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# Starting from the Ground Up: How We Created our own Digital Collections Platform

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# Starting from the Ground Up

How we created our own digital collections platform



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# What Will We Cover Today?

1. Evaluation of pre-existing tools and systems
2. Explanation of our infrastructure / setup
3. Evaluation and explanation of the user interface

“A digital collection consists of digital objects that are selected and organized to facilitate their discovery, access, and use. Objects, metadata, and the user interface together create the user experience of a collection.”

NISO, "A Framework of Guidance for Building Good Digital Collections"  
<http://framework.niso.org>

# Original Infrastructure Requirements



Store Digital Objects



Access



Search & Discovery



Preservation



Integrate

# Popular Digital Collections Platforms



CONTENTdm



Omeka



Islandora



Hydra

**Did you create a matrix of different platforms and their pros and cons relative to our stated requirements?**

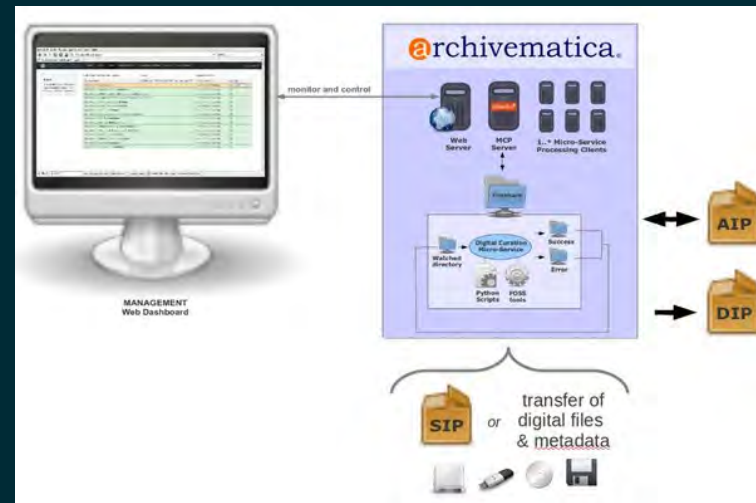
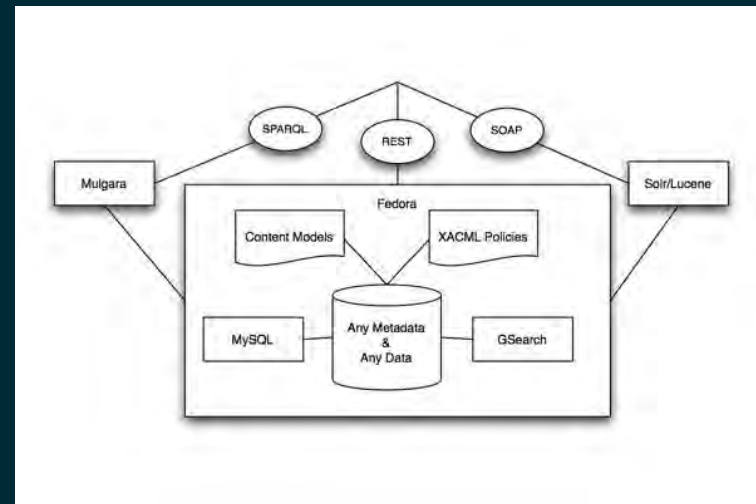
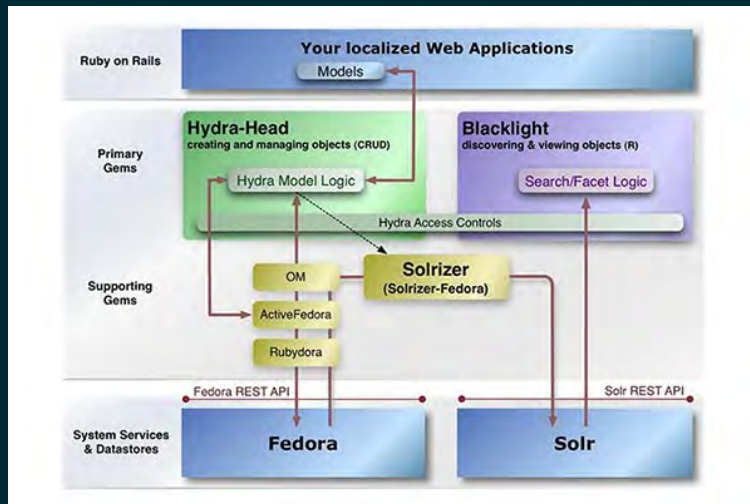
Yes and No.

# What did you do instead?

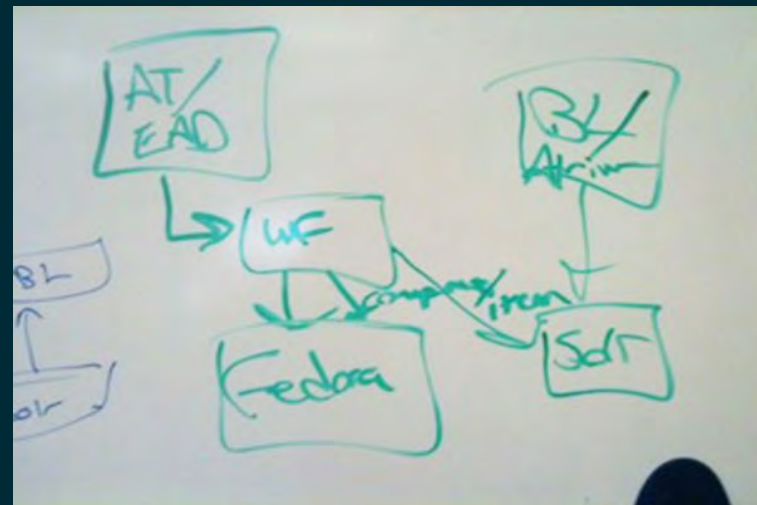
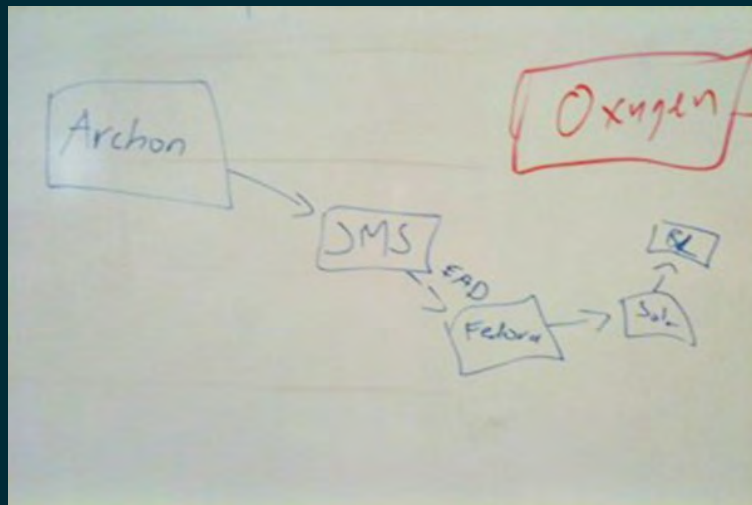
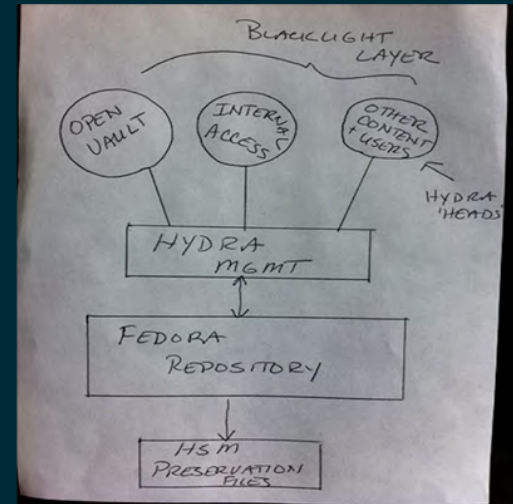
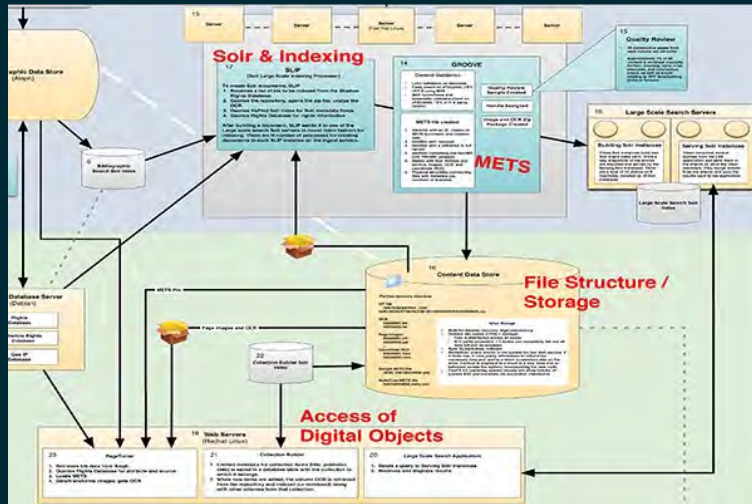
Began haphazardly looking at overlapping technologies behind these platforms; shopped them à la carte for the technologies and approaches that best matched our needs and expertise.



