DCMI @ 20 Past, Present, Future

#DCMI14 Austin, Texas USA October 9, 2014

Eric Miller <u>em@zepheira.com</u> <u>https://www.linkedin.com/in/erimille</u> @erimille



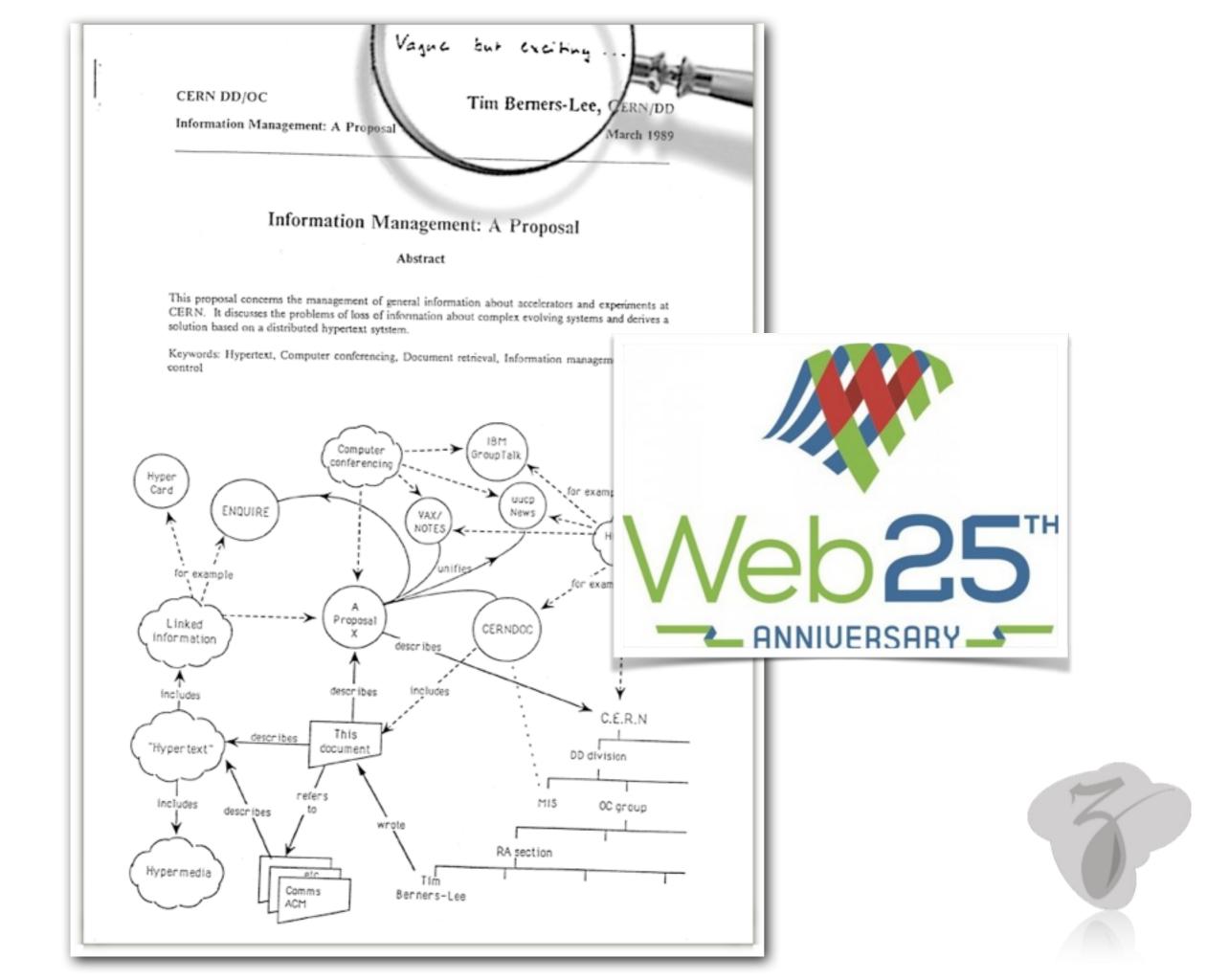
Hi, i'm Eric

- President and Founder of Zepheira
- Former W3C Activity Lead for Semantic Web
- MIT Research Scientist
- Founder and Associate Director, Dublin Core Metadata Initiative
- Senior Scientist at OCLC



A Talk in 3 Parts

Act I The Past



A hallway conversation 20 years ago...









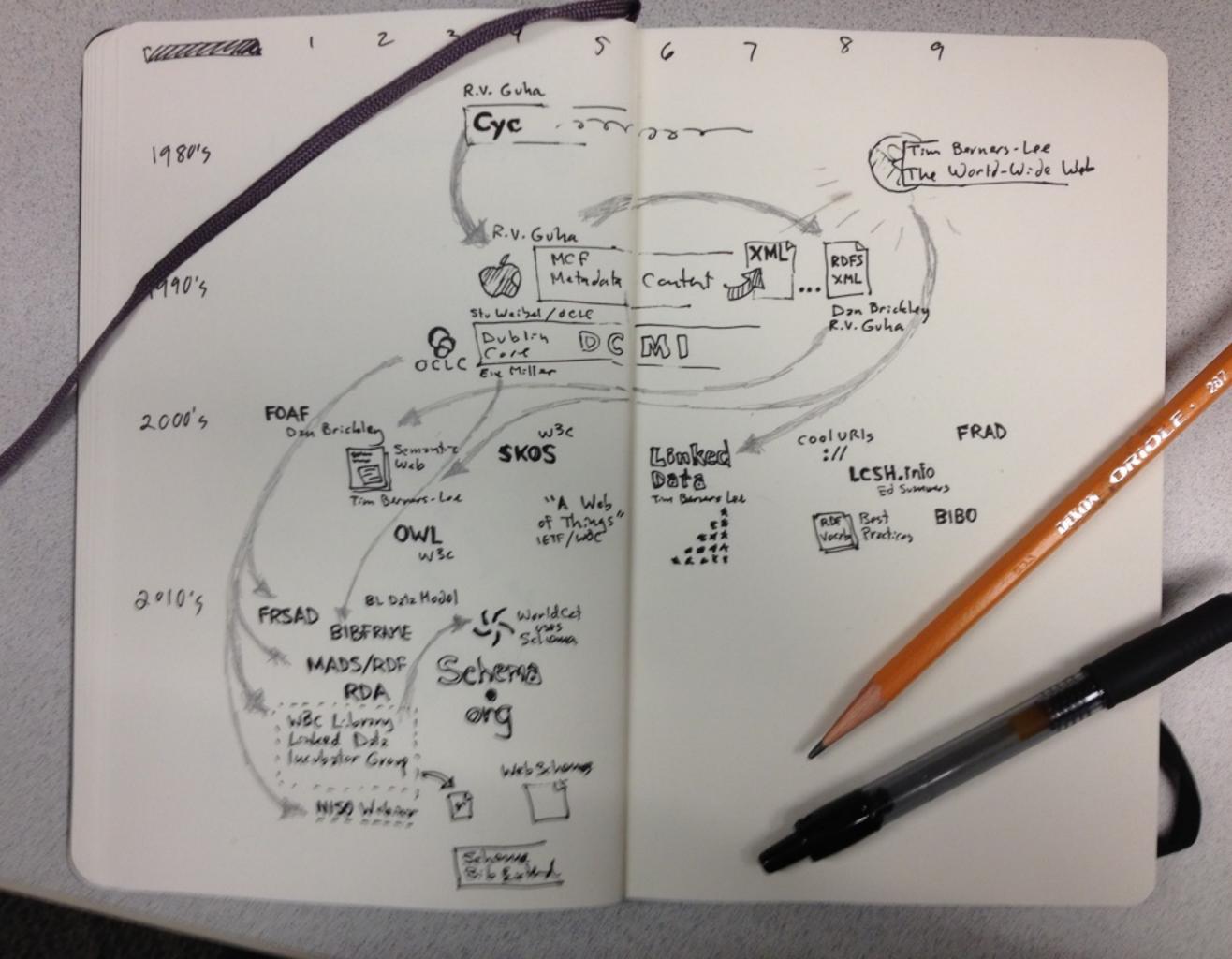












Raise your hand if...

- "Geeks, Freaks and People with Sensible Shoes"
- Warwick Framework
- "Dumb Down" rule
- "The Cambridge Communiqué"
- "The Finnish Finish"
- "1:1 principle"
- "Strings to Things"
- Application Profiles



2 Kinds of Pragmatism

- 'Simple vocabulary semantics' pragmatism
 - "We don't want to spend lots of time building complex, un-tested, universal frameworks that allow all kinds of data to be mixed. Instead, let's make some useful and easily understood, technologyneutral metadata definitions and simple ways to publish it in HTML".
- 'One vocabulary can't cover it all' pragmatism
 - "Whatever we do, it will be hard to meet all needs for multimedia, education, geo, rights, classification etc. Therefore let's find ways of mixing simple Dublin Core with vocabularies created by others."
- I think of these as "*Stu-pragmatism*" and "*Eric-pragmatism*", in honour of Stu Weibel and Eric Miller's early DC leadership, and their shared concern for keeping Dublin Core simple, mainstream and useful to many communities. Much of DC history comes from the interplay between these forms of DC pragmatism.



"What is left to do?", Dublin Core 2012 Keynote by Dan Brickley, Other at FOAF project, SpyPixel Ltd., misc. on Sep 17, 2012

"make the simple things simple and the complex things possible"



Not a Product, but a Community

- A community
 - A social process designed to bring together different stakeholders,
- Weaving the best of People, Data and the Web together



Ahead of our time

- The new norms can happen extremely fast
 - "Data Scientist" anyone?



Building on our strengths

- Social, community, process driven
- Applying these in areas that benefit the metadata industry
 - Application Profiles
 - Linked Data Patterns





Act 2 The Present



The 90's called.... they'd like their slides back



We live in exciting times

Purpose

The Web is the most successful platform ever conceived for sharing information and services

We live in exciting times

Promise

The Web is increasingly becoming the most pervasive data management and integration platform ever imagined

Most of the Web is...

- Pages and links
- Designed for direct human consumption
- Simple linking ("points at")
- Data is hidden



Headline Subheadline Italics

Link1 Link2 Link3

Link4

Title Author Publication Date

Article Content Article Content

Tag1 Tag2 Tag3

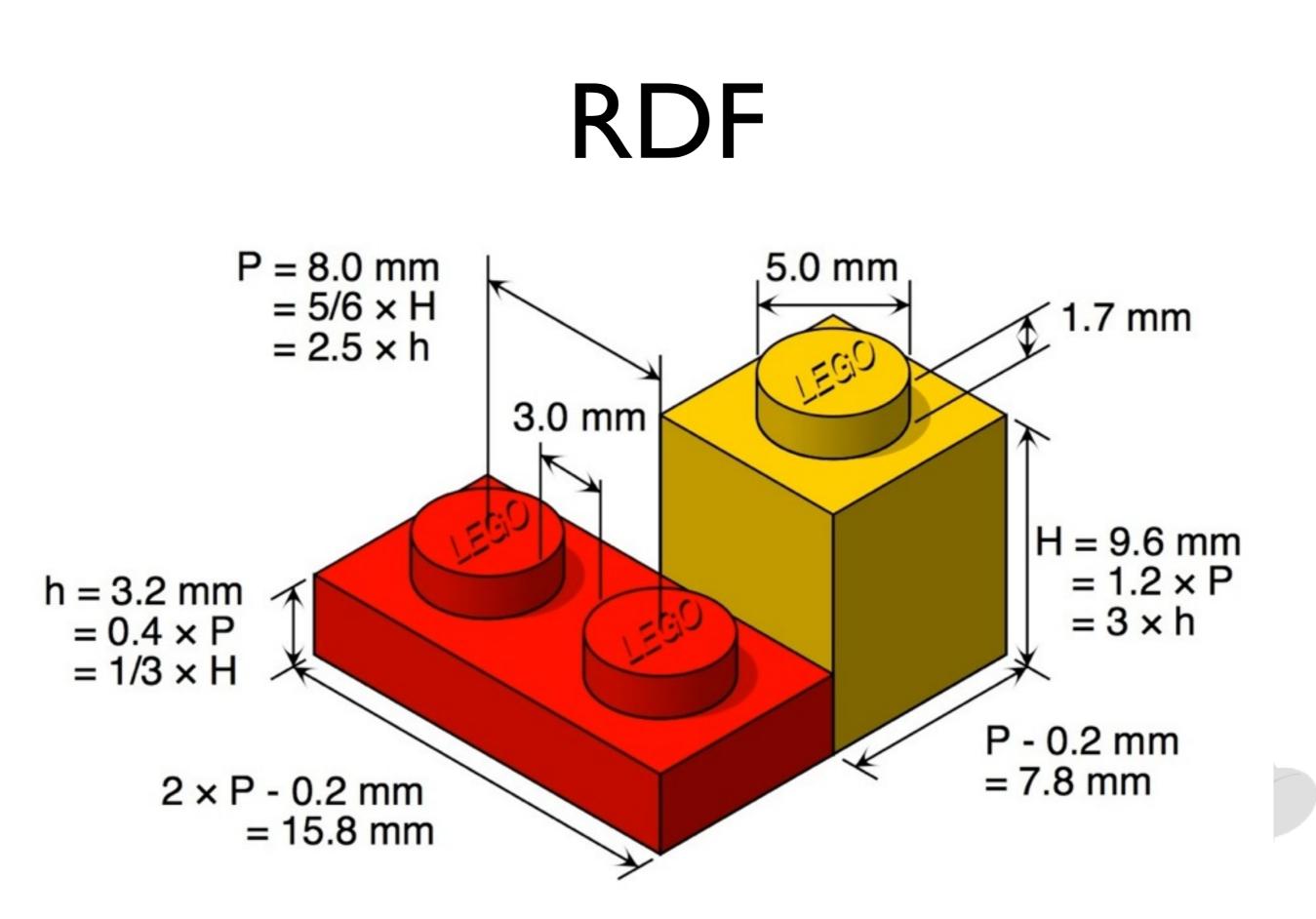
Copyright License

A significant gap between what browsers and humans see

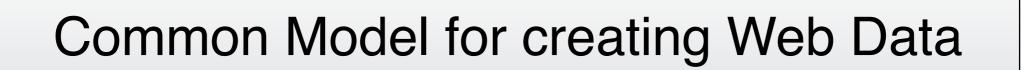


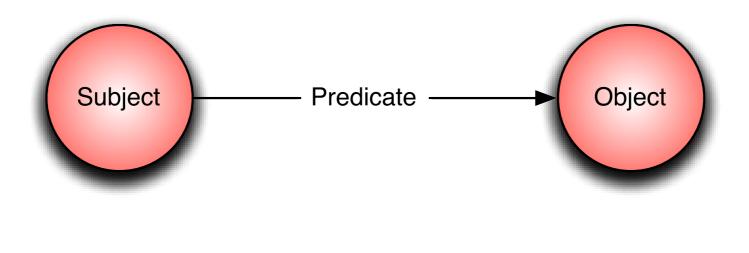
Authorized Signature Not Valid Unless Signed SAU234 ScTSAU234 A223 By using this card the holder agrees to all terms under which it was issued. This card is issued by (Full issuer Name) pursuant to license by MasterCard International. • Human readable

