Using Our Taxonom(ies) ASCE Case Study

Charlotte McNaughton

Director of Digital Product Development
American Society for Civil Engineers
Reston, Virginia
26 September 2016

Science | AAAS
Access Innovations Inc.® taxonomy software
DataHarmony from Access Innovations, Inc.

A CASE STUDY

- ASCE Library and Taxonomies
  - Charlotte McNaughton
  - Director of Digital Product Development
- Presented on her behalf by
  - Marjorie Hlava
  - President, Chief Scientist, Access Innovations Inc.

- 37 Journals: 73,000+ papers, 1983 to present
- 1 Magazine: 1000 articles + columns, 2005-2015
- 498 Proceedings: 54,000+ papers
- 333 E-books
- 82 Standards

Taxonomy Development

- •Begun in 2009 finished 2011
- •Content driven (our published content, not broad idea of discipline)
- •Controlled vocabulary, 3500 terms
- •Flat list (no hierarchy)
- •Draft grew to 30,000 terms for Topics, Corporate, Geographic
- •Dropped Corporate, condensed Geographic, edited Topics
- •Review by Subject Matter Experts

More Development!

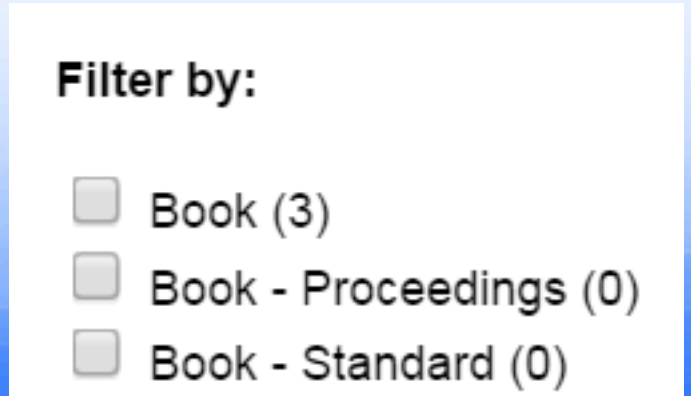
- •Topics taxonomy: 2,170 Preferred Terms
- •Geographic taxonomy: 778 Preferred Terms
- •NEW!!! Content type taxonomy: XXX Preferred Terms
- •Review never ends!
- •Not just a matter of having a taxonomy…need to have a way to use it. Vendors and applications just now coming online.
- •For specific uses, we found that we needed additional versions or variations of taxonomy
- •Author Specialty taxonomy
- •Author Country taxonomy

Primary implementation: ASCE Library

- •Tagging of retro content in ASCE Library complete
- •Two branches of taxonomy uploaded to Atypon Literatum Taxonomy Management Tool
- •Tags for retro content: provided to Atypon
- •Forward flow for tagging new content developed
- •Redesign in progress…implementation still in development
- •Tags will display on article-level pages; click to populate search?
- •Type-ahead in Search using Preferred Terms?
- •Taxonomy tree or other visualization for browsing?

New Taxonomy!