# Infrastructure Research



# Infrastructure Research



## Desired Functionality

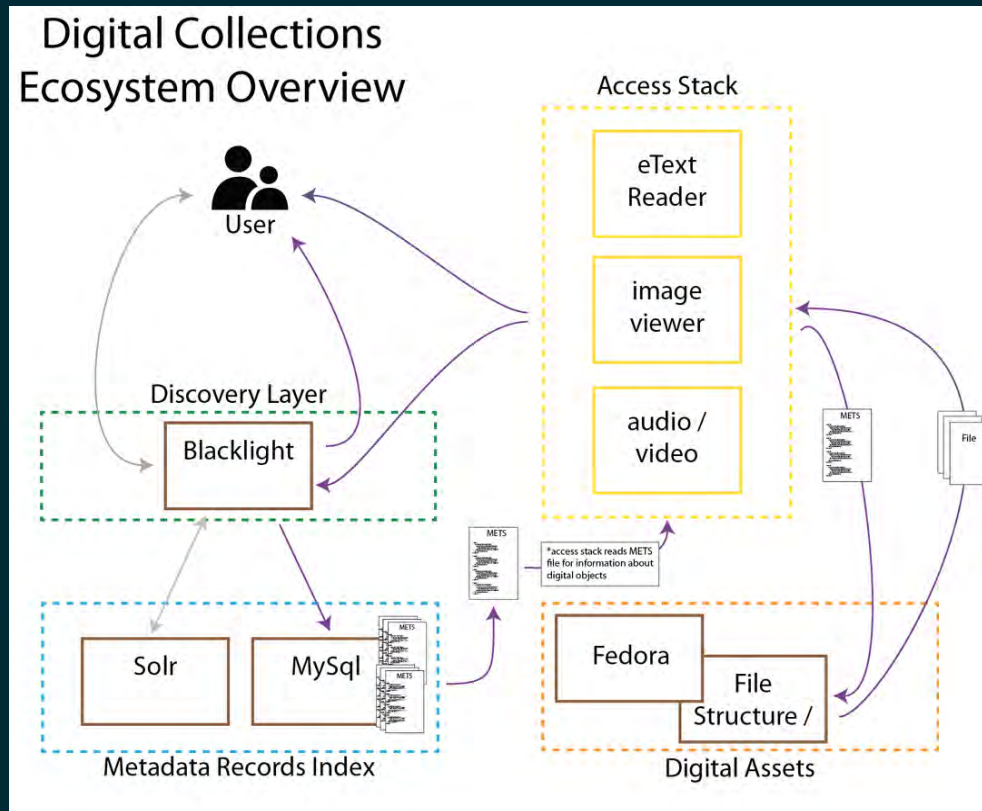
Store Digital Objects  
Access  
Search and Discovery  
Preservation  
Integrate

## Solution

Fedora Commons  
HTML, CSS, JavaScript  
Solr  
Fedora Commons  
Python API

\*overlap everywhere...

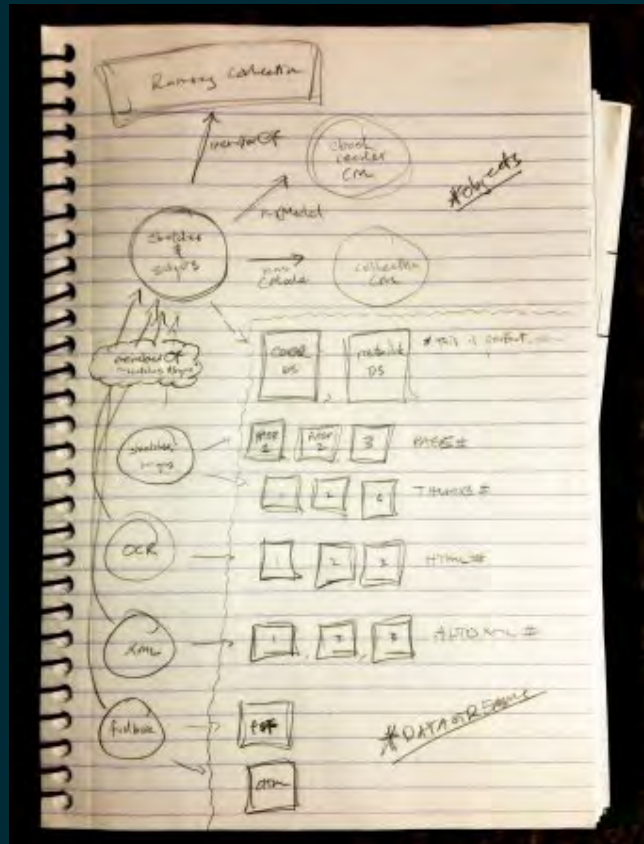
# Lots of Models



10/2012

Nope. But some promising elements.