• Machine readable



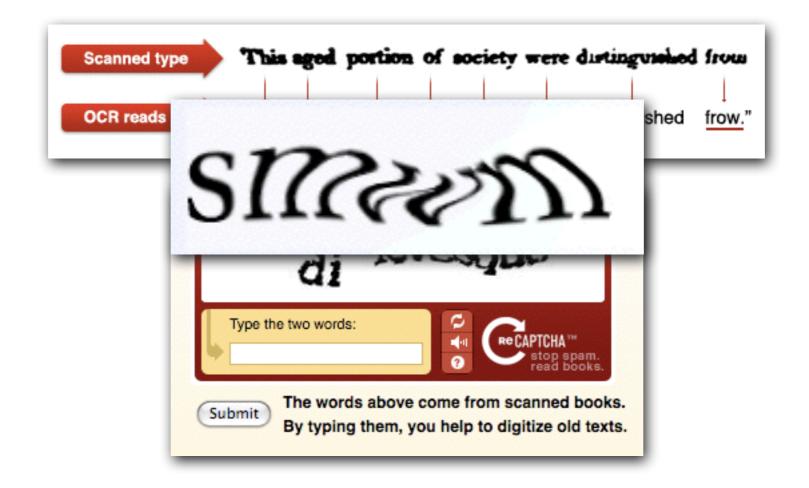
Resource Description Framework







The Power of Human Computing





Linked Data

"a term used to describe a recommended best practice for exposing, **Sharing**, and **Connecting** pieces of **data**, information, and knowledge on the Semantic **Web** using **URIS** and RDF."

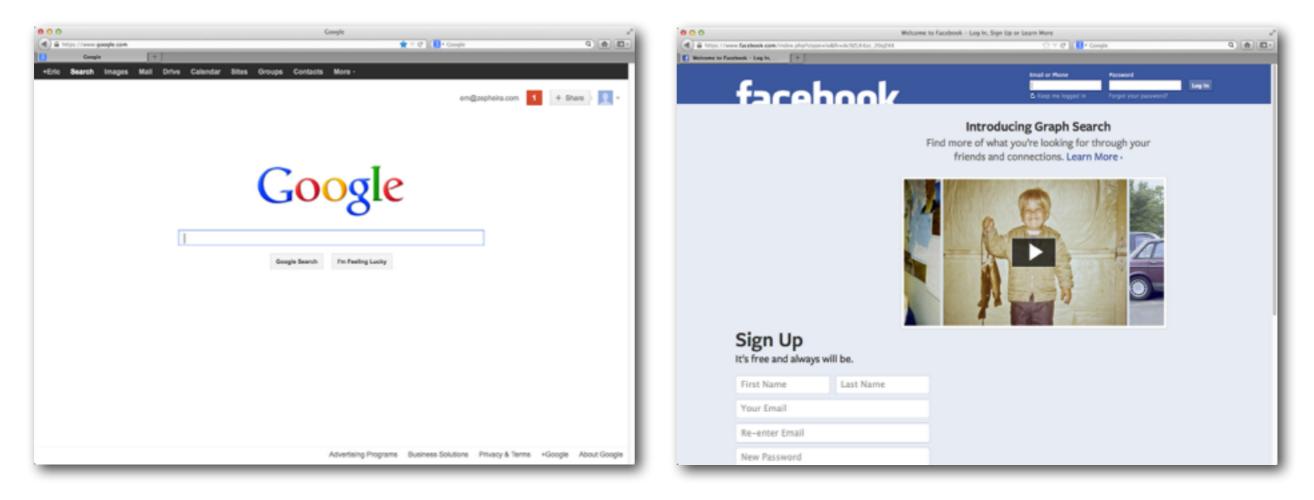
http://en.wikipedia.org/wiki/Linked_Data

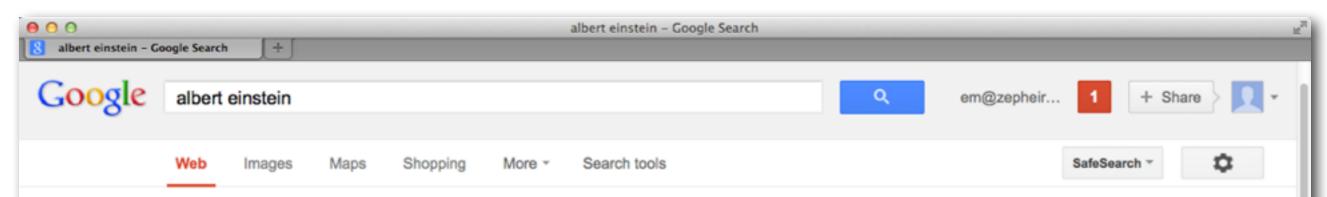
A tale of two Webs

- The Visible Web
- The Invisible web

The Visible Web

Web Search and Discovery





About 58,000,000 results (0.18 seconds)

Albert Einstein | Albert Einstein Official Site

einstein.biz/ Share

Albert Einstein official Web Site and Fan Club, featuring biography, photos, trivia, rights representation, licensing, contact and more.

Albert Einstein - Wikipedia, the free encyclopedia

en.wikipedia.org/wiki/Albert_Einstein

Albert Einstein (pron.: /'ælbərt 'aınstaın/; German: ['albet 'aınftaın] (listen); 14 March 1879 – 18 April 1955) was a German-born theoretical physicist ... Spinozism - Brain - Religious views of albert einstein - Hans Albert Einstein

Albert Einstein - Biography

www.nobelprize.org > Nobel Prizes > Nobel Prize in Physics Biography. Albert Einstein was born at Ulm, in Württemberg, Germany, on March 14, 1879. Six weeks later the family moved to Munich, where he later on began ...

Albert Einstein Quotes - BrainyQuote

www.brainyquote.com/quotes/authors/a/albert_einstein.html

Enjoy the best Albert Einstein Quotes at BrainyQuote. Quotations by Albert Einstein, German Physicist, Born March 14, 1879. Share with your friends.

Albert Einstein Biography - Facts, Birthday, Life Story - Biography.com www.biography.com > People

Biography.com offers a glimpse into the life of **Albert Einstein**, the most influential physicist of the 20th century, who developed the theory of relativity.

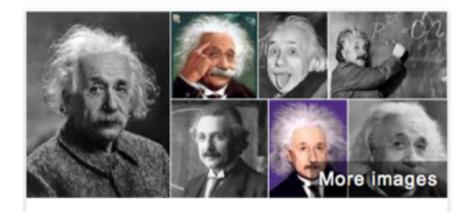
Einstein Archives Online

www.alberteinstein.info/

The homepage of the repository of the personal papers of the great scientist, humanist and Jew, **Albert Einstein**.

Quotes By Albert Einstein - Goodreads

www.goodreads.com/author/quotes/9810.Albert_Einstein 50+ items – 692 quotes from Albert Einstein: 'Two things are infinite: the ...



Albert Einstein

Albert Einstein was a German-born theoretical physicist who developed the general theory of relativity, effecting a revolution in physics. Wikipedia

Born: March 14, 1879, Ulm

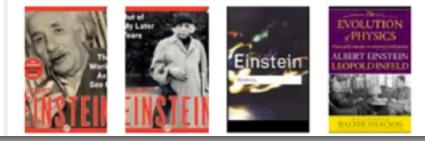
Died: April 18, 1955, Princeton

Education: University of Zurich (1905), ETH Zurich (1901), More

Children: Hans Albert Einstein, Eduard Einstein, Lieserl Einstein

Spouse: Elsa Einstein (m. 1919–1936), Mileva Marić (m. 1903–1919)

Books



schema.org

Home Schemas Documentation

What is Schema.org?

This site provides a collection of schemas, i.e., html tags, that webmasters can use to markup their pages in ways recognized by major search providers. Search engines including Bing, Google, Yahoo! and Yandex rely on this markup to improve the display of search results, making it easier for people to find the right web pages.

Many sites are generated from structured data, which is often stored in databases. When this data is formatted into HTML, it becomes very difficult to recover the original structured data. Many applications, especially search engines, can benefit greatly from direct access to this structured data. On-page markup enables search engines to understand the information on web pages and provide richer search results in order to make it easier for users to find relevant information on the web. Markup can also enable new tools and applications that make use of the structure.

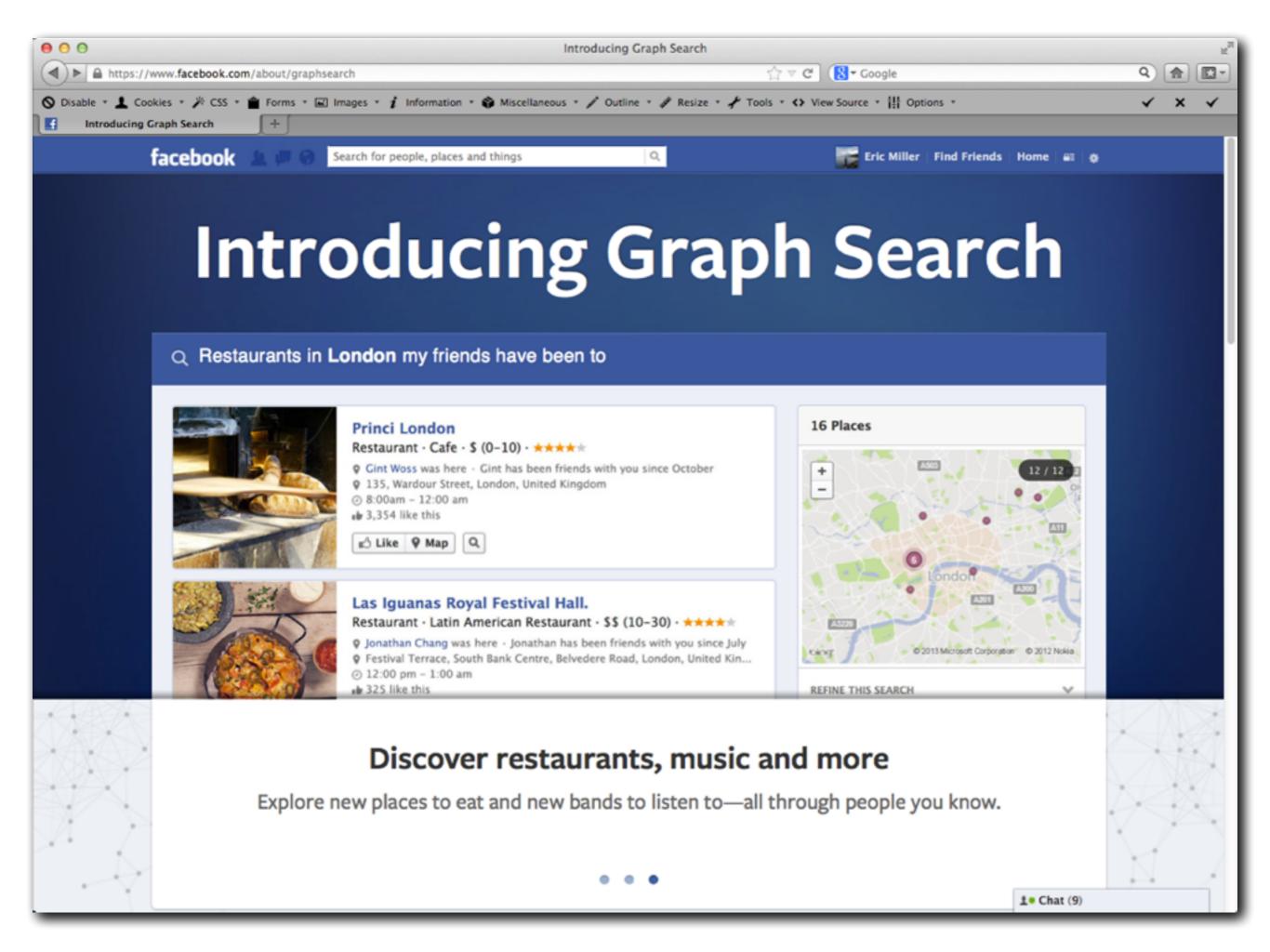
A shared markup vocabulary makes it easier for webmasters to decide on a markup schema and get the maximum benefit for their efforts. So, in the spirit of sitemaps.org, search engines have come together to provide a shared collection of schemas that webmasters can use.

We invite you to get started!

