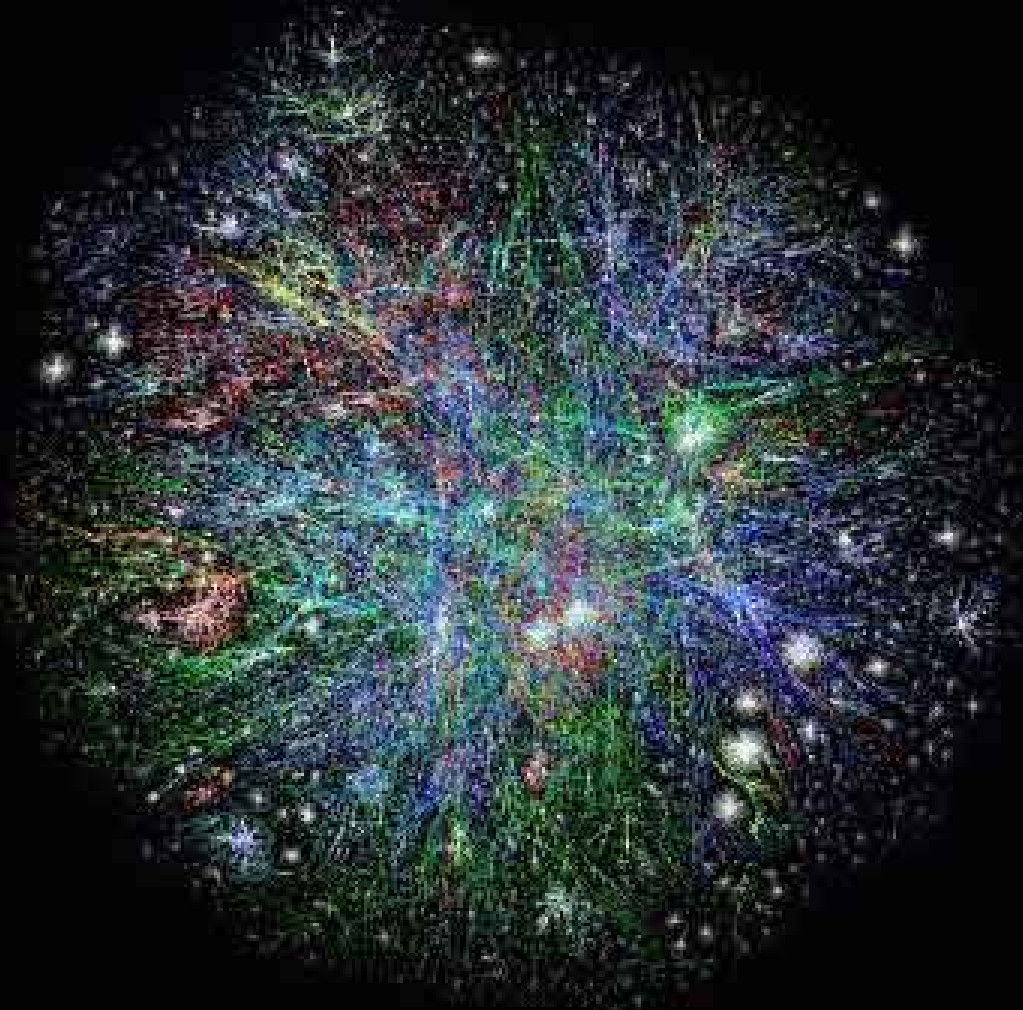


Web 2.0, Library 2.0 and the Future for Library Systems

Steve Thomas
August 2006

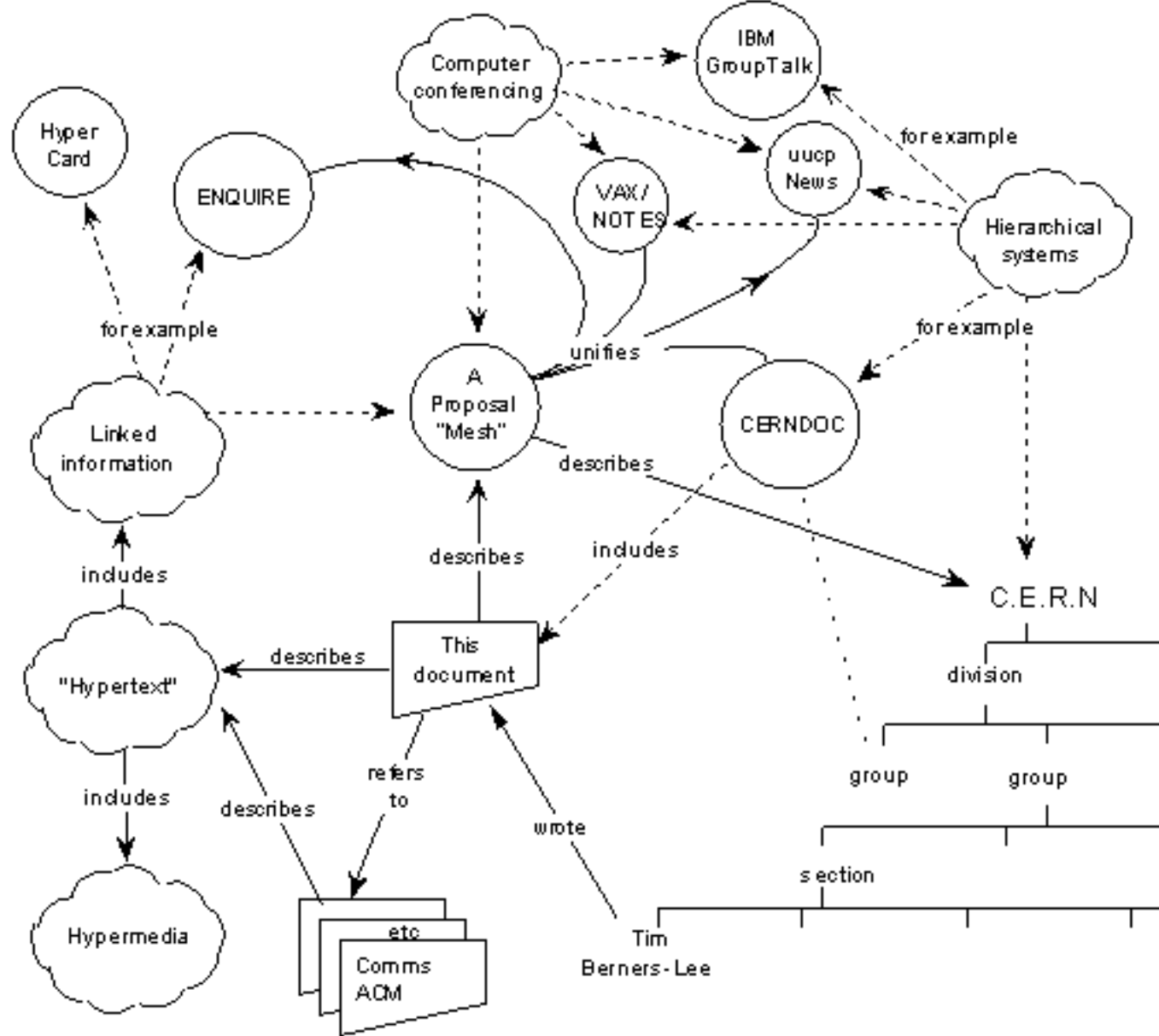


A brief history of the Web

- Back in 1980, Tim Berners-Lee decided that what the world (or at least his team) needed was a way to link together all their documentation.



- What he came up with ...