# Lots of Models

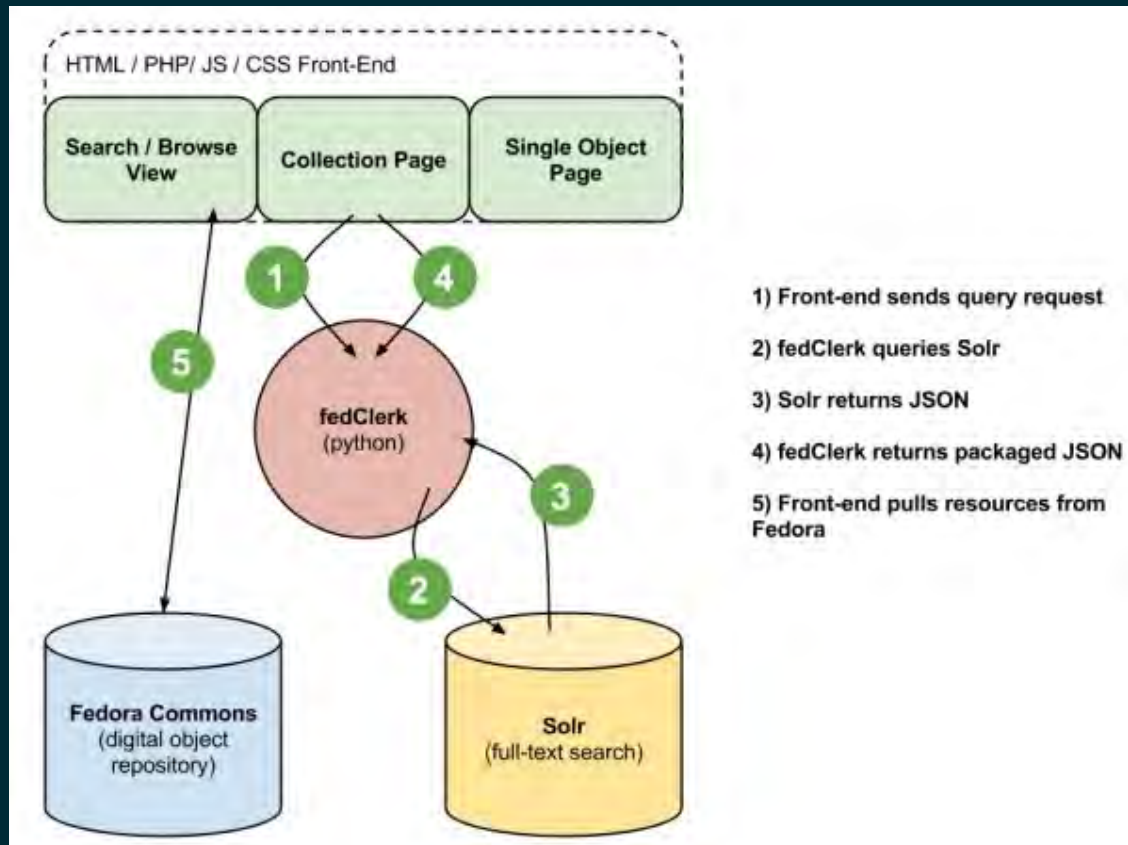


Somewhere in 2013...

**Fast-Forward  
One Year...**



# Lots of Models



10/2013  
Yep. Mostly.

**Wait a minute... you've talked about why you didn't use a pre-existing digital collections platform (Islandora, Hydra, Omeka, etc.), but why not make the rest of your quest easier with some kind of web framework?**

**...something like Django or Ruby on Rails?**

It's complicated...



# Web Frameworks, CMS's, Bears, Oh My

- Ruby on Rails (ROR)
  - don't know Ruby
  - don't like Rails
- Django
  - not a Python shop, yet...
  - using it for management of objects
- Drupal
  - main point of contention with Islandora



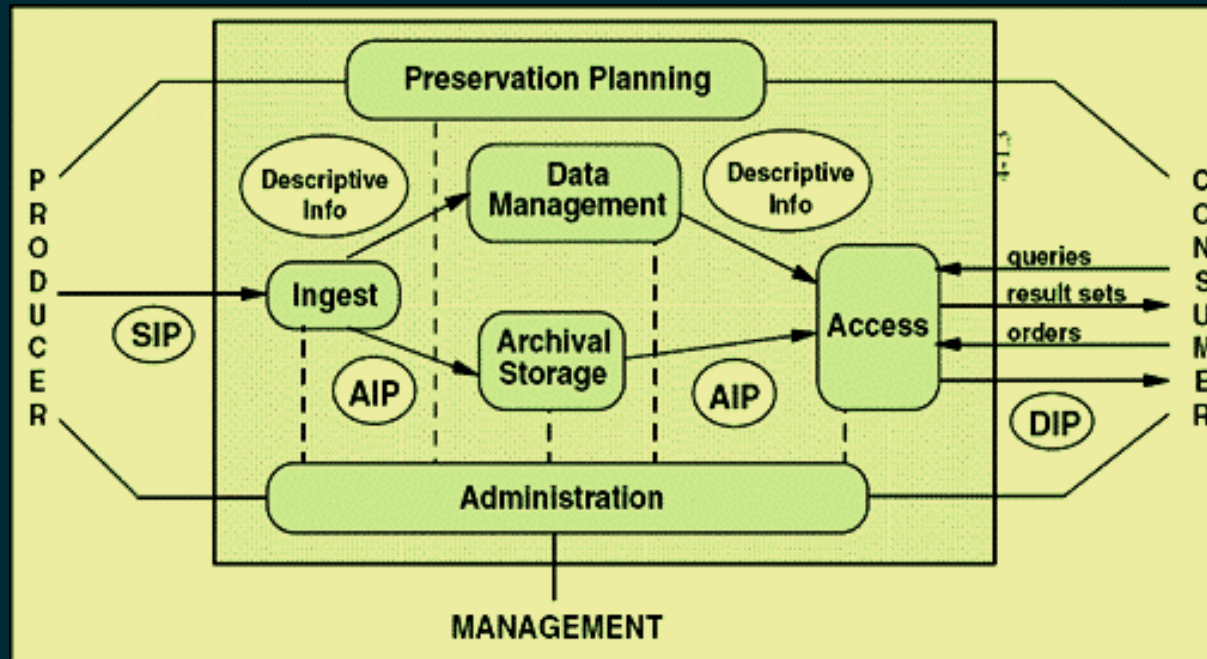
Which leads us to...

# What We **REALLY** Wanted

- Extremely lightweight, HTML / CSS / JS front-end
- Communications between components would be HTTP / REST / API based
- Ability to create, edit, and destroy objects in bulk, with finesse, with aplomb
- Mixed content types

# What We REALLY Wanted, Part Deux

- Division of management
  - Metadata
  - Binary files



# Our Infrastructure Needed To

- Hold/Preserve our content
- Index our content/metadata
- Display our content
- Work together seamlessly
- Do other things we hadn't thought about



## What is it?

- System to hold our content

## How did we do it ourselves?

- Hint: We didn't go with Islandora or Hydra



## What is it?

- System to index our metadata

## How did we do it ourselves?

- Wrote customized indexing

# Front-End Display

## What is it?

- How we display our content

## How did we do it ourselves?

- No Drupal
- No Ruby on Rails
- Just simple, lightweight PHP and JavaScript with some templating thrown in