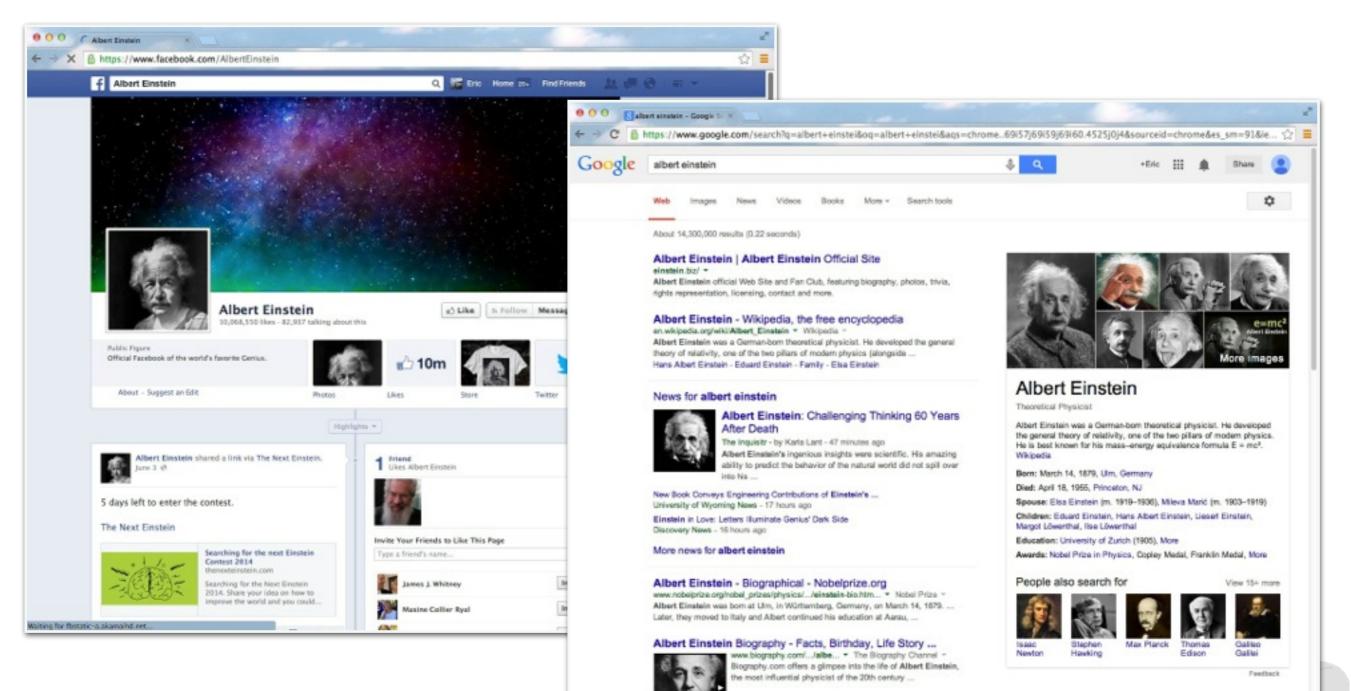
View our blog at blog.schema.org.

Terms and conditions

Search

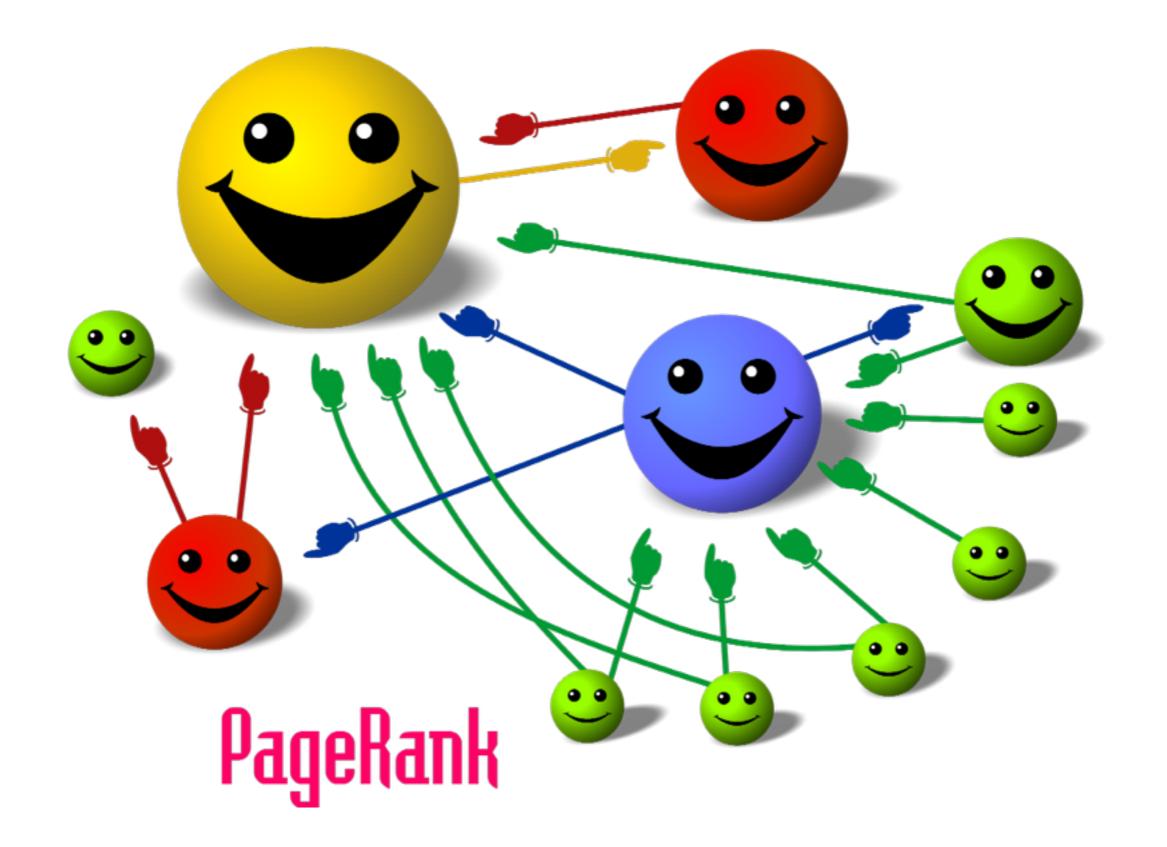


Identifier Wars





A link is worth a 1000 words



Identifier Landscape

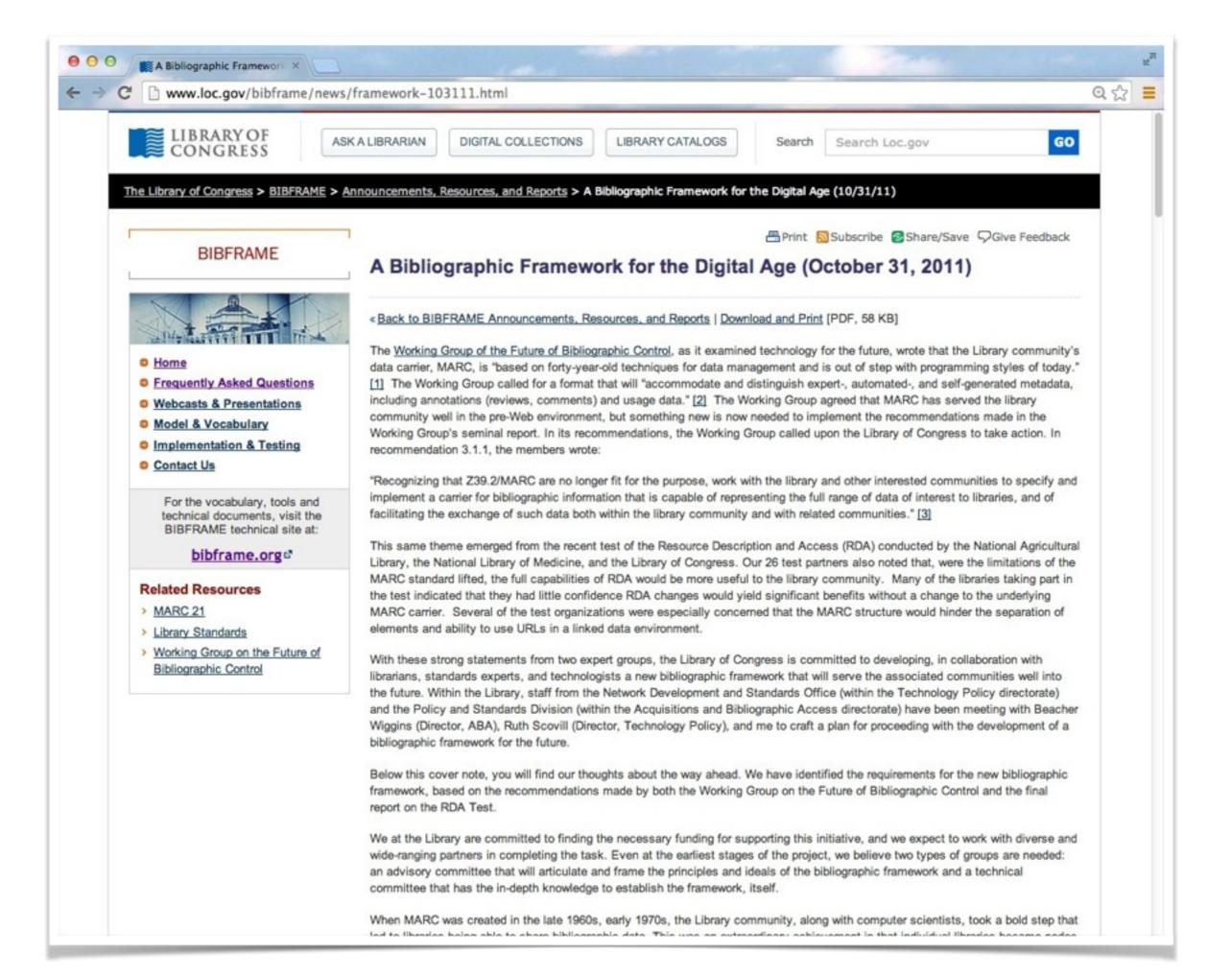


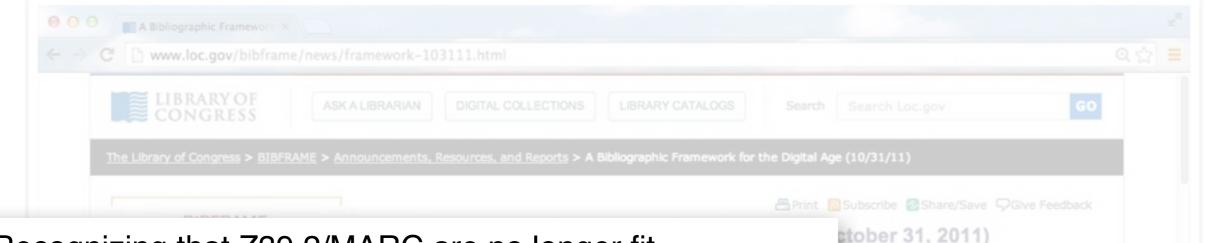




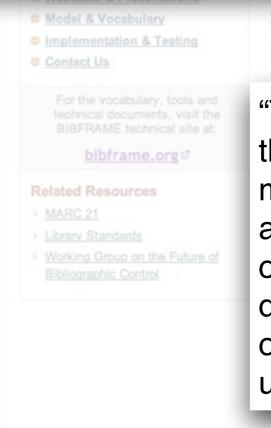
The Invisible Web







"Recognizing that Z39.2/MARC are no longer fit ... facilitating the exchange of such [bibliographic] data both within the library community and with related communities."



mmunity well in the pre-Web environment, but something new is now needed to implement the recommendations made in the orking Group's seminal report. In its recommendations, the Working Group called upon the Library of Congress to take action. commendation 3.1.1, the members wrote:

"The new bibliographic framework project will be focused on the Web environment, Linked Data principles and mechanisms, and the Resource Description Framework (RDF) as a basic data model. ... Likewise, it is expected that the use of RDF and other W3C (World Wide Web Consortium) developments will enable the integration of library data and other cultural heritage data on the Web for more expansive user access to information."

report on the RDA Te

We at the Library are committed to finding the necessary funding for supporting this initiative, and we expect to work with diverse and wide-ranging partners in completing the task. Even at the earliest stages of the project, we believe two types of groups are needed: an advisory committee that will articulate and frame the principles and ideals of the bibliographic framework and a technical committee that has the in-depth knowledge to establish the framework, itself.

When MARC was created in the late 1960s, early 1970s, the Library community, along with computer scientists, took a bold step that lad to librarias helps able to share bibliographic data. This was an extraordinant achievement in that individual librarias became nodes.







"The Initiative aims to re-envision and, in the long run, implement a new bibliographic environment for libraries that makes "the network" central and makes interconnectedness commonplace."

 Bibliographic Framework as a Web of Data: Linked Data Model and Supporting Services, Library of Congress, November 21, 2012 - Prepared by Zepheira



"The Initiative aims to re-envision and, in the long run, implement a new bibliographic environment for libraries that makes "the network" central and makes interconnectedness commonplace."

- robust enough to deal with 40 years ago
- flexible enough to deal with 40+ years from now



"The Initiative aims to re-envision and, in the long run, implement a new bibliographic environment for libraries that makes "the network" central and makes interconnectedness commonplace."