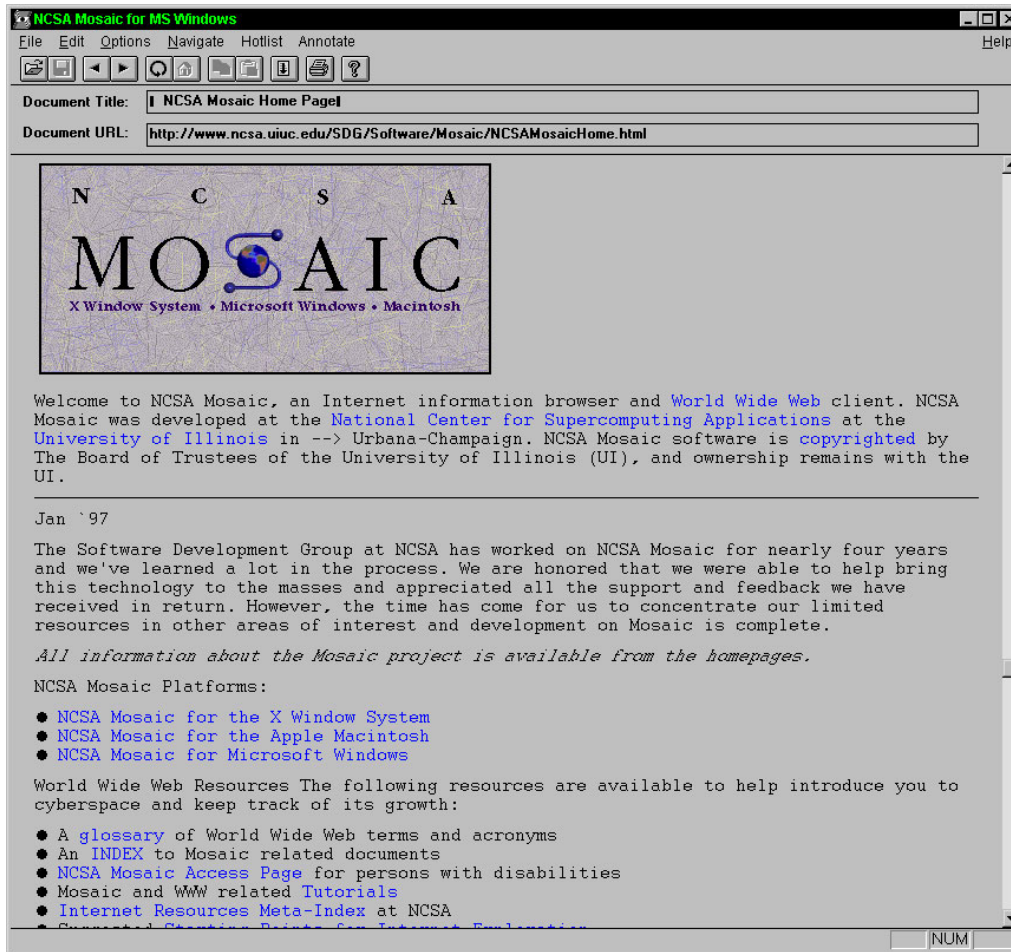


A concept map from Tim Berners-Lee's [original proposal](#), a hypertext system called the "Mesh", presented in 1989.

A brief history of the Web

- The web was born, an idea so good and useful that it could not help but catch on.
- By 1995 the web took off, helped by two things ...

Release of the Mosaic browser



(ca. 1993) <http://www.nsf.gov/od/lpa/news/03/pr0343.htm>

Discovery of Cave paintings in France, 1995



A brief history of the Web

- The Web was widely embraced by academia, and librarians especially, who recognise a great information delivery system when they see it, and was rapidly growing.

A brief history of the Web

- Business started to look at this new phenomenon, and began to ask the obvious question for business:

How can we make money out of this?

- Thus was born the dot-com boom, followed shortly thereafter by ...

A brief history of the Web

- ... the dot-com bust.
- Lots of people lost their shirt.

A brief history of the Web

- For a time following the bust, the web was, in commercial terms, on the nose. People had been burned, they couldn't see any way to make money from it, and the web looked like it might slip back to being just a boringly useful content management system.
- But, some people had other ideas ...

A brief history of the Web

- Against the odds, Amazon continued almost alone of the dot-com era companies to prosper, if not exactly profit.

The screenshot shows the Amazon.com website interface in Microsoft Internet Explorer. The browser's address bar displays the URL: http://www.amazon.com/gp/search/ref=nb_ss_b/104-6263919-4532749?url=search-alias%3Dstripbooks&field-keywords=cluetrain. The page title is "Amazon.com Books: cluetrain".

The search results are for the keyword "cluetrain" in the Books category. The page shows 8 results, sorted by Relevance. The top result is "The Cluetrain Manifesto: The End of Business As Usual" by Christopher Locke, Rick Levine, and Doc Searls (Hardcover - Feb 2000), priced at \$3.99. The second result is the same book in Paperback (Jan 2001) by Christopher Locke, Rick Levine, Doc Searls, and David Weinberger, priced at \$10.78. The third result is a review of the book by Melinda L. Kroth (Digital - Dec 1, 2000).

On the right side of the page, there is a "Listmania!" section featuring a list titled "Nature & Data: A list by J. C. Herz" and another titled "Never Lose in Business Again: A list by Russell Brathwaite".

At the bottom of the page, there is a "So You'd Like to..." section with a book cover for "THE REVOLUTION WILL NOT BE TELEVISIED" and a link to "Know about the Howard Dean Campaign: A guide by alison985, DFA Volunteer".

A brief history of the Web

- Google of course demonstrated a whole new paradigm shift in making money from advertising, without annoying people with intrusive banner ads.

A brief history of the Web

- And a number of interesting sites (Blogger, Flickr, del.icio.us, ...) sprang up to fill the void with strange new concepts in marketing and use.