# Digital Glue

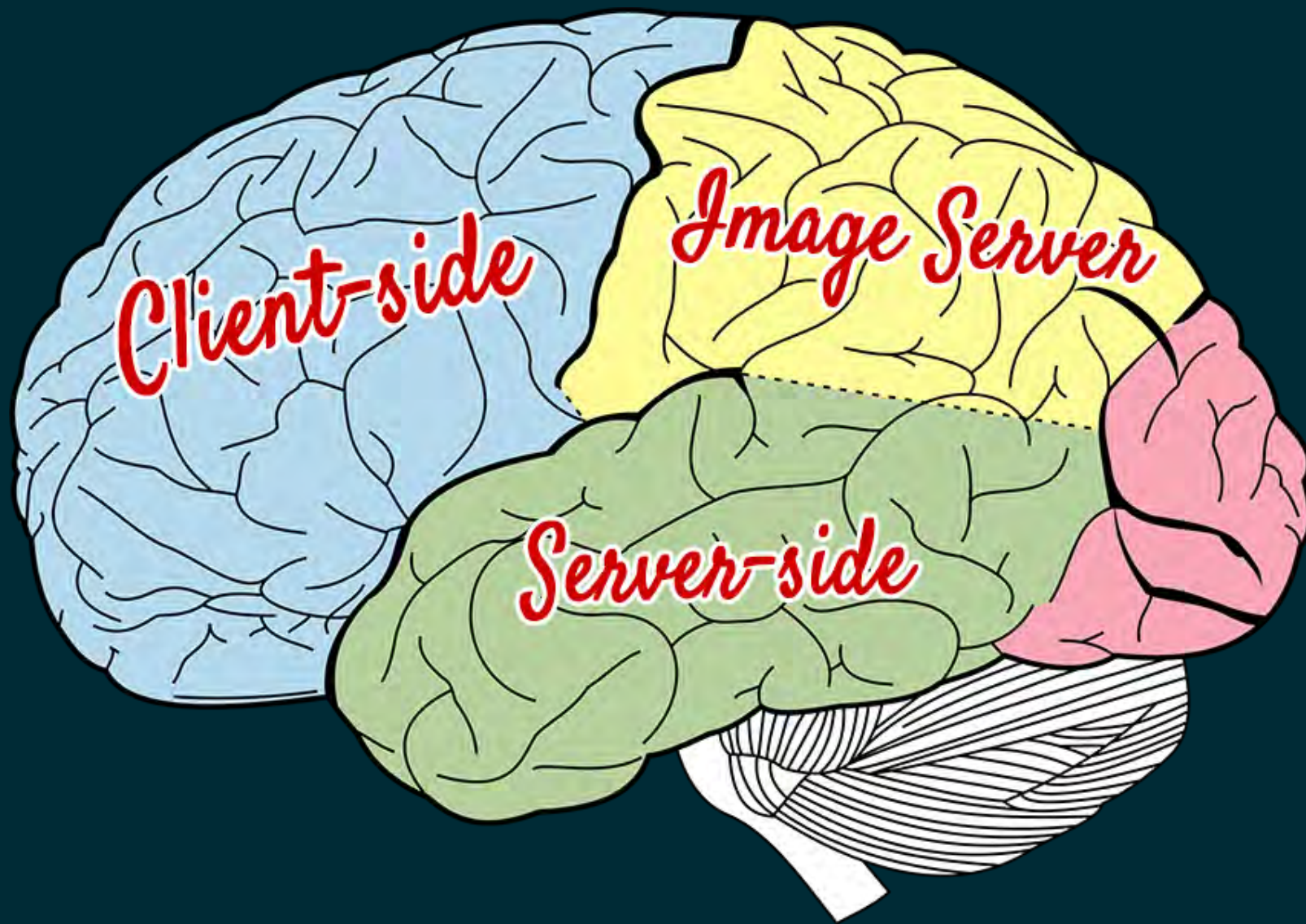
## What is it?