- memory organization (libraries, museums, archives)
- community / users they server

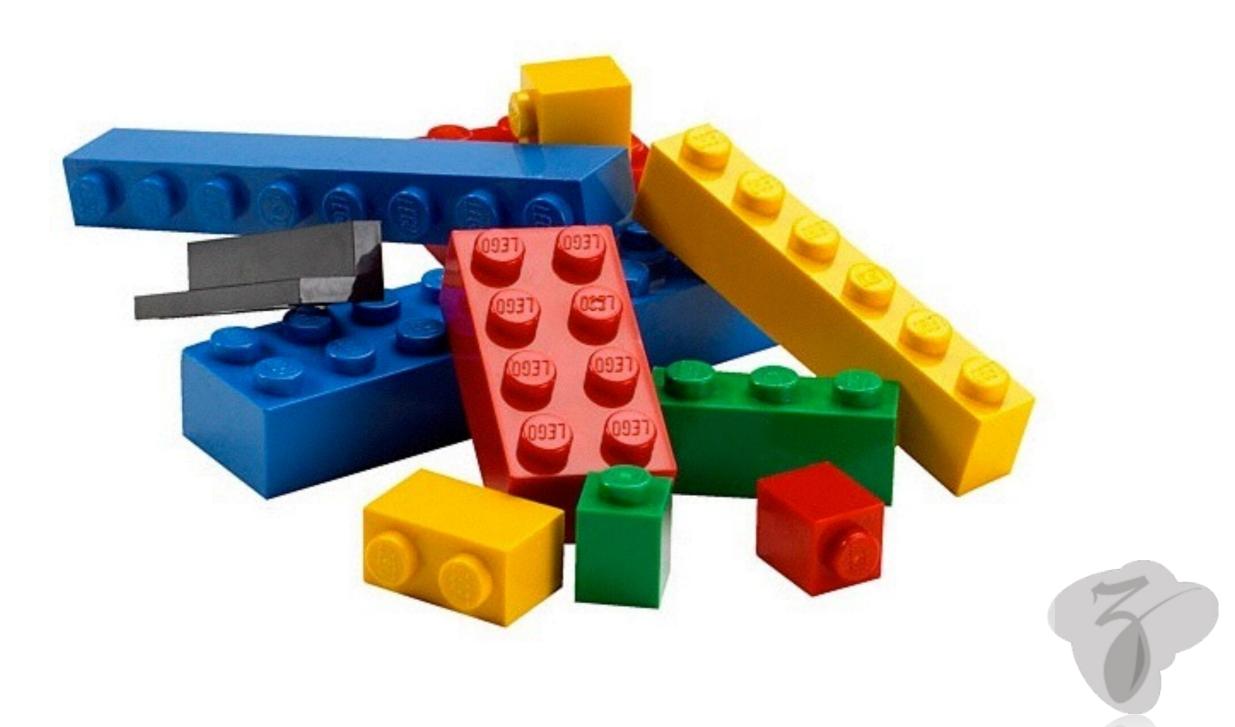


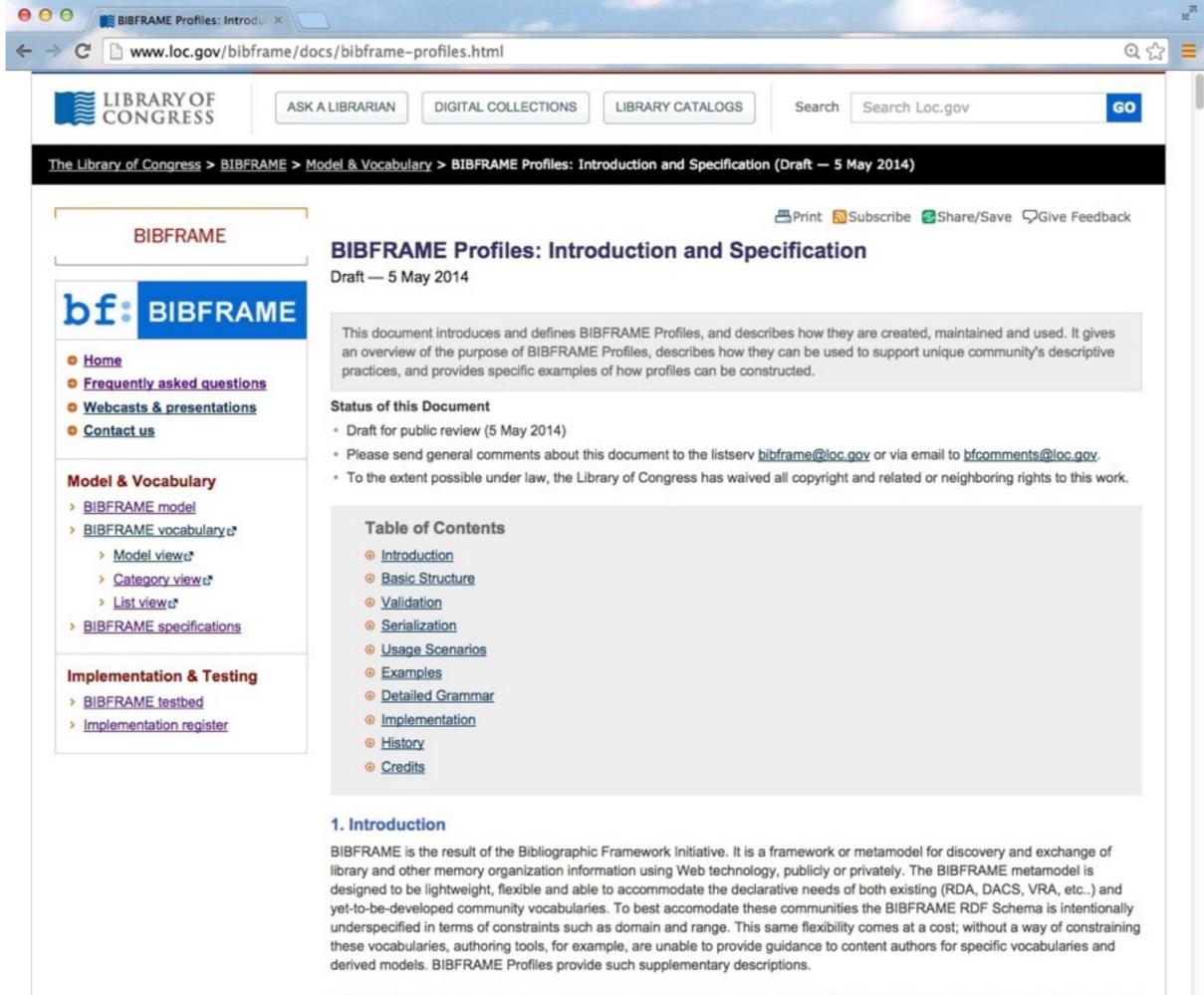
"The Initiative aims to re-envision and, in the long run, implement a new bibliographic environment for libraries that makes "the network" central and makes interconnectedness commonplace."

- not just on the web
- but of the web

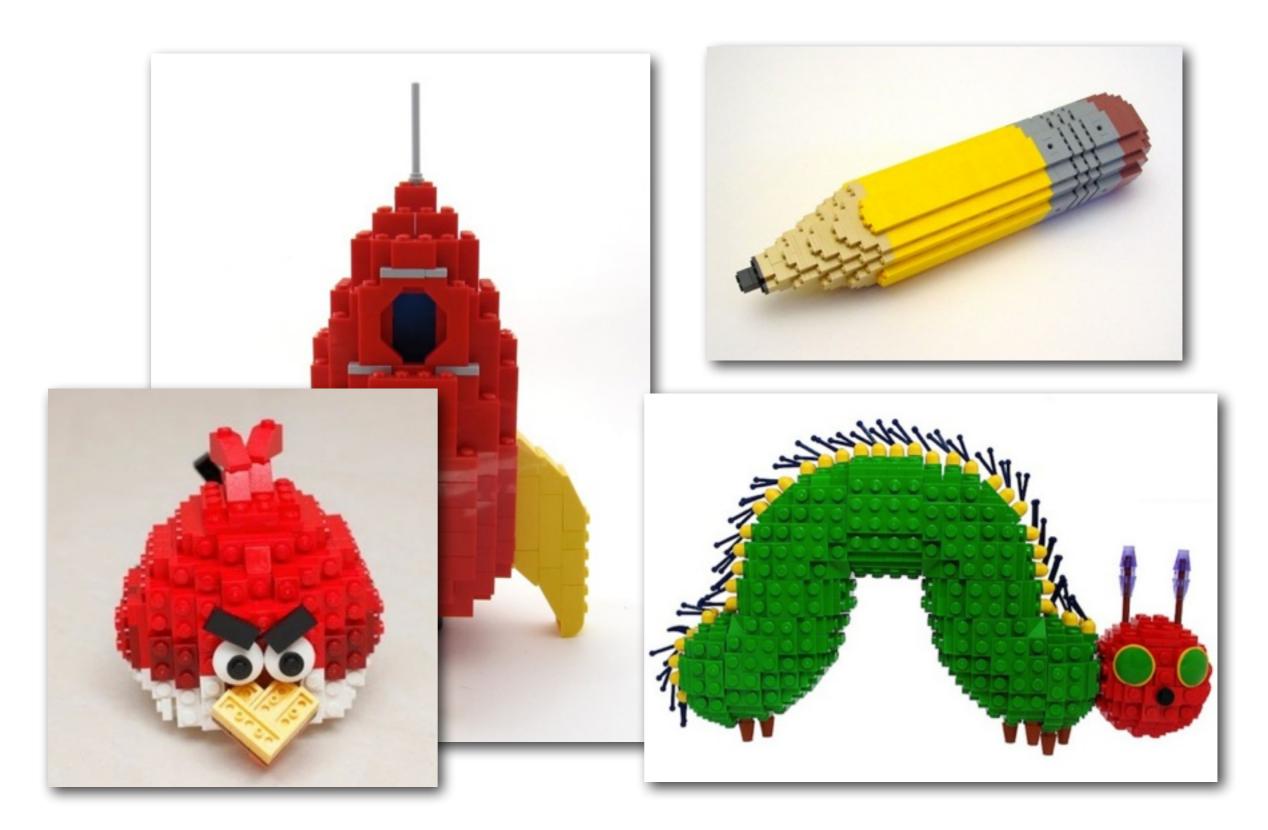


bf: BIBFRAME

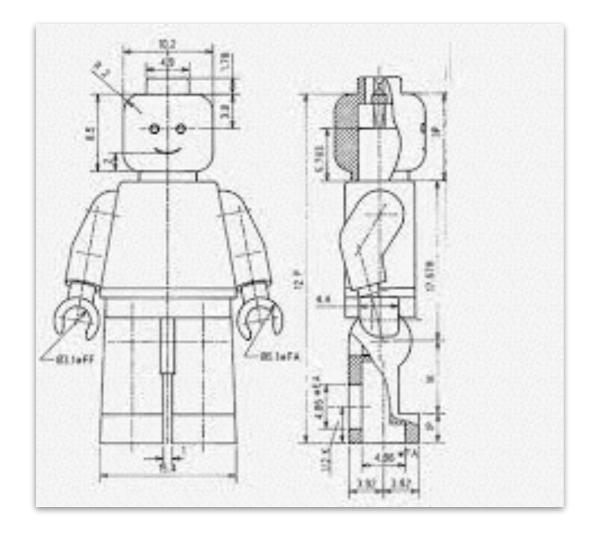




Profiles



Descriptive Blueprint

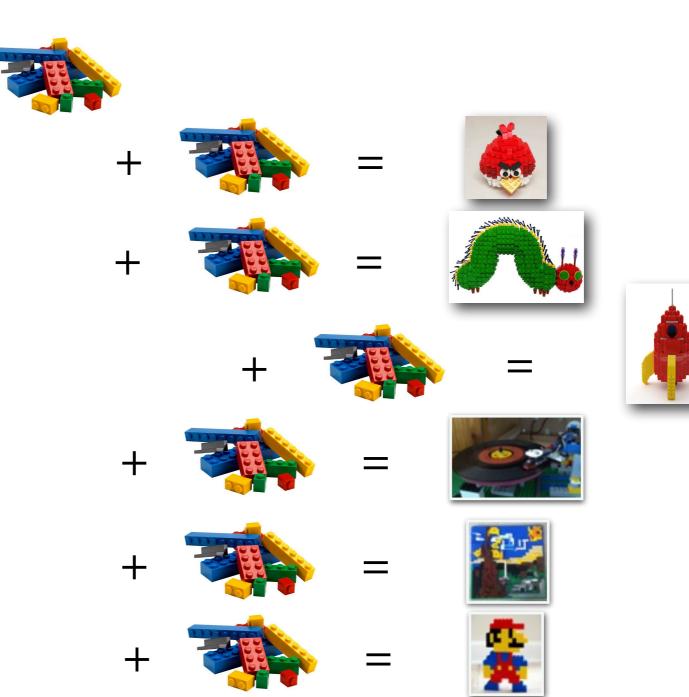


- BIBFRAME common model

 flexible, designed to
 accommodate the needs
 of our community.
- Recognize creative tension between past and future
- Profiles are a blueprint for a specific community or entity description

Combining Profiles

- BIBFRAME Lite
 - Series
 - Monograph
 - RBMS
 - A/V (Music)
 - VRA
 - ISAD(G)