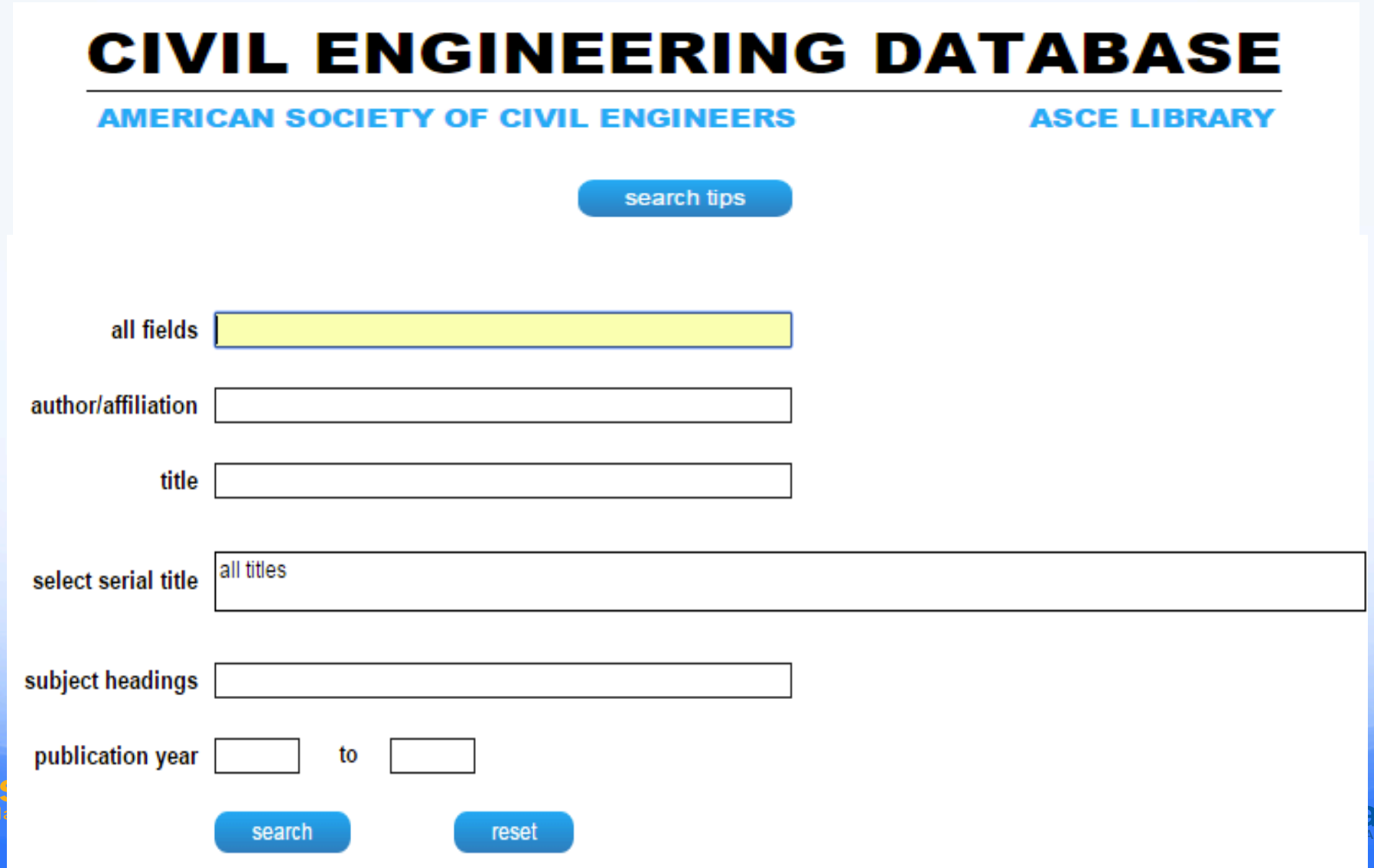
- Issue: create a filter for Content Types that would work with Search Results on our new ASCE Library platform
- •Need article types to match ASCE terminology
- •“Research article” should be “Technical Paper”
- •“Chapter” includes “Proceedings Paper”: split!
- •Want to add Open Access filter
- •Want to add book-title level filters



Development

- •Select Preferred Terms (how they should appear in the filter)
- •Map XML tags and doctypes from our XIS database
- •Create new taxonomy in Thesaurus Master
- •Tag content
- •Each item in ASCE Library has one tag for Content Type
- •Items that are Open Access get a second tag
- •Prepare tag export file
- •Provide taxonomy and tags to Atypon

Second Implementation: New Search Interface



New Search Interface

- Subject headings = Taxonomy Preferred Terms, permuted!