- What brings it all together

## How did we do it ourselves?

- We built it from the ground up

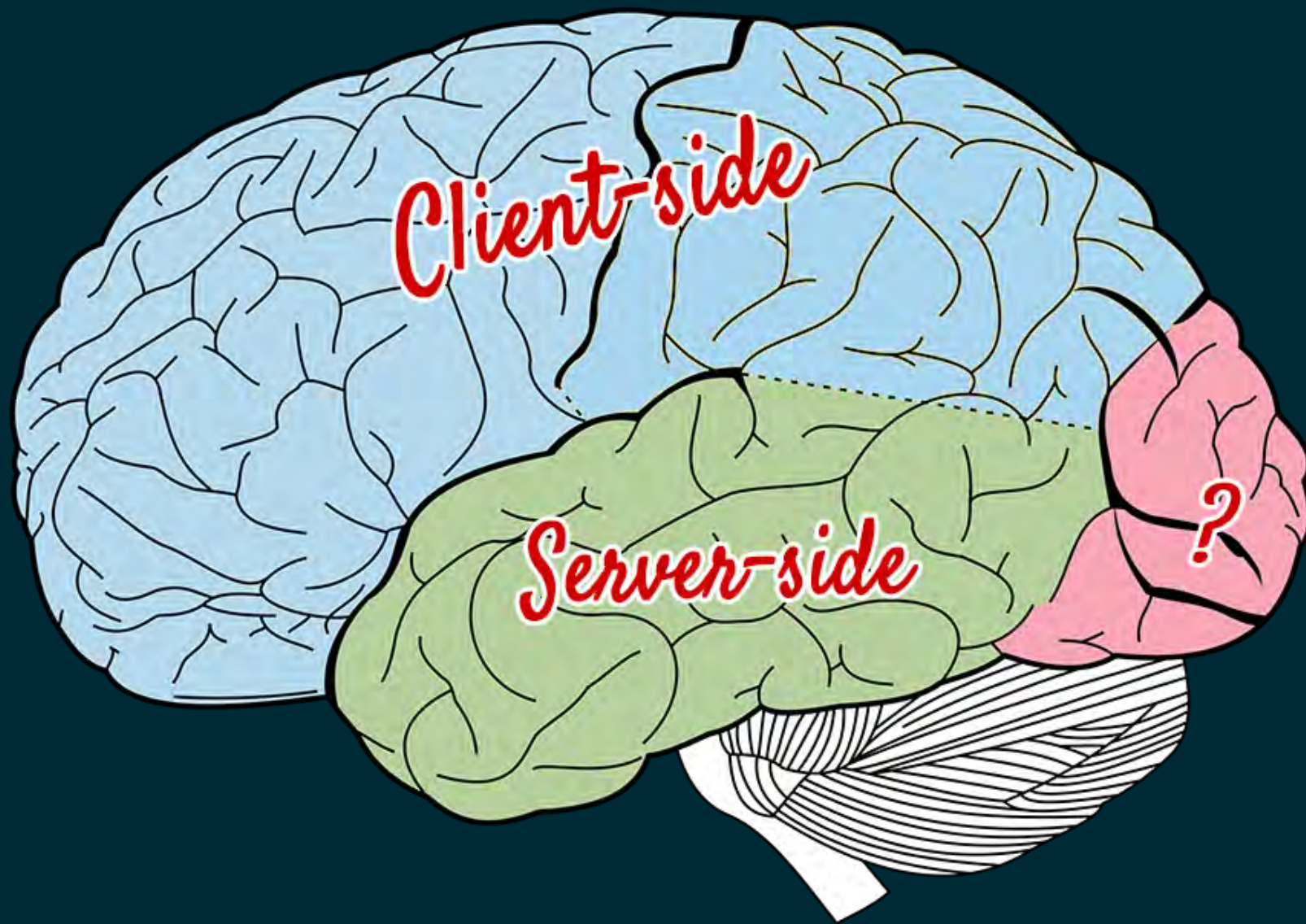




*Client-side*

*Image Server*

*Server-side*



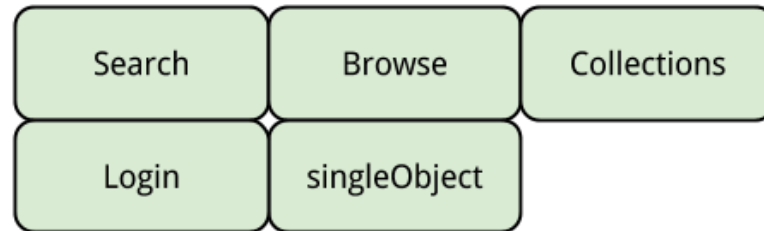
*Client-side*

*Server-side*

*?*

host: **digital.library.wayne.edu**

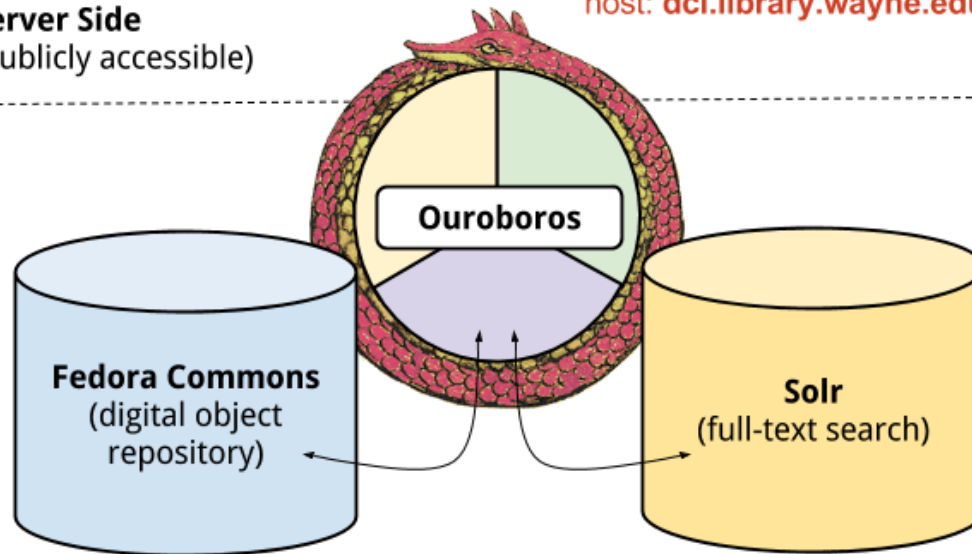
**HTML / PHP / JS / CSS Front-End**



**Client Side** (publicly accessible)

**Server Side**  
(publicly accessible)

host: **dci.library.wayne.edu**



# Secondary Systems (In Progress)

- Media Server
  - In Progress
- Image Server
  - Twisted Server with PIL (Python Image Library)
  - IIPImage Server

# Development / Production

- Production Server
- Production Backup
- Development Server
- Regular Backups of Content and Configuration

**Build a digital collections platform  
people will want to use**



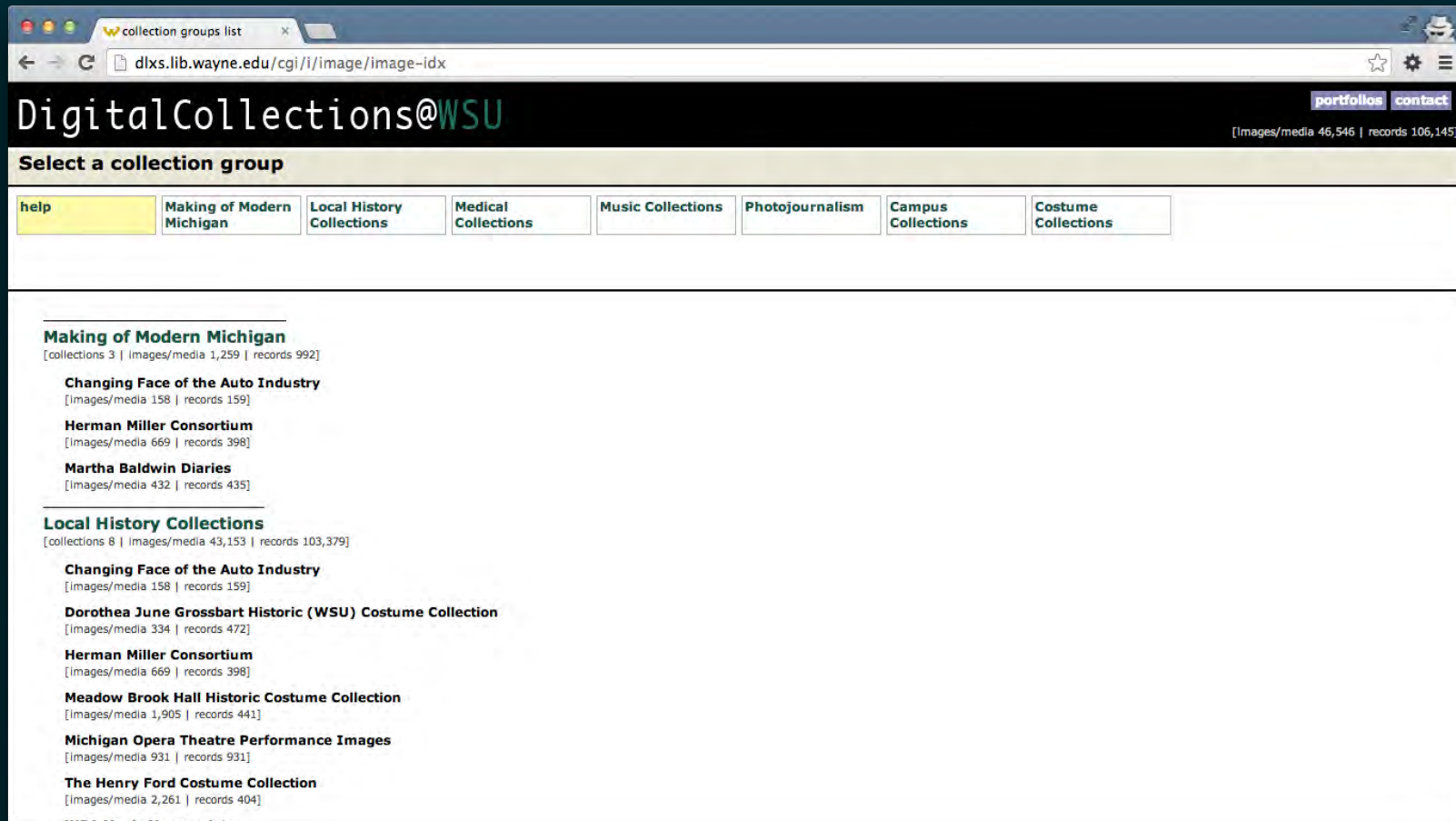
# Defined Goals

- Showcase digital collections in a unified interface
- Ease access for users / Don't make them think
  - Search and Retrieval
  - Filtering / Requerying
  - Discovery
  - Sharing and Saving

# **Simplified user interface for simplified interactions**



# Digital Collections @ WSU (DLXS)



The screenshot shows a web browser window with the address bar displaying "dlxs.lib.wayne.edu/cgi/i/image/image-idx". The page title is "DigitalCollections@WSU" and includes navigation links for "portfolios" and "contact". A status bar at the bottom right indicates "[Images/media 46,546 | records 106,145]".

**Select a collection group**

- help
- Making of Modern Michigan**
- Local History Collections
- Medical Collections
- Music Collections
- Photojournalism
- Campus Collections
- Costume Collections