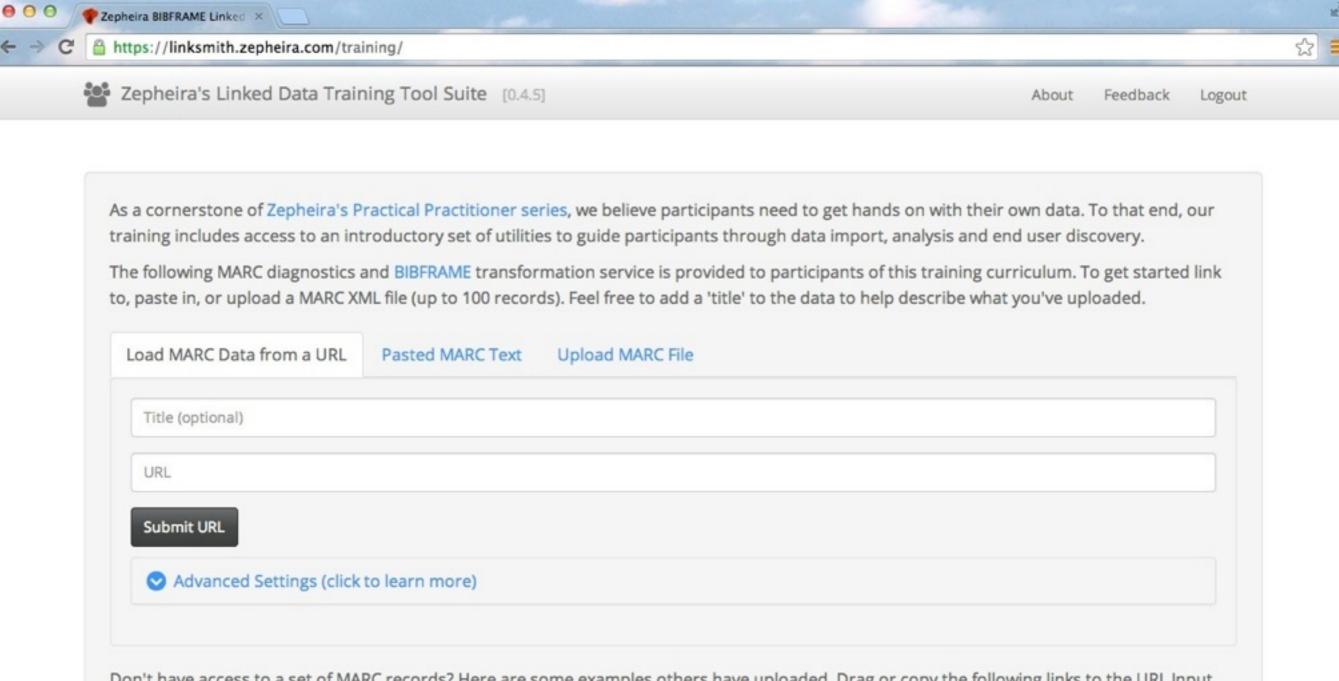




DCMI Opportunity 🔶

- Development of Application Profiles
 - Social, community, process driven, neutral environment to help define the shape of vocabularies to support the needs of community practice

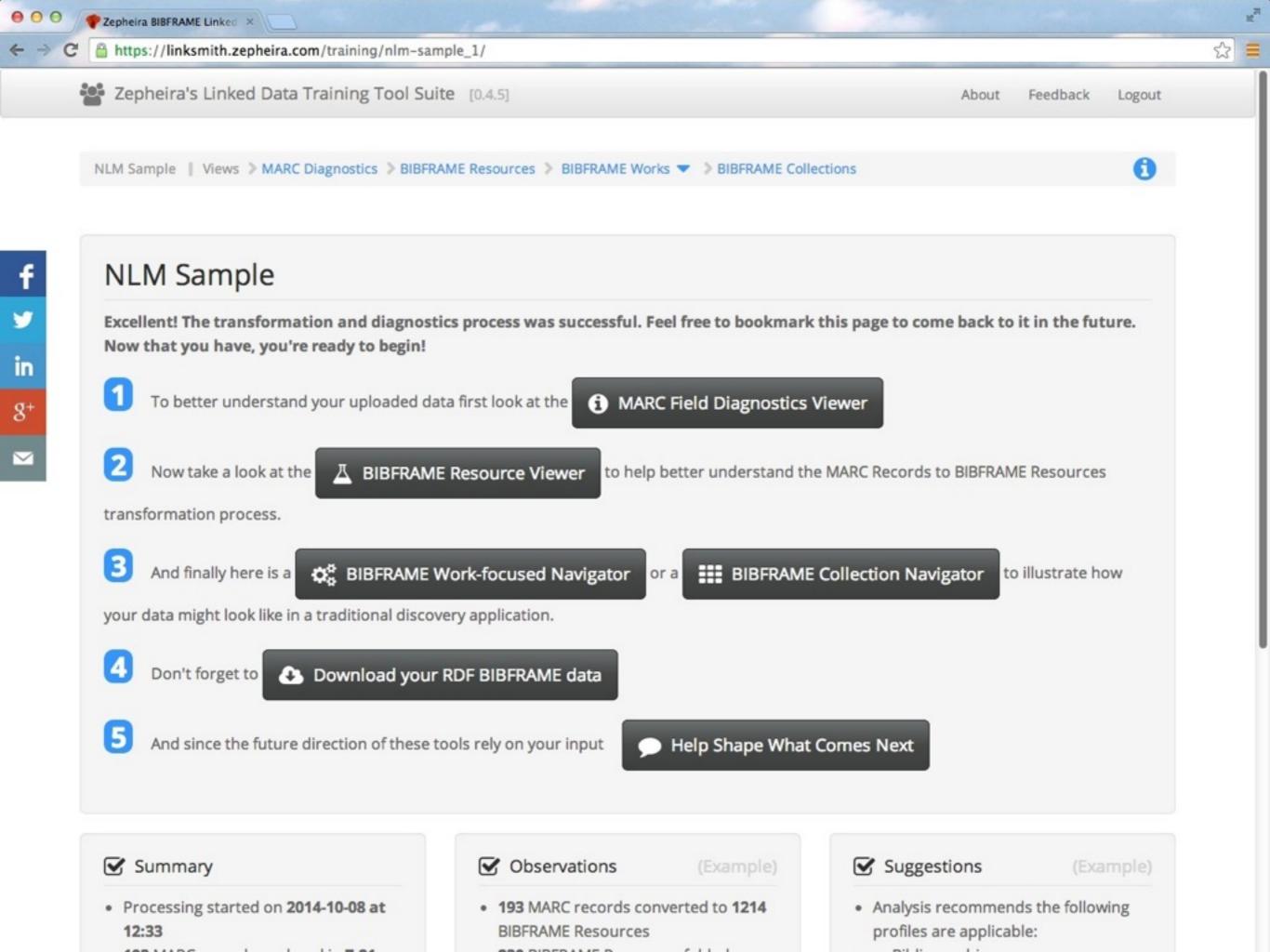


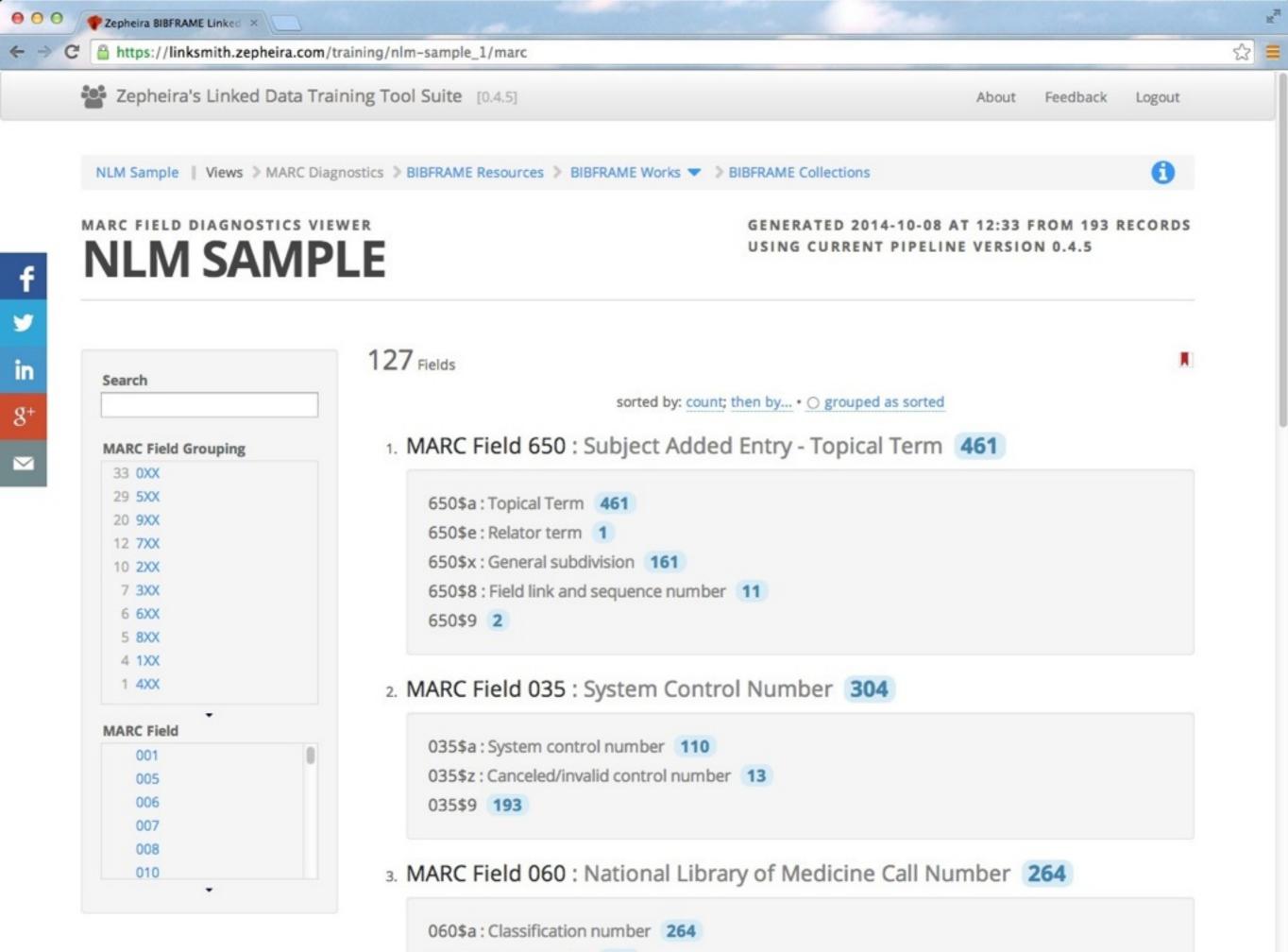


Don't have access to a set of MARC records? Here are some examples others have uploaded. Drag or copy the following links to the URL Input form above to transform these records.

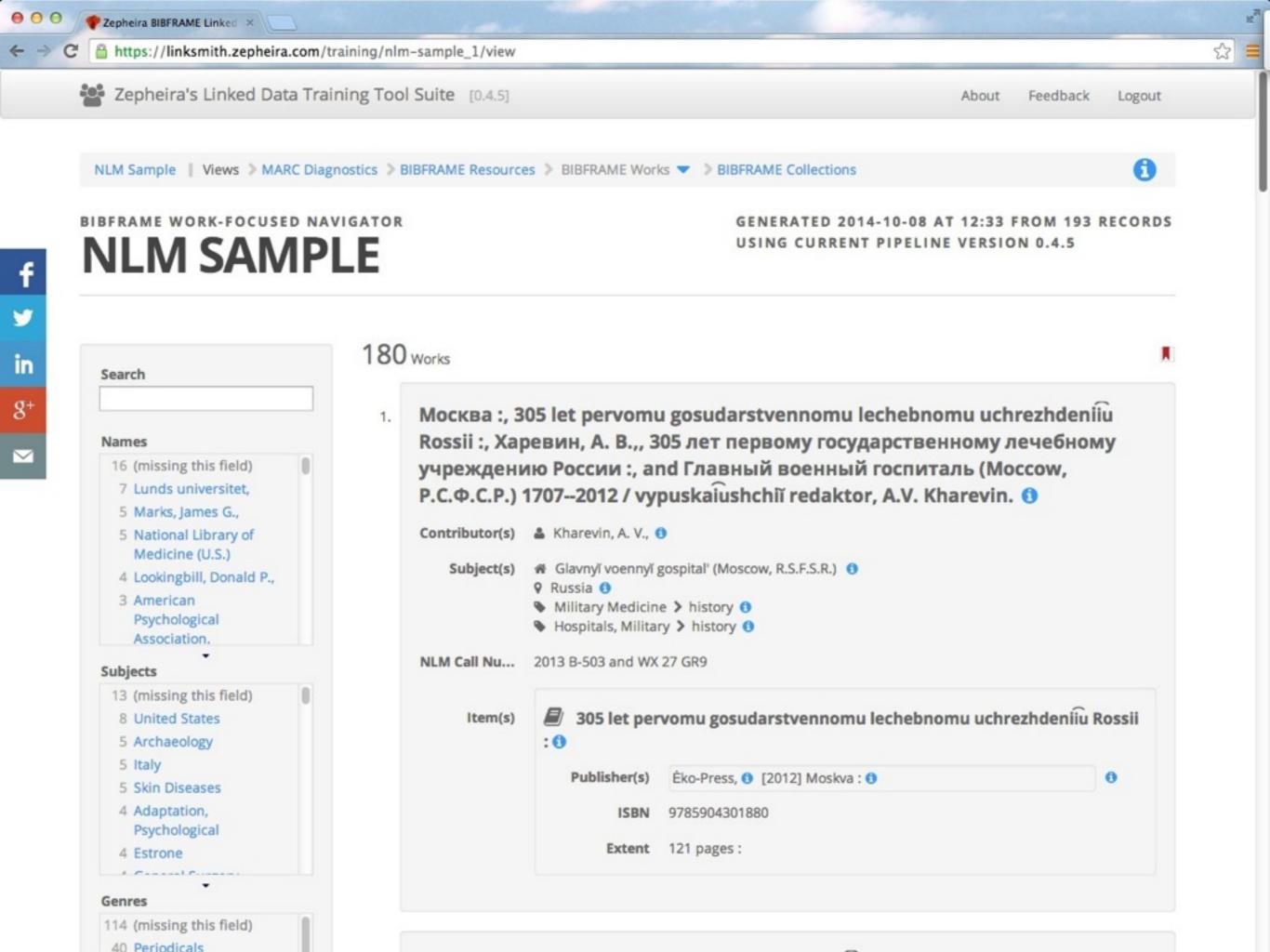
- George Washington sample collection (small)
- National Library of Medicine sample collection (medium)
- George Mason University DVD Backstage sample (large)