New Search Interface

- Filter for content types

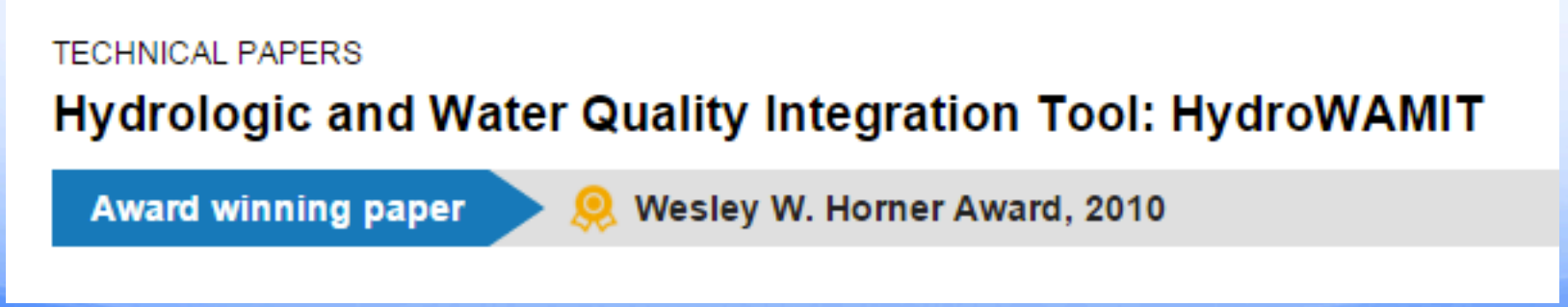
Found 6 Records

2014	Snow-Related Roof Collapse during the Winter of 2010-2011: Implications for Building
2010	Snow Loads: Guide to the Snow Load Provisions of ASCE 7-10
2007	Snow Loads: A Guide to the Snow Load Provisions of ASCE 7-05
2004	Snow Loads: A Guide to the Use and Understanding of the Snow Load Provisions of A
1996	Cold Regions Utilities Monograph
1981	Long Span Roof Structures

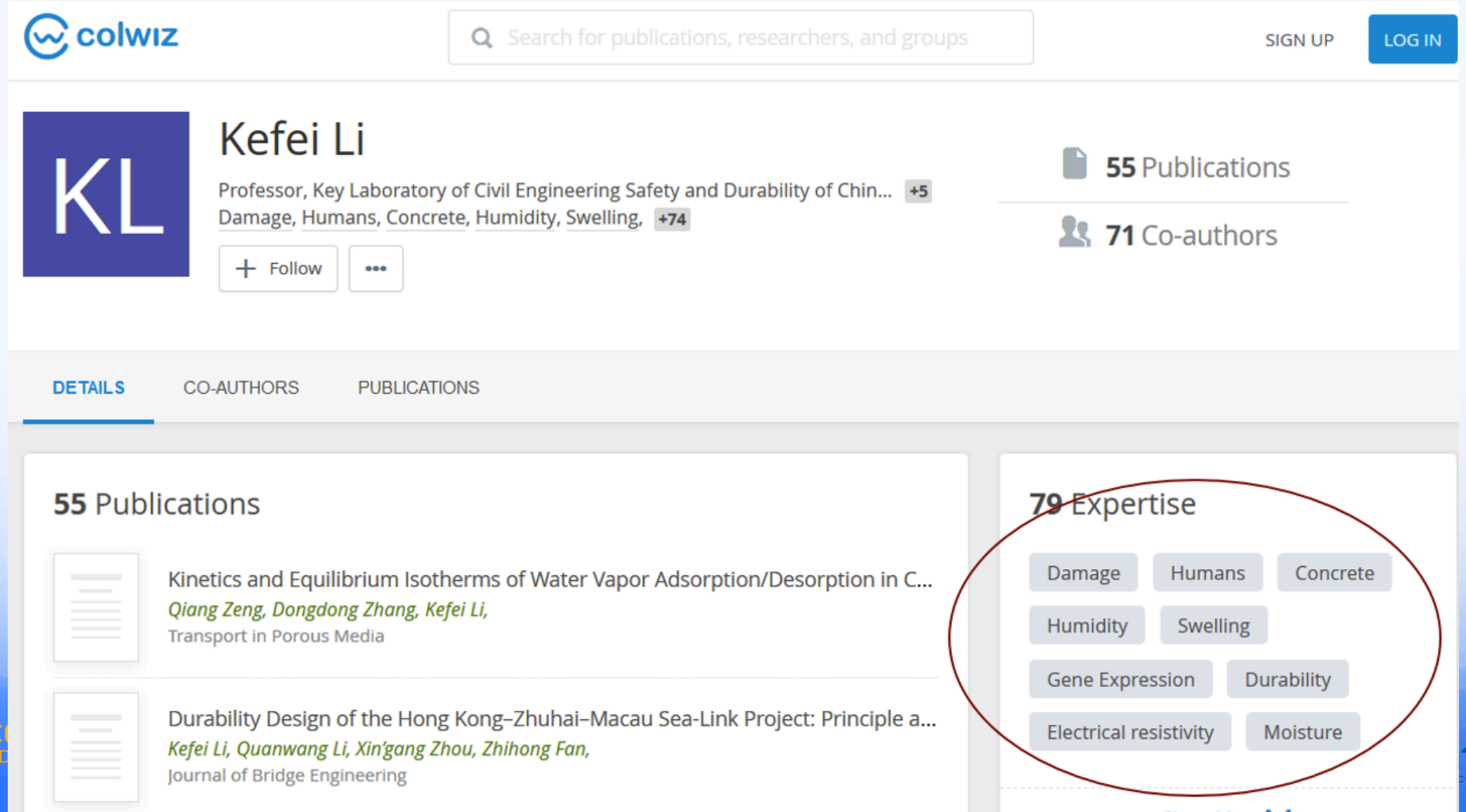
5)
Proceedings (1)
Standard (7)
sion / closure / errata / retraction (0)
al (0)
e article (0)
(0)
l Paper (76)
0)
ding Paper / Chapter (55)
itle (0)