**Making of Modern Michigan**  
[collections 3 | images/media 1,259 | records 992]

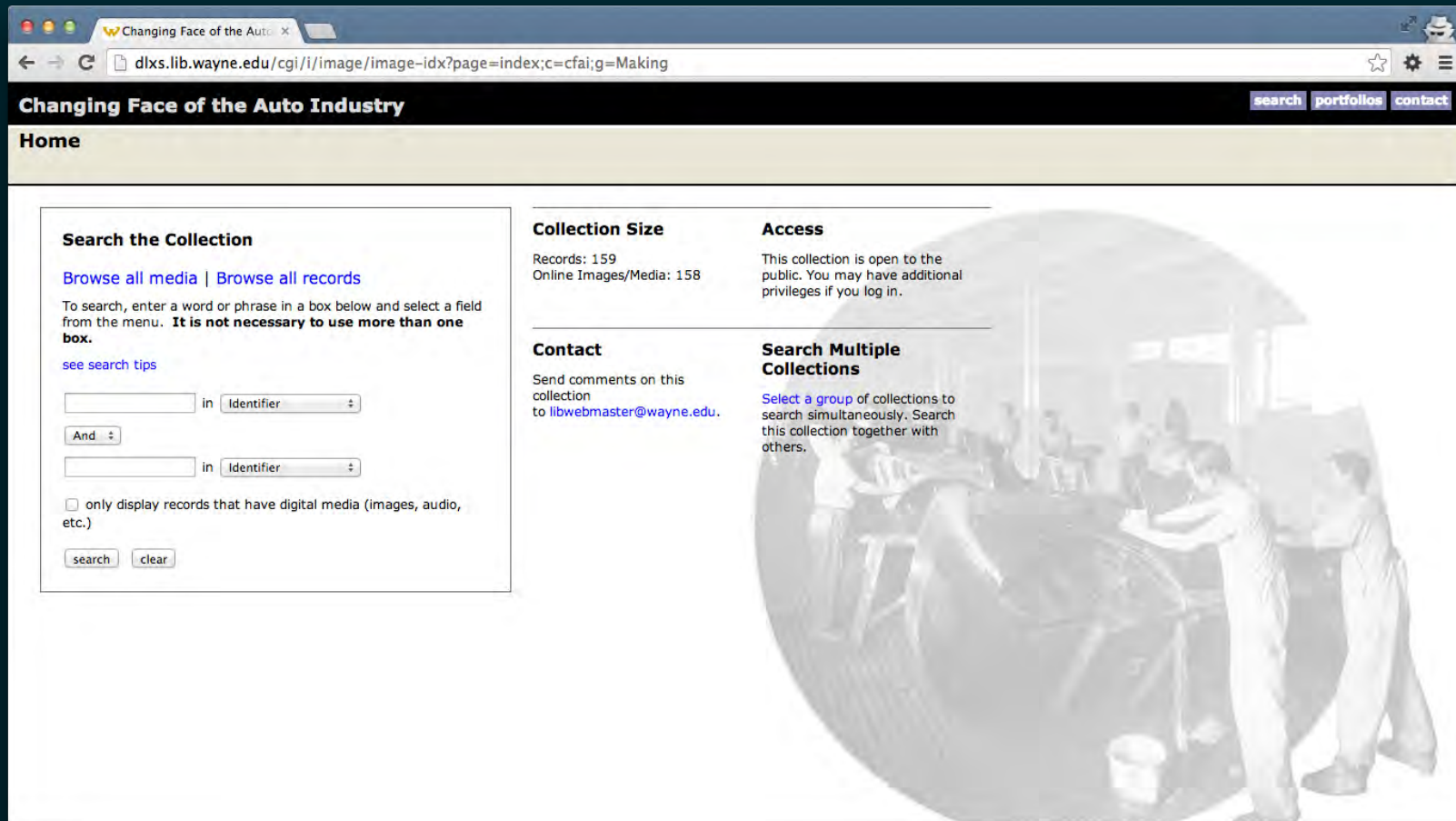
- Changing Face of the Auto Industry**  
[images/media 158 | records 159]
- Herman Miller Consortium**  
[images/media 669 | records 398]
- Martha Baldwin Diaries**  
[images/media 432 | records 435]

**Local History Collections**  
[collections 8 | images/media 43,153 | records 103,379]

- Changing Face of the Auto Industry**  
[images/media 158 | records 159]
- Dorothea June Grossbart Historic (WSU) Costume Collection**  
[images/media 334 | records 472]
- Herman Miller Consortium**  
[images/media 669 | records 398]
- Meadow Brook Hall Historic Costume Collection**  
[images/media 1,905 | records 441]
- Michigan Opera Theatre Performance Images**  
[images/media 931 | records 931]
- The Henry Ford Costume Collection**  
[images/media 2,261 | records 404]

MPA Music Manuscripts

# Individual Collection View (DLXS)



Changing Face of the Auto Industry X

dlxs.lib.wayne.edu/cgi/i/image/image-idx?page=index;c=cfai;g=Making

search portfolio contact

## Changing Face of the Auto Industry

Home

### Search the Collection

[Browse all media](#) | [Browse all records](#)

To search, enter a word or phrase in a box below and select a field from the menu. **It is not necessary to use more than one box.**

[see search tips](#)

in

And

in

only display records that have digital media (images, audio, etc.)

### Collection Size

Records: 159  
Online Images/Media: 158

### Access


This collection is open to the public. You may have additional privileges if you log in.

### Contact

Send comments on this collection to [libwebmaster@wayne.edu](mailto:libwebmaster@wayne.edu).

### Search Multiple Collections

[Select a group](#) of collections to search simultaneously. Search this collection together with others.



# Objects in Collection (DLXS)

















Changing Face of the Auto Industry X

dlxs.lib.wayne.edu/cgi/i/image/image-idx?sort=CFAI\_id;q1=cfai;type=boolean;rgn1=ic\_all;g=Making;med=1;view=thumbnail;c=cfai

search portfolio contact

1 to 20 of 145 hits Identifier sort |1|21|41|61|81|101|121|141| next>>

images with captions images with record captions only check all uncheck all add checked to portfolio...

 <p>Changing Face of the Auto Industry EB01a002 Cadillac Motor Car Company Road Testing Department</p>	 <p>Changing Face of the Auto Industry EB01a003 Cadillac Motor Car Company Single Cylinder Repair Department</p>	 <p>Changing Face of the Auto Industry EB01a004 Cadillac Motor Car Company Radiator Finishing Department</p>	 <p>Changing Face of the Auto Industry EB01a005 Cadillac Motor Car Company Sheet Metal Gasoline Tanks</p>	 <p>Changing Face of the Auto Industry EB01a007 Cadillac Motor Car Company Sheet Metal Radiator Assembling Department</p>	 <p>Changing Face of the Auto Industry EB01a009 Interior of Cadillac Motor Car Company Factory with Wilfred Leland</p>	 <p>Changing Face of the Auto Industry EB01a010 Testing First Cadillac Motor Car Company's L&amp;F Plant</p>	 <p>Changing Face of the Auto Industry EB01a011 Interior of Cadillac Motor Car Company Factory</p>
 <p>Changing Face of the Auto Industry EB01a012 Cadillac Motor Car Company Foundry</p>	 <p>Changing Face of the Auto Industry EB01a013 Cadillac Motor Car Company Overhead Pulleys</p>	 <p>Changing Face of the Auto Industry EB01a014 E. M. F. Company Factory</p>	 <p>Changing Face of the Auto Industry EB01a015 Hudson Motor Car Company Office</p>	 <p>Changing Face of the Auto Industry EB01a016 Hudson Motor Car Company Factory</p>	 <p>Changing Face of the Auto Industry EB01a017 Hudson Motor Car Company Factory</p>	 <p>Changing Face of the Auto Industry EB01a019 Ford Motor Company Flywheel Magneto Assembly Line</p>	 <p>Changing Face of the Auto Industry EB01a021 Final Assembly Line at Ford Motor Company Factory</p>

# Single Object View (DLXS)

Changing Face of the Auto Industry

dlxs.lib.wayne.edu/cgi/i/image/image-idx?sort=CFAI\_id;q1=cfai;rgn1=ic\_all;g=Making;med=1;size=20;c=cfai;back=back1394734167;subview=detail;resnum=5;vie... ☆ ⚙ ☰

**Changing Face of the Auto Industry** search portfolios contact



[new window](#) | [back to results](#) | [<< previous item](#) | [next item >>](#) | [Problems/comments about this item?](#)

[full-image](#) [description](#)

bookmark:  
<http://dlxs.lib.wayne.edu/cgi/i/image/image-idx?id=S-CFAI-X-EB01A007%5DEB01A007>