Search

[Photos](#) [Groups](#) [People](#)

[SEARCH](#) [Advanced Search](#)

Full text Tags only

✓ We found 461 photos about **pictureaustralia**.

[Show thumbnails](#)

View: [Most relevant](#) • [Most recent](#) • [Most interesting](#)



Sydney Opera House - No. 1

Uploaded on [21 May 2006](#)



By [Rubik's...](#)
See [more photos](#), or visit his [profile](#).

[city](#), [pool](#), [night](#), [interesting](#) ...



Cloud Reflection

Uploaded on [29 April 2006](#)



By [Barrie_S](#)
See [more photos](#), or visit his [profile](#).

[sunset](#), [color](#), [colour](#), [clouds](#) ...



The Storm is Coming

A brief history of the Web

- These sites are all examples of Web 2.0 in action, so ...
- What is Web2.0?

What is Web 2.0?

- Web2.0 is **not** a software package, nor even a collection of programs
- It is a set of principles and practices
- A significant shift from the old paradigms :
Version 2.0

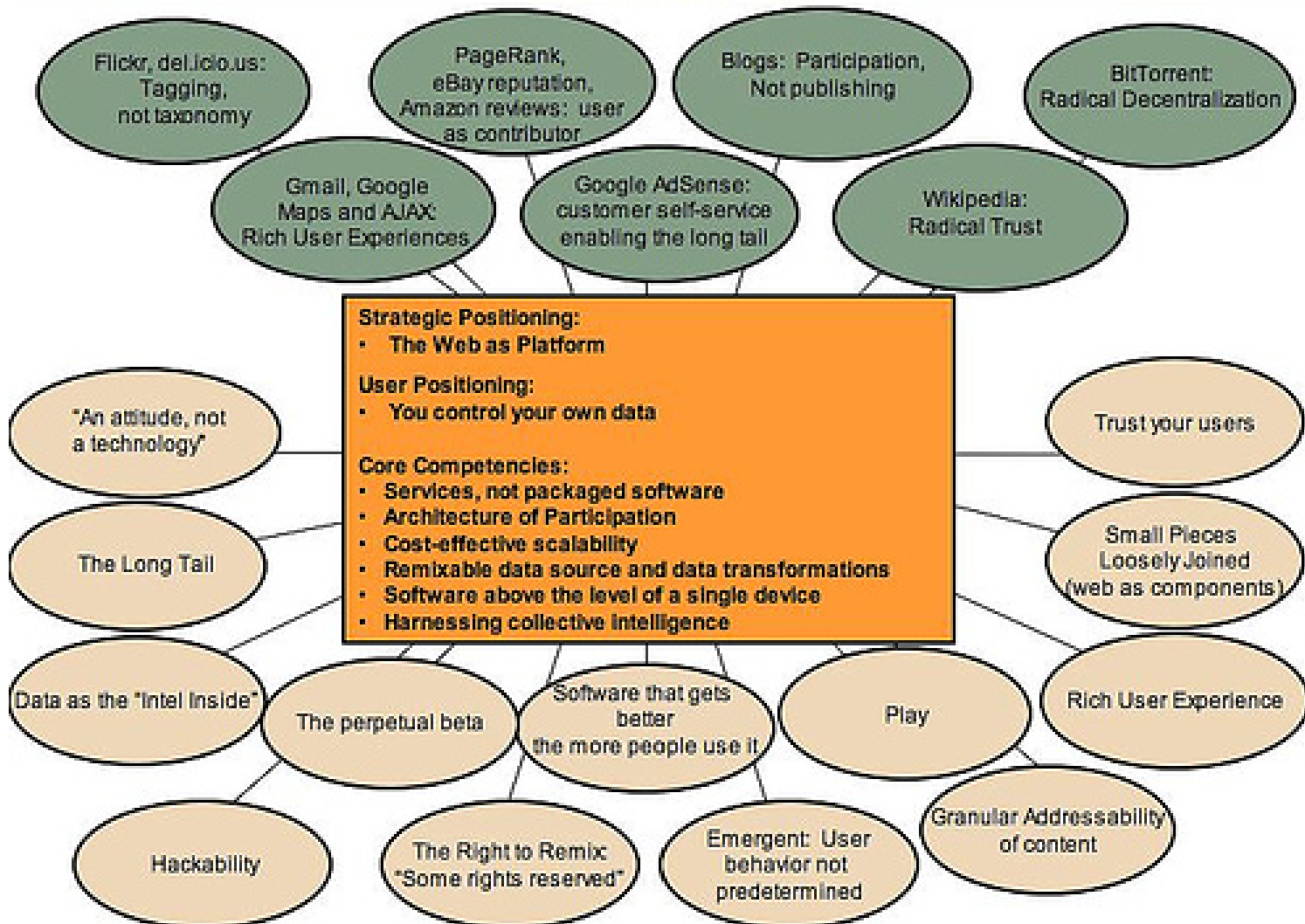
What is Web 2.0?