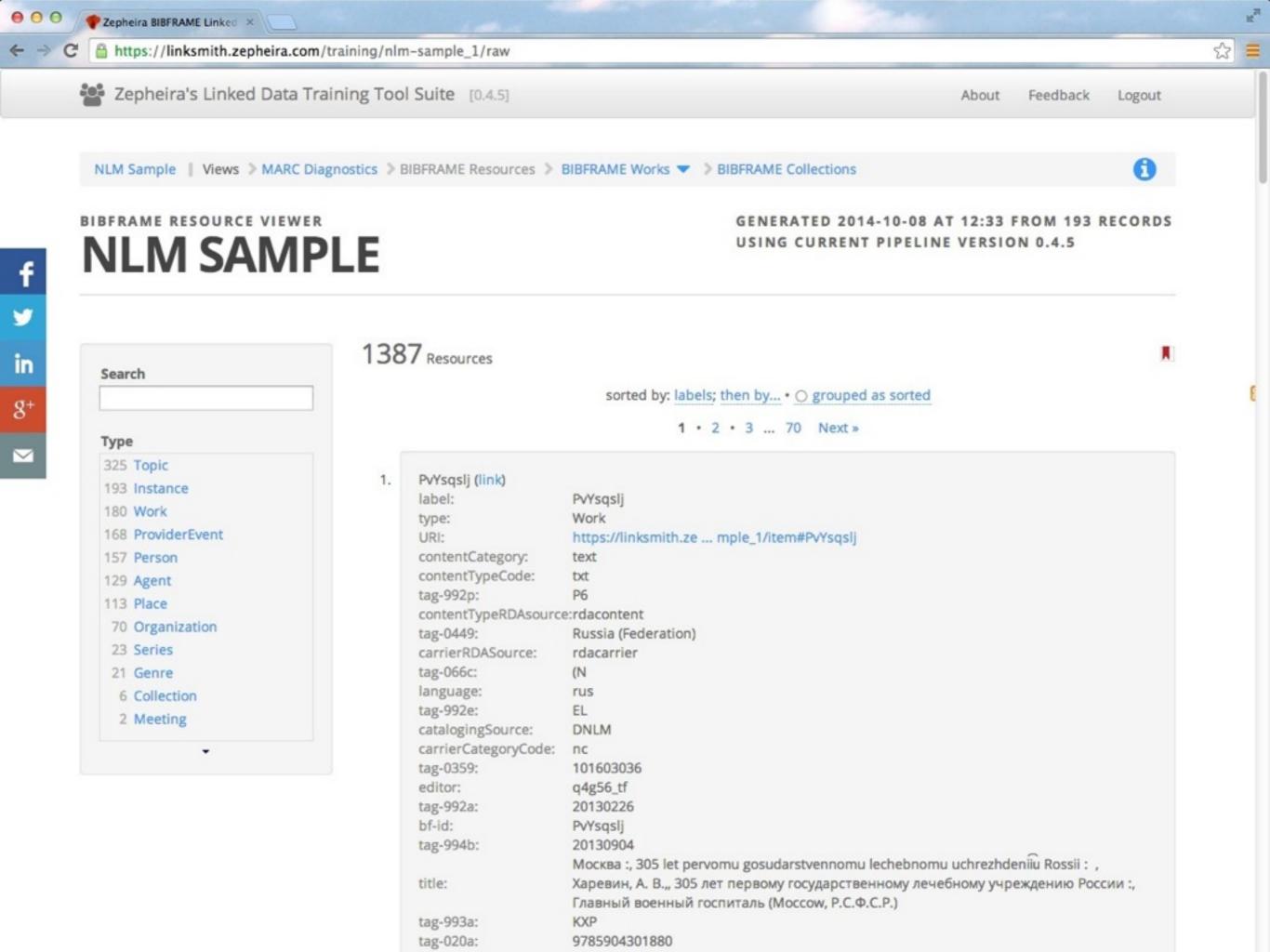




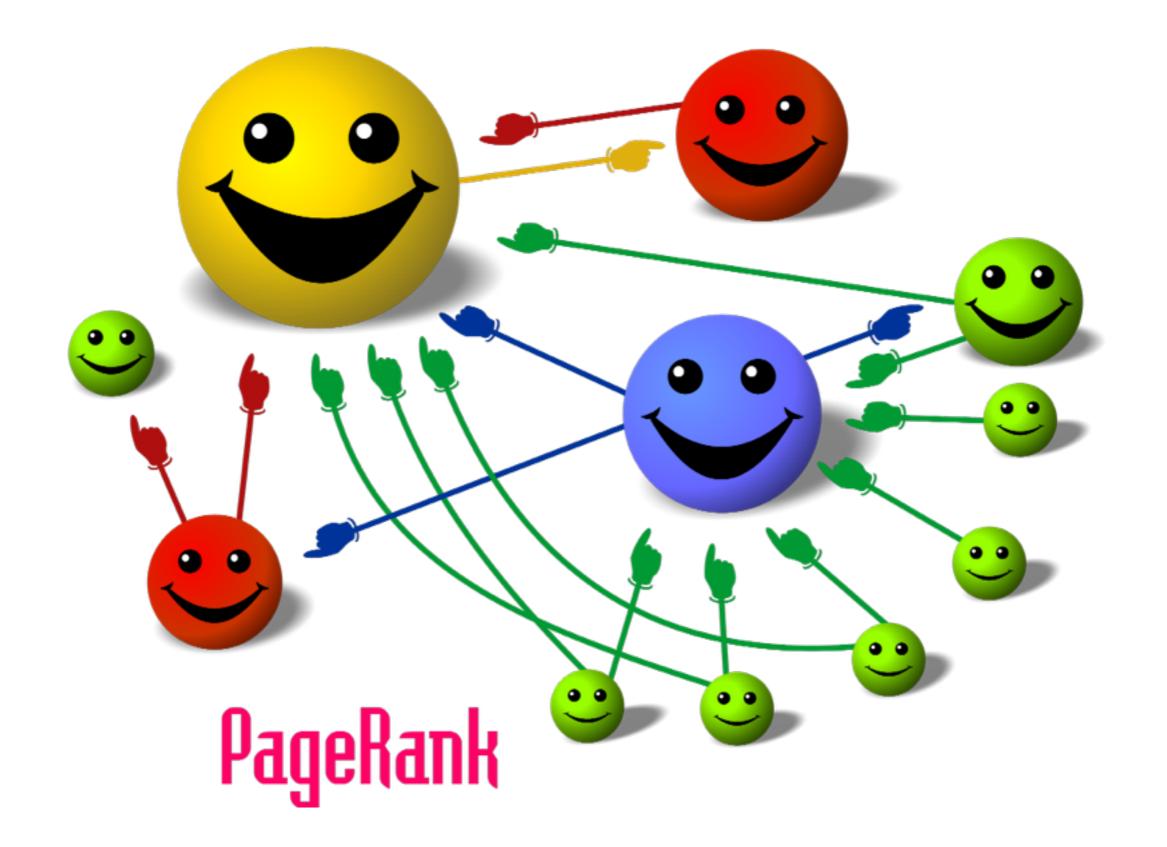


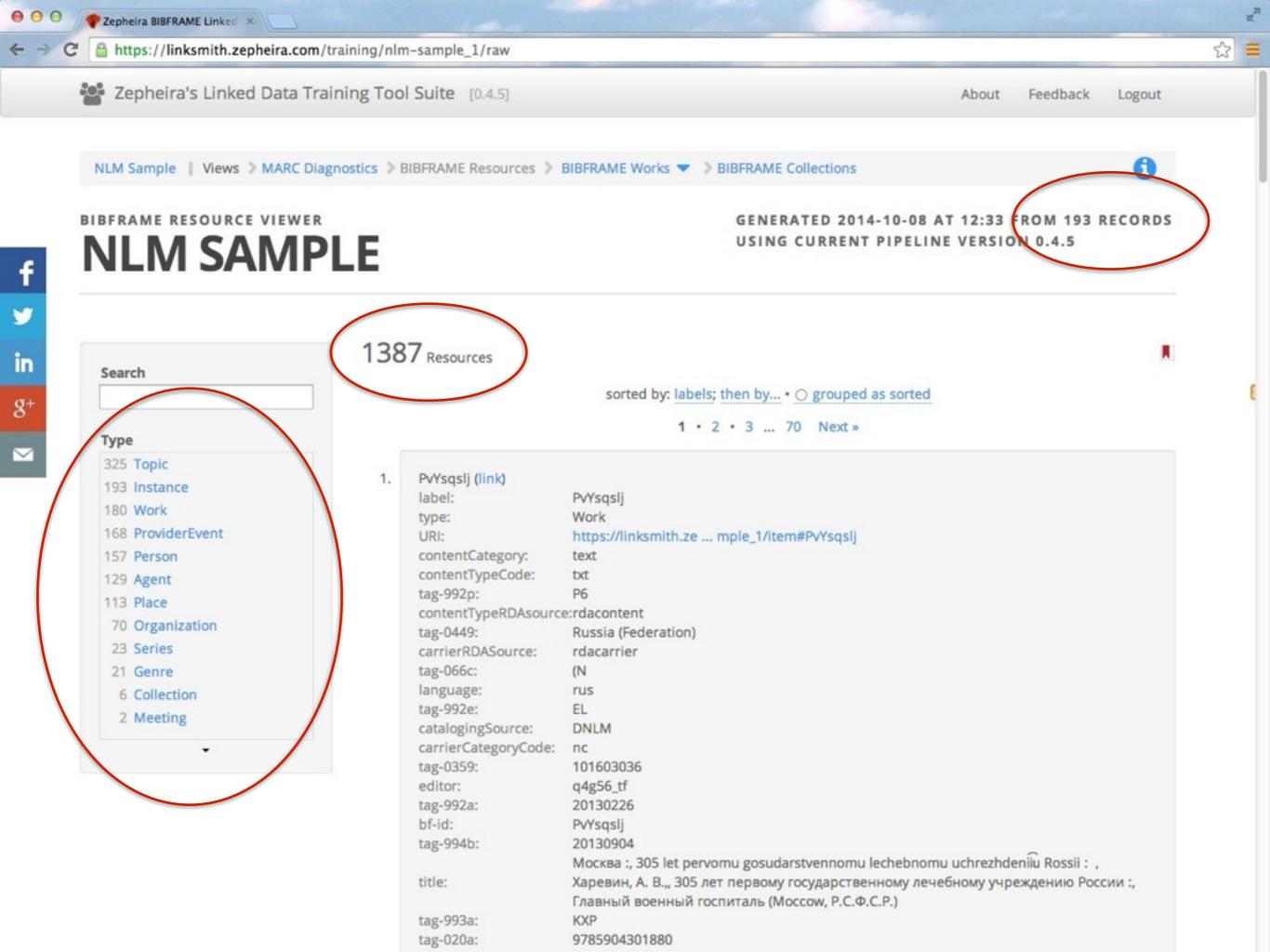
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A link is worth a 1000 words





Identifier Land Grab







🗋 openrefine.org						☆ =
				Follow us	on: G	Github Twitter
Google''' Custom Search						Search ×
?e	A free, open source, powerful tool for working with messy data					
lome	💌 name	price	inStock	author_t		series_t
Download	A Game of Thrones	7.99	true	Facet Text filter	•	A Song of Ice a
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10 000 PBIBFRAME Scribe × Carcinoma - Google Search × 23 = ← → C editor.bibframe.zepheira.com/static/ **bf**: BIBFRAME Scribe Activity 3 # Eric Settings Help About Logout **External Services** Audio: Title Set AgroVoc > Vinyl Record **Title Remainder** Set FAST Bibliography: C LC +-Author Type to search C Local > Electronic VIAF Editor Type to search +-> Print Type to search Contributor +-Book: > Electronic Translator Type to search +-> Print Illustrator Type to search +-Dissertation: **Content Category** Profile default value text > Electronic > Print Contents Add Painting: + Language Type to search > Image Notes Add LCC Classification Set +-Subject carcinoma Not the right match? Use the + button to create a new resource Has Other Edition Carcinoma AGROVOC Is Edition Of Squamous cell carcinoma FAST Renal cell carcinoma FAST Is Translation Of Basal cell carcinoma FAST Has Translation Merkel cell carcinoma FAST Is Version Of Type to search + **Has Version** + Type to search

Opportunity



OCLC^{*} Research





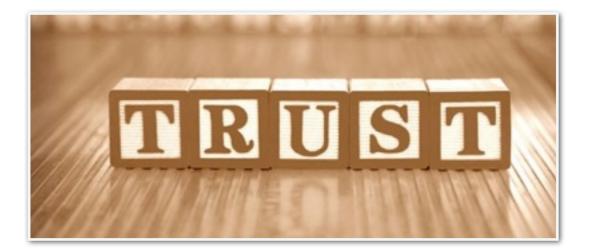






Identifier Landscape







DCMI Opportunity 🔶

- Linked Data Patterns
 - Identify, Document, Recommend best "micropatterns" for support Linked Data interoperability for Memory Organizations
 - Recommended data patterns



BIBFRAME Purpose and Promise

- **Purpose**: Replacing MARC
- **Promise**: So much more

- **Purpose**: Serving Libraries
- **Promise**: Related memory organizations and the users they serve

- Purpose: Leverage existing Web standards to speak with a consistent voice
- **Promise**: Visibility, Discovery and Effectiveness