[add to portfolio](#) **Cadillac Motor Car Company Sheet Metal Radiator Assembling Department**  
(EB01a007)

zoom Changing Face of the Auto Industry

**image sizes**


- 46 x 37
- 93 x 75
- 187 x 151
- 375 x 303**
- 750 x 606
- 1500 x 1213

zoom in: double-click  
zoom out: shift-double-click  
pan: drag

[download](#)  
EB01a007\_cfai.JPG

**portfolio inclusions**

- face of auto industry**  
Items: 12, owner: sessionguest
- Combine**  
Items: 30, owner: sessionguest





# Single Object View (DLXS)

Changing Face of the Auto Industry

dlxs.lib.wayne.edu/cgi/i/image/image-idx?sort=CFAI\_id;q1=cfai;rgn1=ic\_all;g=Making;med=1;size=20;c=cfai;back=back1394734334;subview=detail;resnum=5;vie... ☆ ⚙ ☰

**Changing Face of the Auto Industry** search portfolios contact

[new window](#) | [back to results](#) | [<< previous item](#) | [next item >>](#) | [Problems/comments about this item?](#)

[full-image](#) [description](#)


bookmark:  
<http://dlxs.lib.wayne.edu/cgi/i/image/image-idx?id=S-CFAI-X-EB01A007%5DEB01A007>

[add to portfolio](#)

**Cadillac Motor Car Company Sheet Metal Radiator Assembling Department**  
(EB01a007)

Changing Face of the Auto Industry

<b>Identifier</b>	EB01a007
<b>File Name</b>	EB01a007
<b>Title</b>	Cadillac Motor Car Company Sheet Metal Radiator Assembling Department
<b>Subject 1</b>	Automobile factories--Michigan--Detroit--History
<b>Subject 2</b>	Automobile industry workers--History
<b>Subject 3</b>	Automobile industry and trade--History
<b>Description</b>	8x10 black and white photograph of men posed with radiators outside of a factory, image inscribed "Sheet Metal- Radiator Assembling- L&F Plant"
<b>Publisher</b>	National Automotive History Collection, Detroit Public Library
<b>Original Date</b>	1912
<b>Type 1</b>	image
<b>Use Format 1</b>	Image/tif
<b>Creation Format 1</b>	400dpi,8 bit gray scale, Tiff Image



**portfolio inclusions**

<b>face of auto industry</b>
Items: 12, owner: sessionquest
<b>Combine</b>
Items: 30, owner: sessionquest

# Single Object View (DLXS)

Herman Miller Consortium

the Henry Ford

search portfolios contact

Herman Miller Consortium

new window | back to results | << previous item | next item >> | Problems/comments about this item?


full-image description other views

bookmark:  
[http://dlxs.lib.wayne.edu/cgi/i/image/image-idx?id=S-HMCC-X-255%5DEM01AHMC\\_373A](http://dlxs.lib.wayne.edu/cgi/i/image/image-idx?id=S-HMCC-X-255%5DEM01AHMC_373A)

**Coconut Chair (255)**

Herman Miller Consortium

**summary**

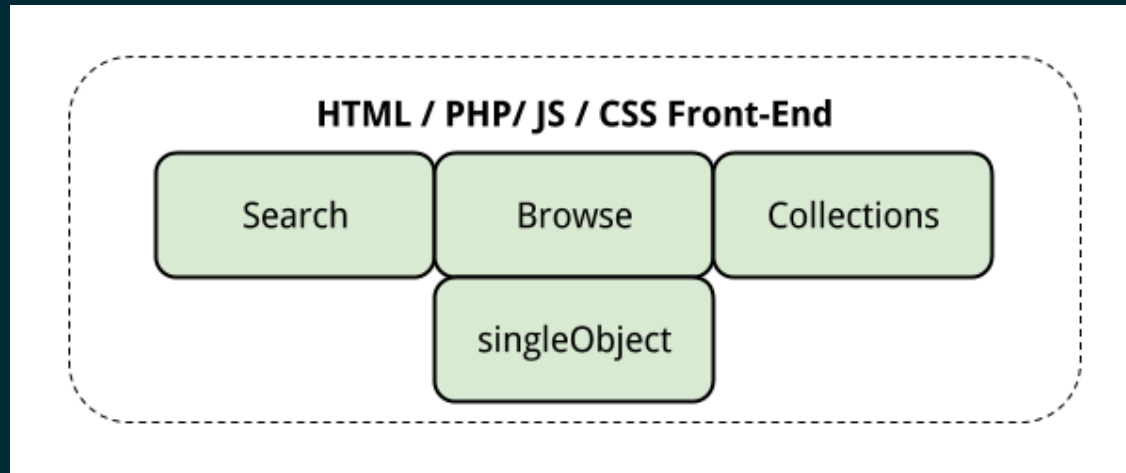


EM01aHMC\_373a

# Content First

No header. No footer. No branding. No frills. No distractions.

# Front-End Components

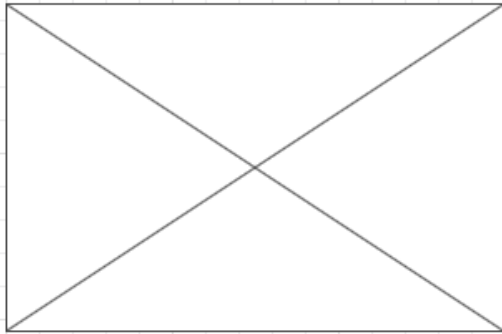




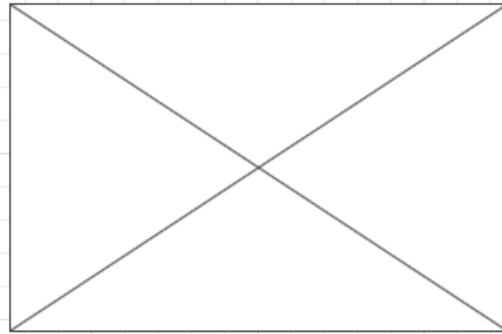
# Ideation (Idea Generation)

- Regular Meetings
- Sketching / Wireframes
- Looking at non-library sites for inspiration

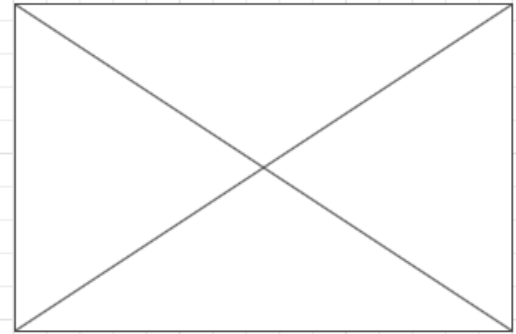
# Collections



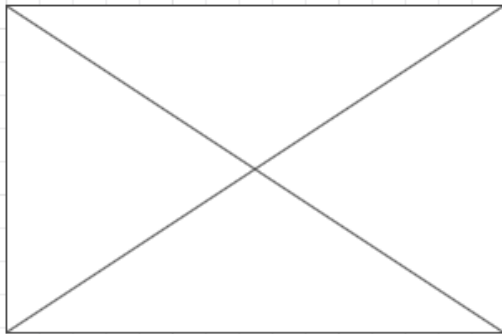
**Name of Collection**



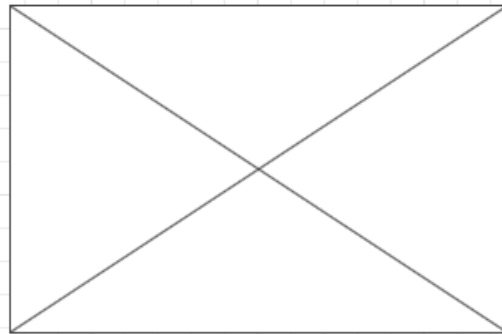
**Name of Collection**



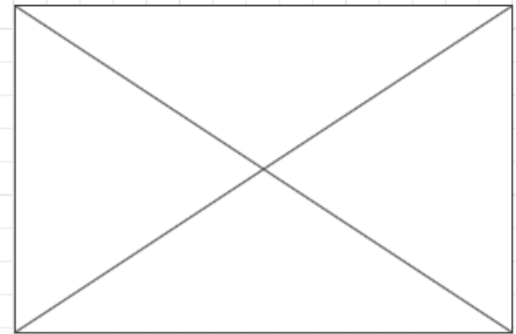
**Name of Collection**



**Name of Collection**



**Name of Collection**



**Name of Collection**

# Search Results

1234 Objects | Term: car factory

**Filter by Keyword**

**Facets**

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

[View all](#)