Third Implementation: Author Profiles

- •Working with colwiz
- •Snippet of javascript applied to templates in ASCE Library
- •Connects to colwiz iPDF Reader; users can annotate, save, share…
- •Additional features on Abstract pages: Awards



Author Specialty Taxonomy



Author Specialty Taxonomy Development

- •Can Technical Topics tags be used to define Author expertise?
- •No!
- •Too granular: Granularity works for articles, but not authors
- •Develop from existing resources…
- •Harvest terms from peer-review system used for matching Reviewers with articles
- •Create a flat list of all terms; de-dupe
- •Map Tech Topics tags to new flat list; run Frequency Report, delete low-usage terms
- •Merge Tech Topics terms into new Author Specialty taxonomy; pulls in Rule Base
- •Test run of selected fields against new taxonomy; examine 0 hits report
- •Modify new taxonomy and re-run machine-aided indexing for final tags
- •Preferred terms = 184

Access Innovations Inc.®
maker of Data Harmony taxonomy software

DataHarmony®
from Access Innovations, Inc.

Fourth Implementation: Author Country Taxonomy

- •Need: requests from Marketing for lists of Authors from various countries
- •Obstacle: country information combined with other Affiliation data
- •Obstacle: country name variation and inconsistency
- •Develop from existing resources…
- •Start with Geographic taxonomy, countries branch
- •Run Affiliations against these terms, extract countries
- •Success! First pass: 70% hits returned
- •Analyze misses; revise rules for this task; re-run
- •Preferred terms = 204

Evolution of ASCE Taxonomy

ASCE Taxonomy (includes technical, corporate and geographic terms)