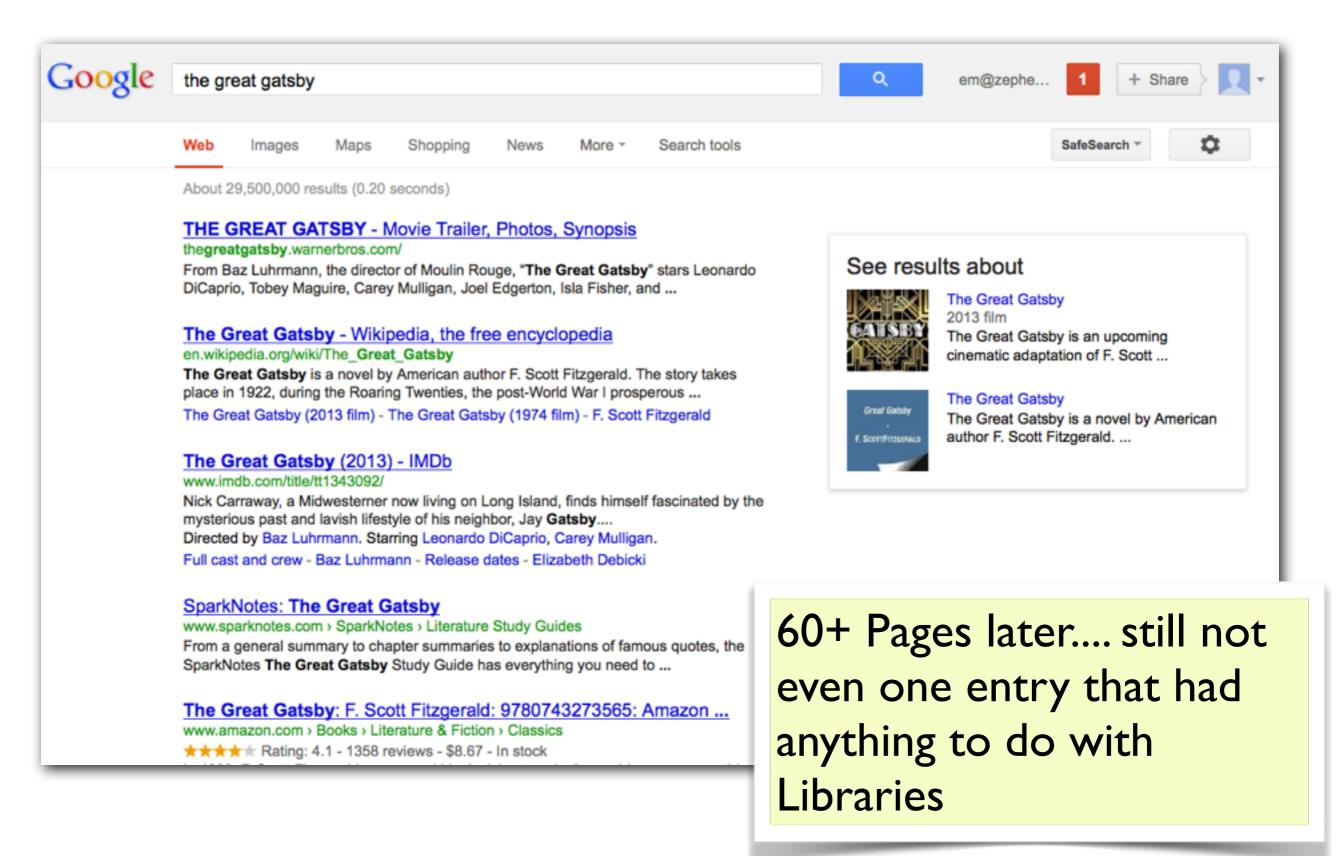
Act 3 The Future

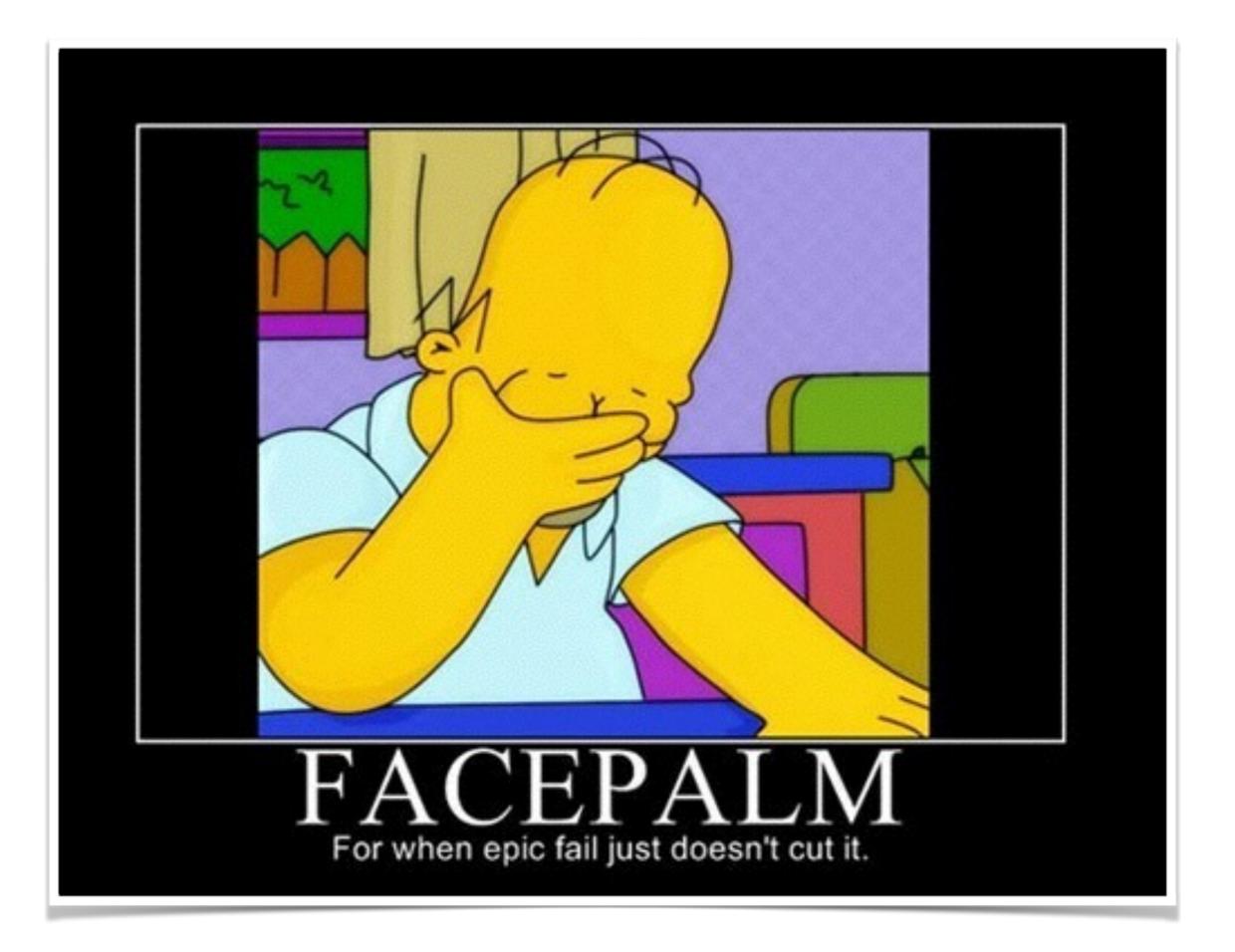
Future

"The best way to predict your future is to create it"