**Facets**

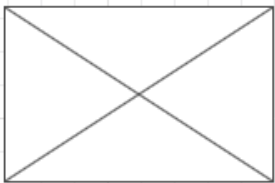
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

[View all](#)

**Title of Object**  
Date

[Redacted] [Redacted] [Redacted] [Redacted] [Redacted] [Redacted]

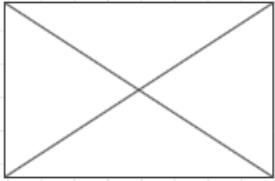
[Redacted] [Redacted] [Redacted]



**Title of Object**  
Date

[Redacted] [Redacted] [Redacted] [Redacted] [Redacted] [Redacted]

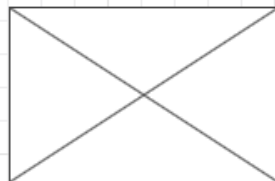
[Redacted] [Redacted] [Redacted]



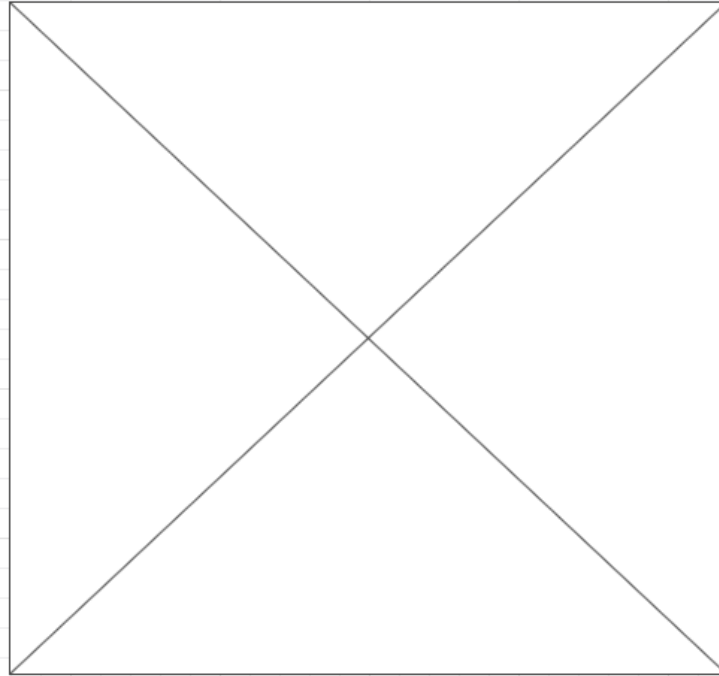
**Title of Object**  
Date

[Redacted] [Redacted] [Redacted] [Redacted] [Redacted] [Redacted]

[Redacted] [Redacted] [Redacted]



<< Back to Search Results



Title of Object

[Redacted text block]

More Info

Add to Favorites

Share



- [Redacted list item]
- [Redacted list item]
- [Redacted list item]

# Build and Refine

Designed in the browser.



# What We Built...

Wayne State University Libraries Digital Collection

# Why It Was Possible

(or, the Most Important Slide Yet)

- Amazing community around these technologies right now
- Our legacy instance of DLXS still up and chugging
- Institutional confidence in our team
- Team confidence in our team

# FIN.

## Starting from the Ground Up

How we created our own digital collections platform

Cole Hudson  
@coehud

Graham Hukill  
@gshukill

Axa Mei Liauw  
@axamei



# Sources for Images

- Slide 4: <http://www.contentdm.org/images/ball3.gif>
- Slide 4: <http://clioweb.org/i/omeka-logo.jpg>
- Slide 4: <http://islandora.ca/sites/default/files/Islandora.png>
- Slide 4: [http://www.stanford.edu/~jchris/hydrangea-logos/hydra-logos-final/hydra\\_logo\\_h400\\_transparent\\_bg.png](http://www.stanford.edu/~jchris/hydrangea-logos/hydra-logos-final/hydra_logo_h400_transparent_bg.png)
- Slide 7: <https://wiki.duraspace.org/download/attachments/22022608/Hydra+Architecture+DiagramV2.jpg>
- Slide 7: <http://code4lib.library.nd.edu/c4l11/source/diagrams/ia-inq-all.png>
- Slide 7: <http://blogs.loc.gov/digitalpreservation/files/2012/10/archivematica-diagram.png>
- Slide 8: [www.hathitrust.org/documents/HathiTrust-PASIG-200910.pdf](http://www.hathitrust.org/documents/HathiTrust-PASIG-200910.pdf)
- Slide 8: <https://wiki.duraspace.org/display/hydra/EAD+in+Hydra-Blacklight-Atrium>
- Slide 12: [http://31.media.tumblr.com/374f603eeedb5a447224ba5100dc3d93/tumblr\\_n0wpahcvlG1toe3mso1\\_500.gif](http://31.media.tumblr.com/374f603eeedb5a447224ba5100dc3d93/tumblr_n0wpahcvlG1toe3mso1_500.gif)
- Slide 15: [http://upload.wikimedia.org/wikipedia/commons/1/16/Ruby\\_on\\_Rails-logo.png](http://upload.wikimedia.org/wikipedia/commons/1/16/Ruby_on_Rails-logo.png)
- Slide 15: <http://www.unixstickers.com/image/cache/data/stickers/django/django.sh-600x600.png>
- Slide 15: <http://newgennow.com/images/opensource/drupal.png>
- Slide 19: [http://www.fedora-commons.org/sites/fedorarepository.org/files/logo\\_vertical\\_transparent\\_400\\_502.png](http://www.fedora-commons.org/sites/fedorarepository.org/files/logo_vertical_transparent_400_502.png)
- Slide 20: [https://www.coalliance.org/sites/default/files/solr-logo2\\_0.png](https://www.coalliance.org/sites/default/files/solr-logo2_0.png)
- Slide 23, 24, 25: [https://commons.wikimedia.org/wiki/File:Lobes\\_of\\_the\\_brain\\_NL.svg](https://commons.wikimedia.org/wiki/File:Lobes_of_the_brain_NL.svg)
- Slide 30: <http://www.bekkahwalker.net/192-old/Media/pong.gif>
- Slide 43: [http://upload.wikimedia.org/wikipedia/commons/e/ea/Bootstrap\\_logo.svg](http://upload.wikimedia.org/wikipedia/commons/e/ea/Bootstrap_logo.svg)
- Slide 43: <http://sass-lang.com/assets/img/logo-235e394c.png>
- Slide 43: [http://www.ianhoar.com/wp-content/uploads/2011/06/jquery\\_logo.png](http://www.ianhoar.com/wp-content/uploads/2011/06/jquery_logo.png)