Here's a definition of sorts from Wikipedia:

- “Web 2.0 generally refers to a second generation of services available on the World Wide Web that let people ***collaborate***, and ***share*** information online.
...”

– <http://en.wikipedia.org/wiki/Web2.0>

Web 2.0 Meme Map

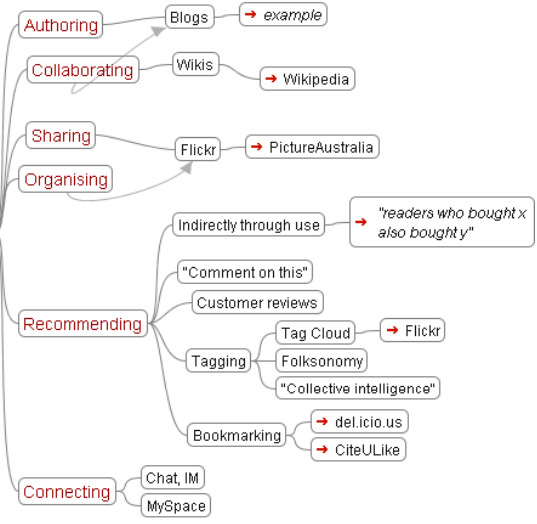


Web2.0

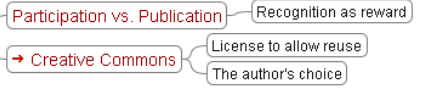
Definition

"Web 2.0 generally refers to a second generation of services available on the World Wide Web that let people collaborate, and share information online. ..."
-- <http://en.wikipedia.org/wiki/Web2.0>

Participation



"Some Rights Reserved"

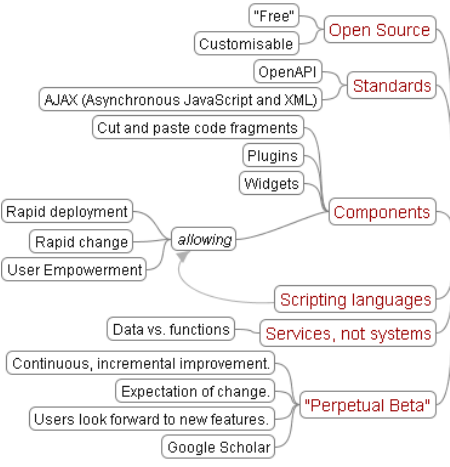


Authority vs. Trust

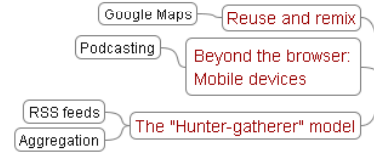


Architectural

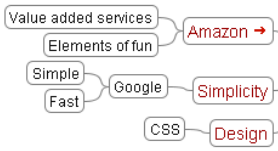
"The Lightweight Application model"



"Data inside"

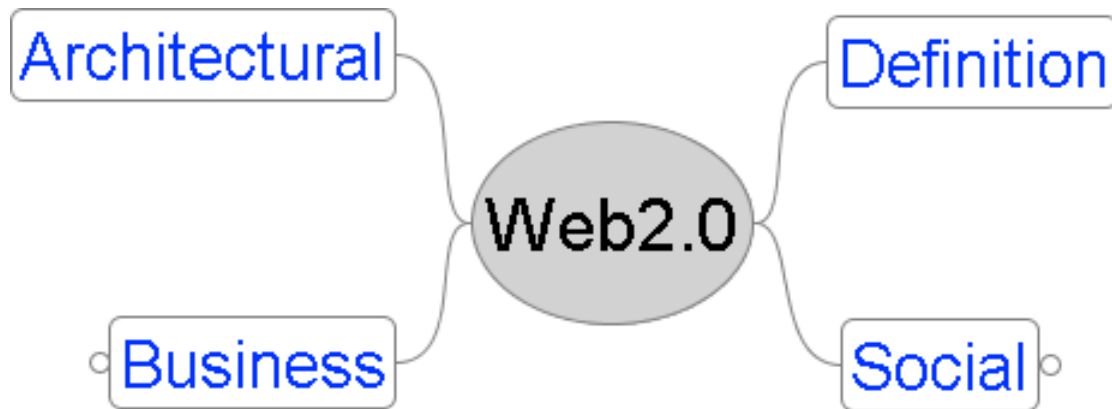


"Joy of Use"