— Abraham Lincoln

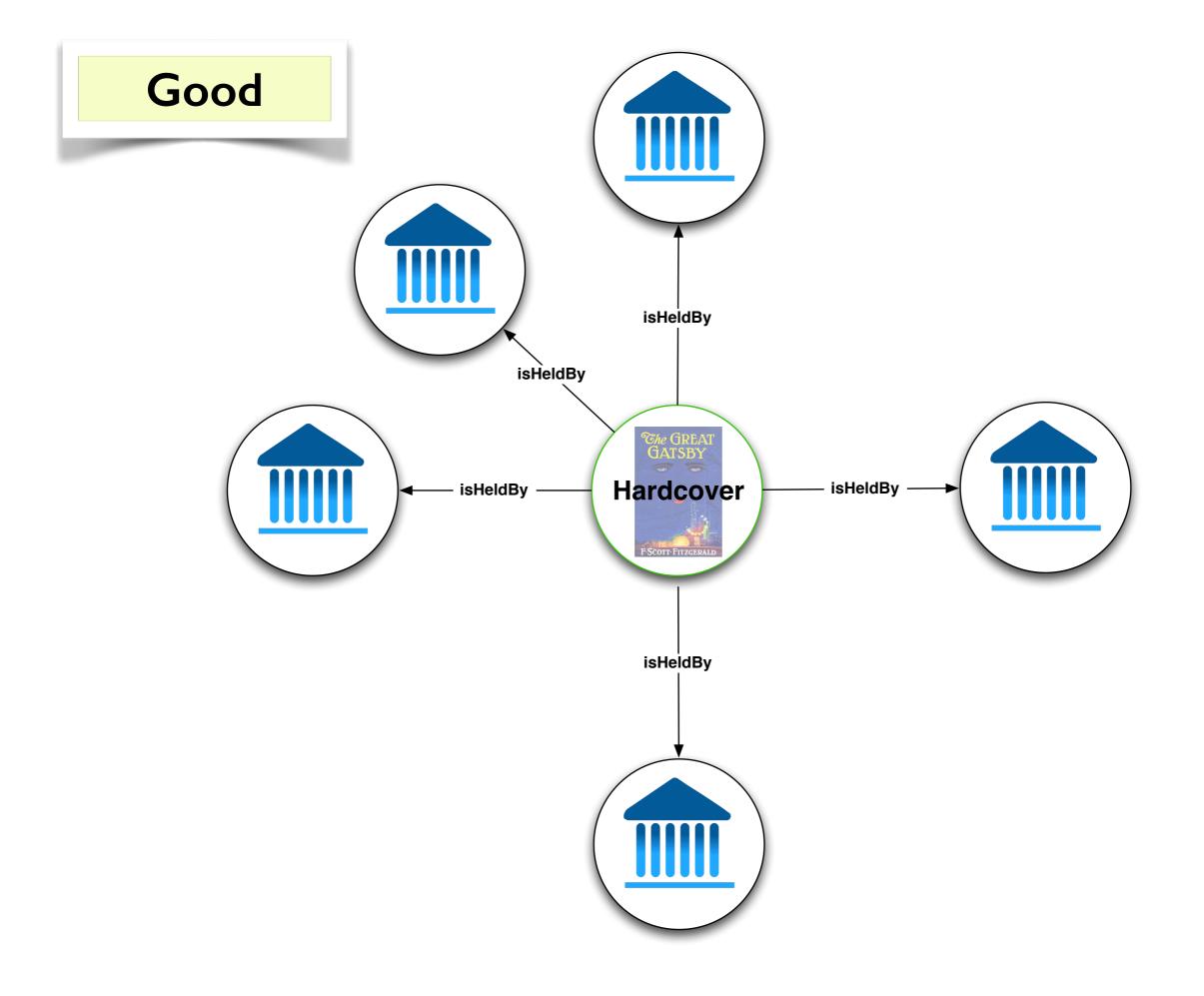
This is the now

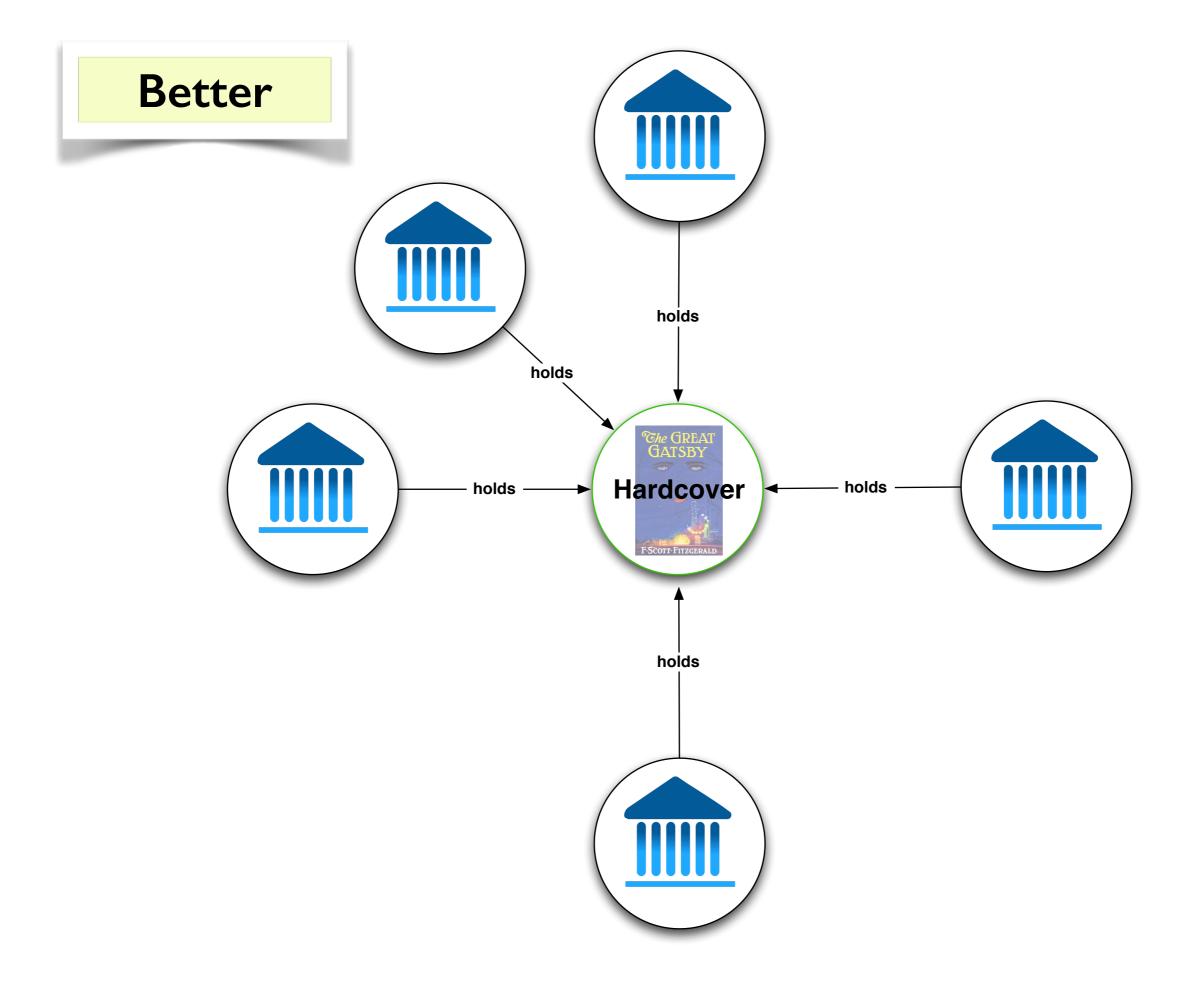


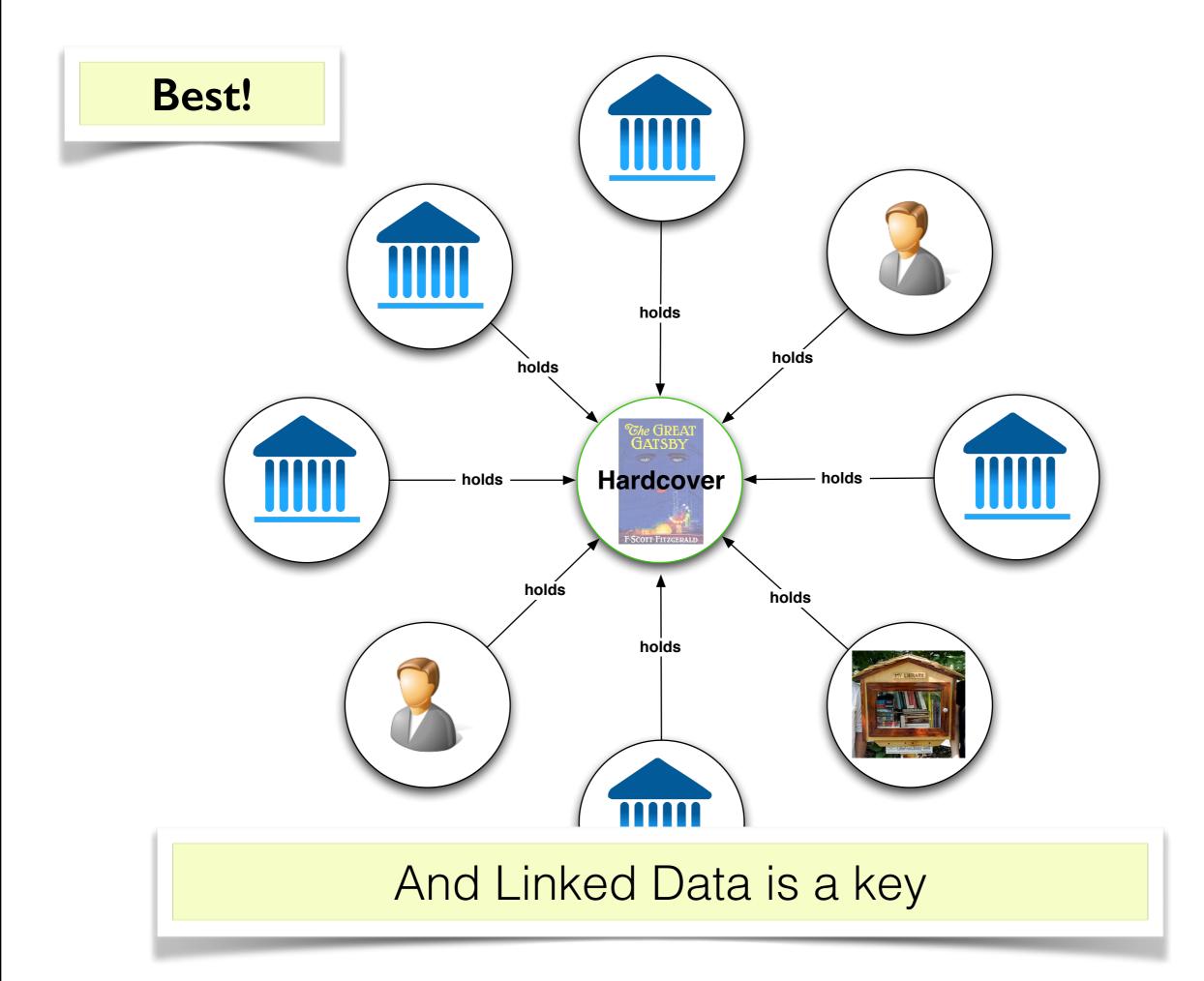




This is what a search engine harvester sees. Unconnected data results in poor page rank.







And this pattern is already happening in many localized markets as we speak

Web Image	s Maps Shopping	Applications More	Search tools		SafeSearch -
About 60,200,00	0 results (0.30 seconds)				
Ads related to de	all laptop 🕕			Ads 🛈	
Customize Laptr Dell has 312,406 Official Dell Small Busin Best Buy® - L www.bestbuy.co Receive \$100 Official	Laptops 0 reviews for dell.com ops & PCs for Home & Small 8 followers on Google+ Coupons sess Laptop Deals Jitrabooks TM - BestBuy.	Home Laptop Deals New Windows 8 PCs & COM	Tablets	New Laptop from Google www.google.com/chromebook Introducing Chromebook. 100GB free Google Drive. Perfect for sharing. Google Chrome has 2,003,091 followers on Google+ Dell Battery Replacement www.usbphoneworld.com/Dell_Battery **** 5,105 seller reviews 1 (877) 419 2941 Save Up to 65% Plus Free Shipping. Guaranteed to Work or Money Back!	
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consolidation

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Web

Maps

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em@zepheira.com

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About 3,660,000 results (0.30 seconds)

Images

The Great Gatsby - Wikipedia, the free encyclopedia

en.wikipedia.org/wiki/The_Great_Gatsby

The Great Gatsby is a novel by American author F. Scott Fitzgerald. The story takes place in 1922, during the Roaring Twenties, a time of prosperity in the United ... The Great Gatsby (2013 film) - The Great Gatsby (1974 film) - F. Scott Fitzgerald

Shopping

Books

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Search tools



The Great Gatsby: F. Scott Fitzgerald: 9780743273565: Amazon ...

www.amazon.com > Books > Literature & Fiction > Classics \$8.67 to \$13.57

The Great Gatsby [F. Scott Fitzgerald] on Amazon.com. *FREE* super saver shipping on qualifying offers. The Great Gatsby, F. Scott Fitzgerald's third book, ...

SparkNotes: The Great Gatsby

www.sparknotes.com/lit/gatsby/

F. Scott Fitzgerald. Video SparkNote of The Great Gatsby ... Gatsby is the one who dies. if Nick died who would tell the end of the book? 47 out of 86 people ...

Chapter 1 - Chapter 7 - Chapter 4 - Chapter 6

The Great Gatsby, by F. Scott Fitzgerald

ebooks.adelaide.edu.au/f/fitzgerald/f_scott/gatsby/

The Great Gatsby. F. Scott Fitzgerald. logo. This web edition published by eBooks @Adelaide. Rendered into HTML by Steve Thomas. Last updated Wednesday ...

The Great Gatsby: F. Scott Fitzgerald Biography

www.cliffsnotes.com/.../great-gatsby/f-scott-fitzgerald-biograp...

Early Years. September 24, 1896 marks the birth date of F. Scott Fitzgerald, one of the foremost twentieth century American writers. Born in St. Paul, Minnesota, ...

BARNES & NOBLE | The Great Gatsby by F. Scott Fitzgerald | NO... www.barnesandnoble.com/.../great-gatsby-f-scott-fitzgerald/11...

The Great Gatsby

The Great Gatsby is a novel by American author F. Scott Fitzgerald. The story takes place in 1922, during the Roaring Twenties, a time of prosperity in the United States after World War I. Wikipedia

Published: April 10, 1925

Author: F. Scott Fitzgerald

Original language: English

Characters: Jay Gatsby, Nick Carraway, Daisy Buchanan, Myrtle Wilson, Jordan Baker, Tom Buchanan, Henry Gatz

Genres: Novel, Fiction

Adaptations: The Great Gatsby, G

People also search for



Feedback / More info

We're not (yet) speaking the language of the Web



All the pieces are in place

- Maturation of Web Standards
- Invisible Web built on Linked Data
- Visible Web able to consume Linked Data
- Industry is ready



"Let's increase the Web visibility of all libraries"

- IMAGINE if libraries could collectively represent themselves in a way the Web could see and understand like restaurants, stores, or movie theaters.
- We believe that everyone benefits from the visibility of libraries and their content on the Web, and we feel this problem can be addressed in a relatively short timeframe.



Learning, Leading, Linking

- Libraries have spent a considerable amount of time, energy and effort to describe knowledge assets
- BIBFRAME is about reflecting these knowledge assets in the Web
- Building off the cooperative infrastructure the Web provides
- Accelerating the cooperative nature Libraries do better than any market
- Accelerate links between overlapping "visible" assets to prove out its value in raising search engine results, social platforms, geolocation services, etc.



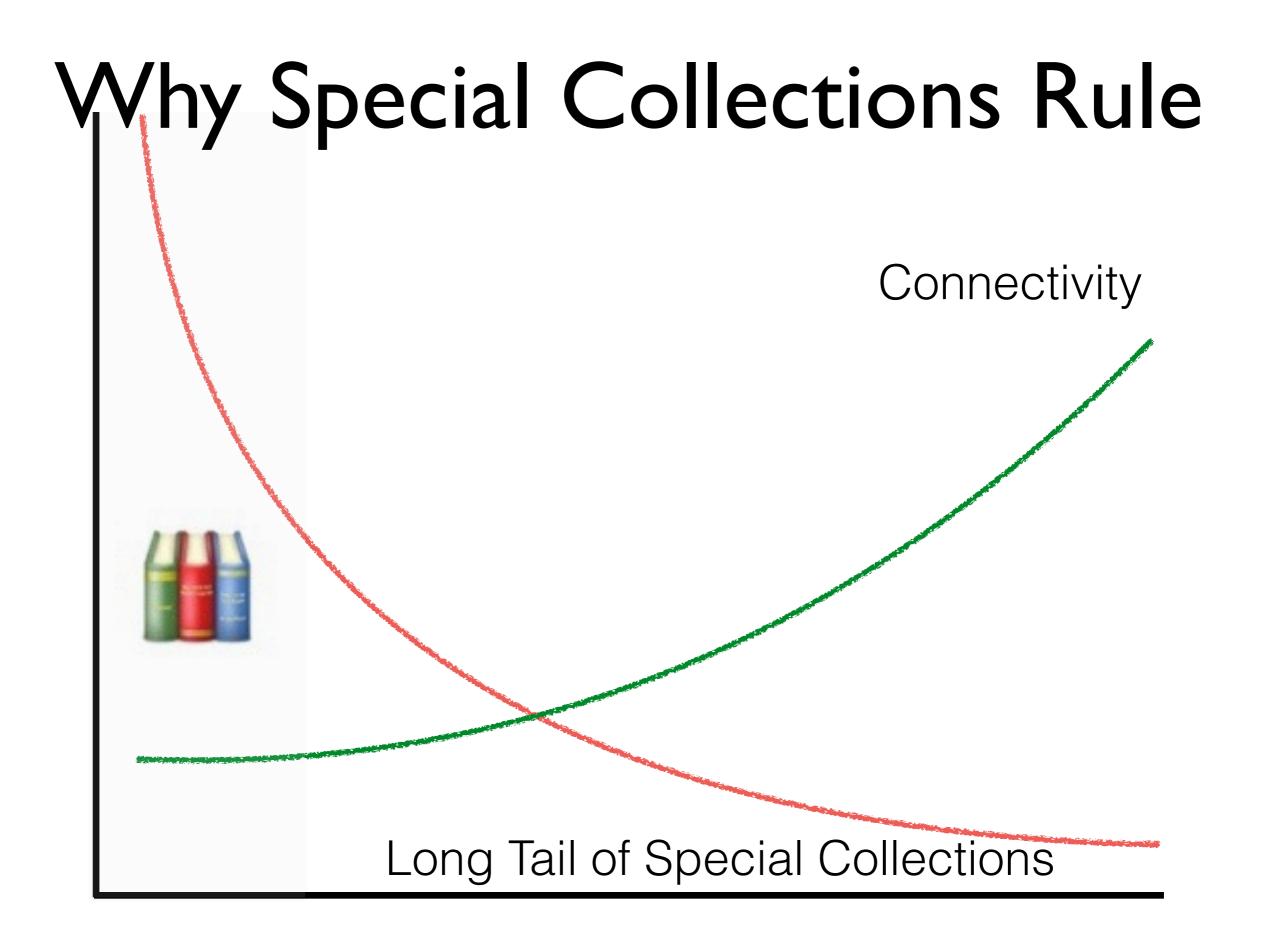




Incremental Steps

- 1. Make it *extremely* easy to project Library data to Linked Data (BIBFRAME)
- 2. Visibility publish this to the Web in a way the Web understands
 - 1. Relationships! RDFa (<u>schema.org</u>, BIBFRAME)
- Increased discovery accelerate Linking among / across assets
- 4. Learn! Inform! Educate!





How to help

- As individual "take the pledge"
- As library get involved
- As sponsor offer your support
 - <u>http://libhub.org/</u>

Going forward

- Re-think your role in making Memory organizations become credibility engines for the Web
- Learn about <u>schema.org</u> and BIBFRAME efforts
- Participate in Libhub to help eave the best of the Web and Libraries together

DCMI going forward

- Social, community, process driven to help make libraries more visible
 - Application Profiles



Linked Data Patterns



Every journey begins with a first step (or hallway conversation)



Thank you

Eric Miller em@zepheira.com