ASCE Topics Taxonomy
ASCE Geographic Taxonomy

ASCE Technical Taxonomy
ASCE Geographic Taxonomy
ASCE Corporate Taxonomy

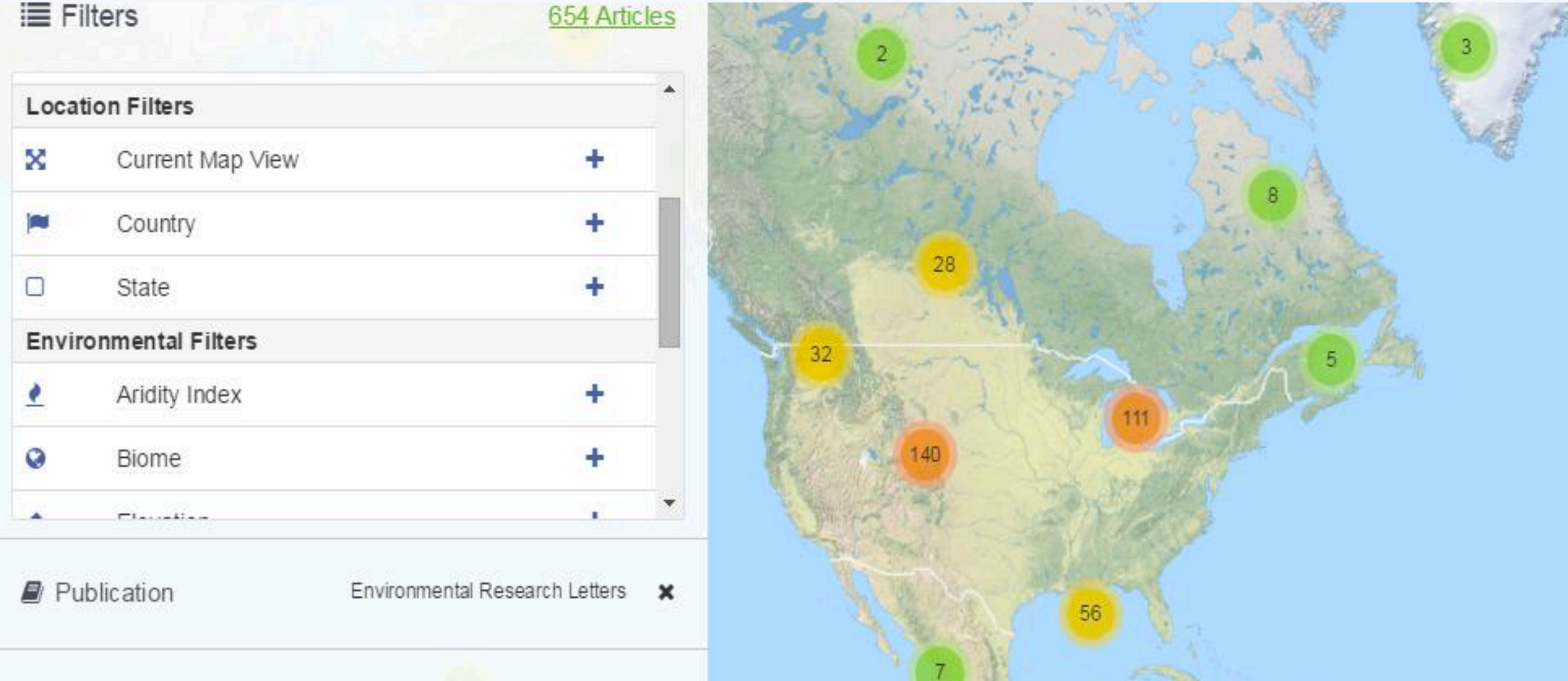
ASCE Technical Taxonomy
ASCE Corporate Taxonomy
ASCE Geographic Taxonomy
ASCE Author Specialty Taxonomy

Access Innovations Inc.® maker of Data Harmony taxonomy software
Data Harmony from Access Innovations, Inc.

Another project?
Institution name normalization

- •Need: associate Authors with Institutions
- •Obstacle: various and inconsistent data for Institution names
- •Resource: GRID (Global Resource Identifier Database)
- https://grid.ac/
- •Similar process as Author Country approach???

Another project?
Study or Structure Location with JournalMap



Study or Structure or Disaster Location with JournalMap

- •Geotags needed for locations
- •Return tags to bibliographic database
- •Use locations to develop GEOthes
- **•What level of Topic tagging is appropriate?**
- •Geoparser + Manual review
- •Model is location of a Study
- •Civil engineers are interested in Projects and Structures and Disasters

Visualization Interface - Sunburst

DATA HARMONY

LOGOUT

- DASHBOARD
- THESAURUS MASTER
  - INTEGRATED
- MACHINE AIDED INDEXING
  - TEST MAI
  - MAI BATCH
- XIS
  - SCHEMA EDITOR
- PIPELINES
- MAXENT
- SENTISCORE
- NGRAMS
- AUTOSUM
- ADMINISTRATION
- DOCS
- ABOUT

