

## LEED Certified Facility

Energy efficient building, low maintenance exterior grounds, electric car charging stations, choosing the right building materials and more.

## High Density Storage

High density storage that reduces the footprint of our warehouse building by up to 75%.

## Sustainable Moving Goals

Moving contract was awarded to a company meeting our sustainability goals, including a maximum in fuel efficiency and a minimum waste of packaging to move 2.4M volumes.

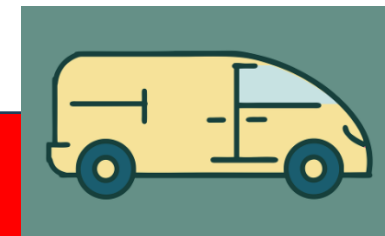



## Energy Efficient Robots

Running 6 robots for a 24-hour shift uses less energy than running a vacuum for 30 minutes.

## Efficient Delivery

Digital versions of requested materials will be offered to users. Delivery vans for physical materials will be electric.





Thank you!  
Q&A

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