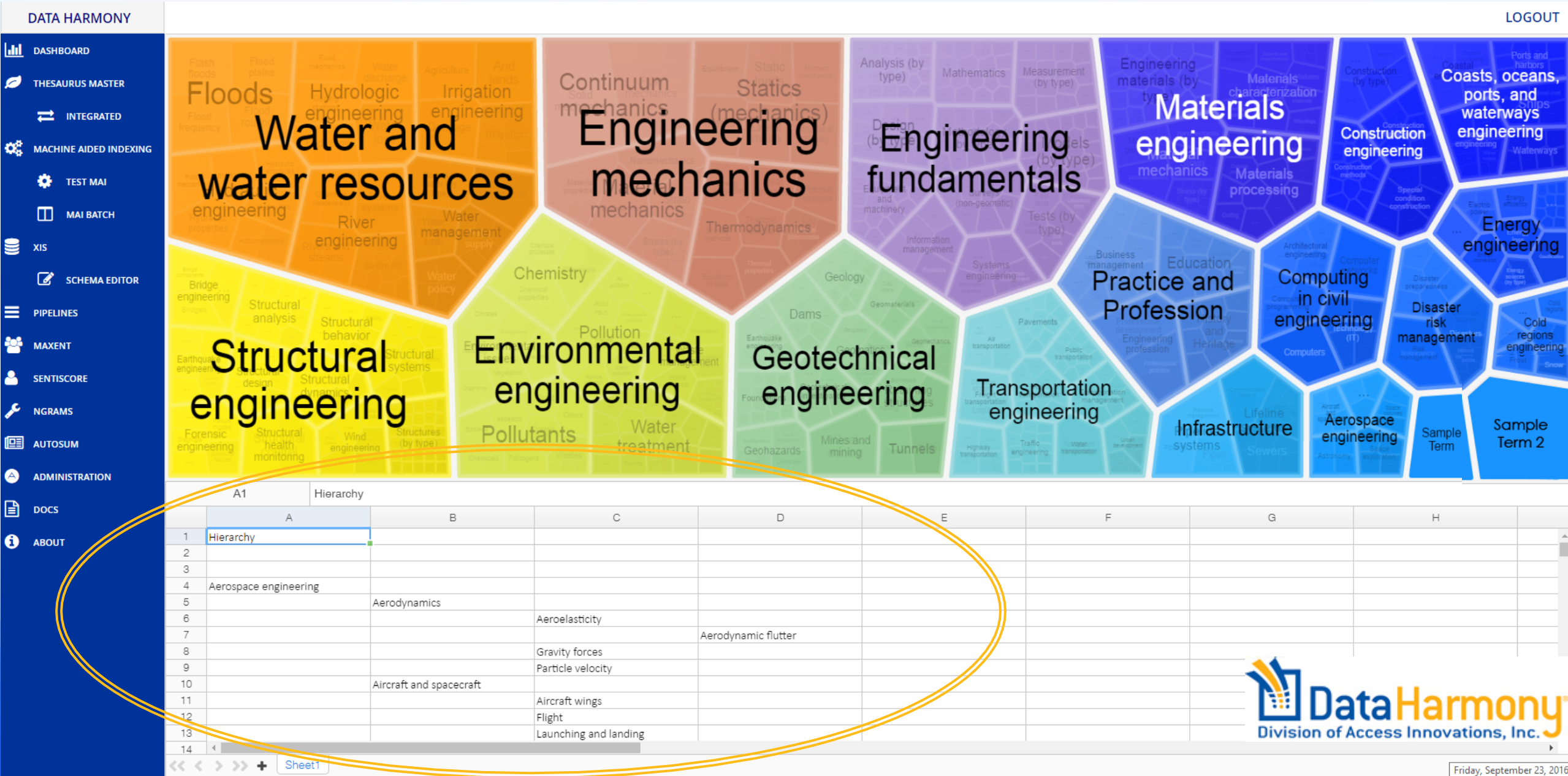
A1 Hierarchy

	A	B	C	D	E	F	G	H
1	Hierarchy							
2								
3								
4	Aerospace engineering							
5		Aerodynamics						
6			Aeroelasticity					
7				Aerodynamic flutter				
8			Gravity forces					
9			Particle velocity					
10		Aircraft and spacecraft						
11			Aircraft wings					
12			Flight					
13			Launching and landing					
14								

Sheet1

DataHarmony
Division of Access Innovations, Inc.

Honeycomb Interface



A1 | Hierarchy

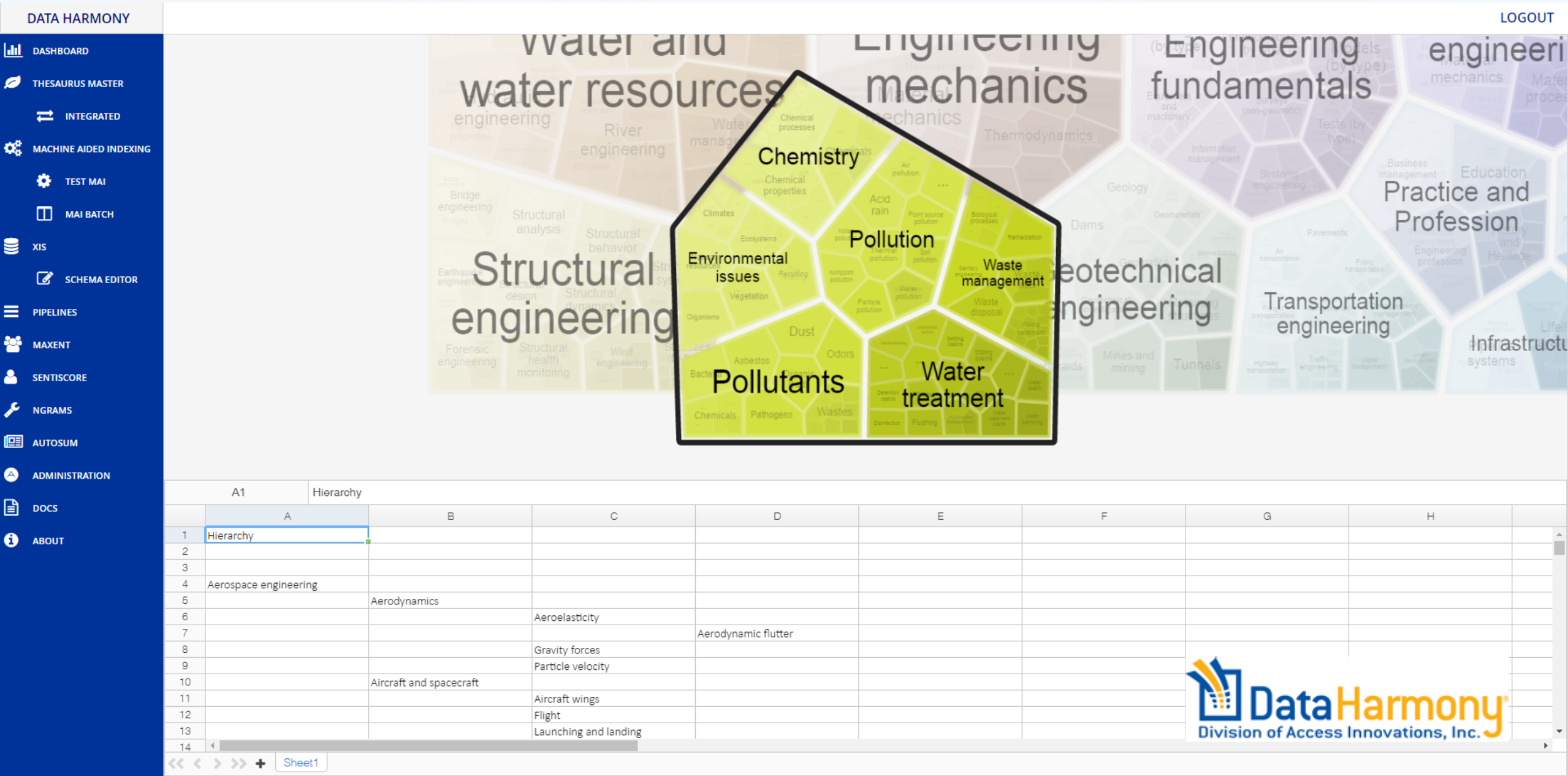
	A	B	C	D	E	F	G	H
1	Hierarchy							
2								
3								
4	Aerospace engineering							
5		Aerodynamics						
6			Aeroelasticity					
7				Aerodynamic flutter				
8			Gravity forces					
9			Particle velocity					
10		Aircraft and spacecraft						
11			Aircraft wings					
12			Flight					
13			Launching and landing					
14								

Sheet1

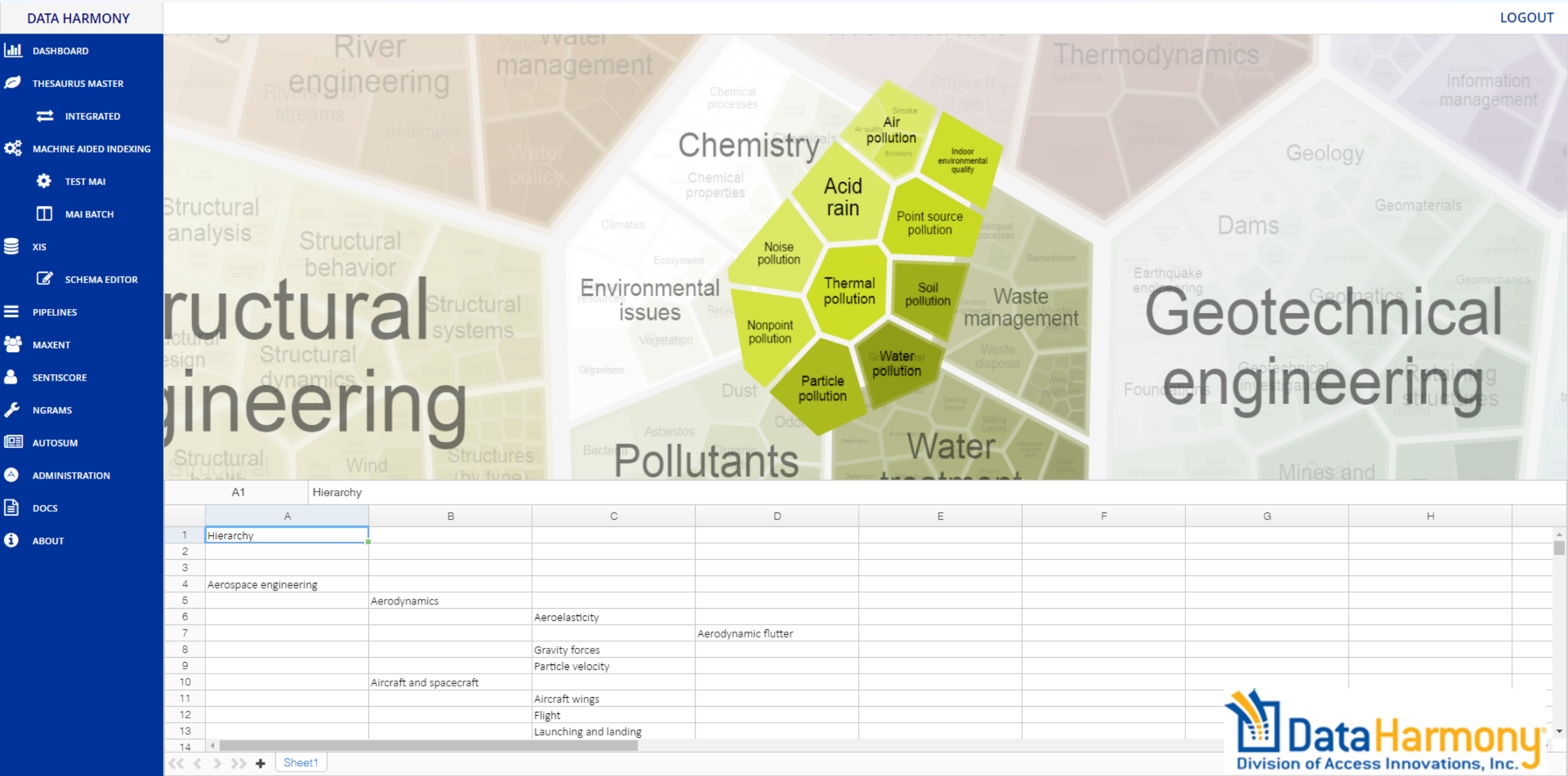
Friday, September 23, 2016

DataHarmony
Division of Access Innovations, Inc.

More Drilling down through the Interface



More Drilling down through the Interface



What else???

- •Visualizations using Tableau
- •Recommender widgets
- •Topic pages
- •Develop other taxonomies (Events, Historical figures, e.g.)
- •Leverage other taxonomies and databases (Structurae, e.g.)
- •Other ideas from Text Mining???
- Limited only by time and resources!

Questions?
Thank you

Marjorie Hlava
Monica Bradford
Charlotte McNaughton

Access Innovations Inc.®
maker of Data Harmony taxonomy software

DataHarmony®
from Access Innovations, Inc.