Business





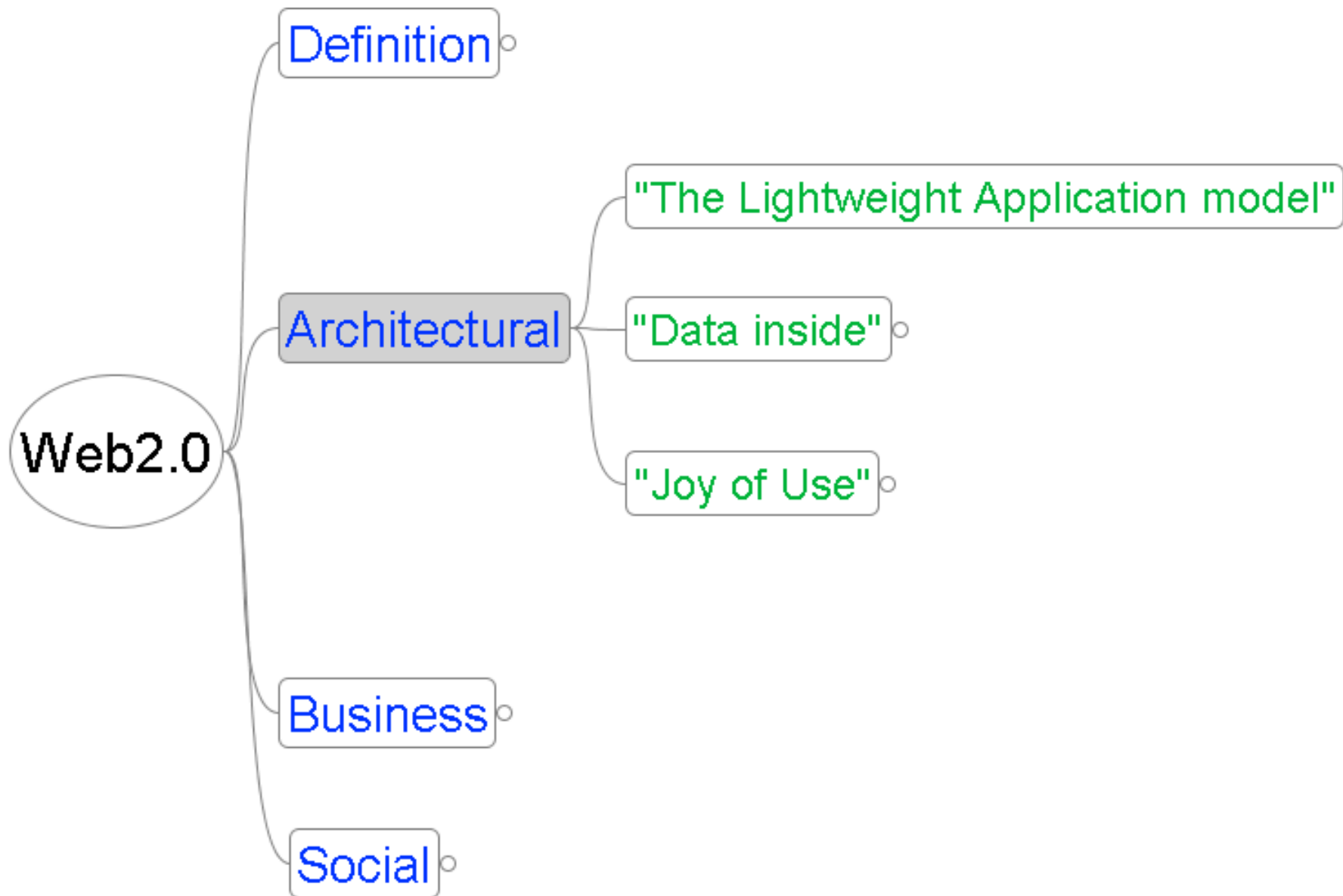
Definition

“Web 2.0 generally refers to a second generation of services available on the World Wide Web that let people collaborate, and share information online. ...”
-- <http://en.wikipedia.org/wiki/Web2.0>

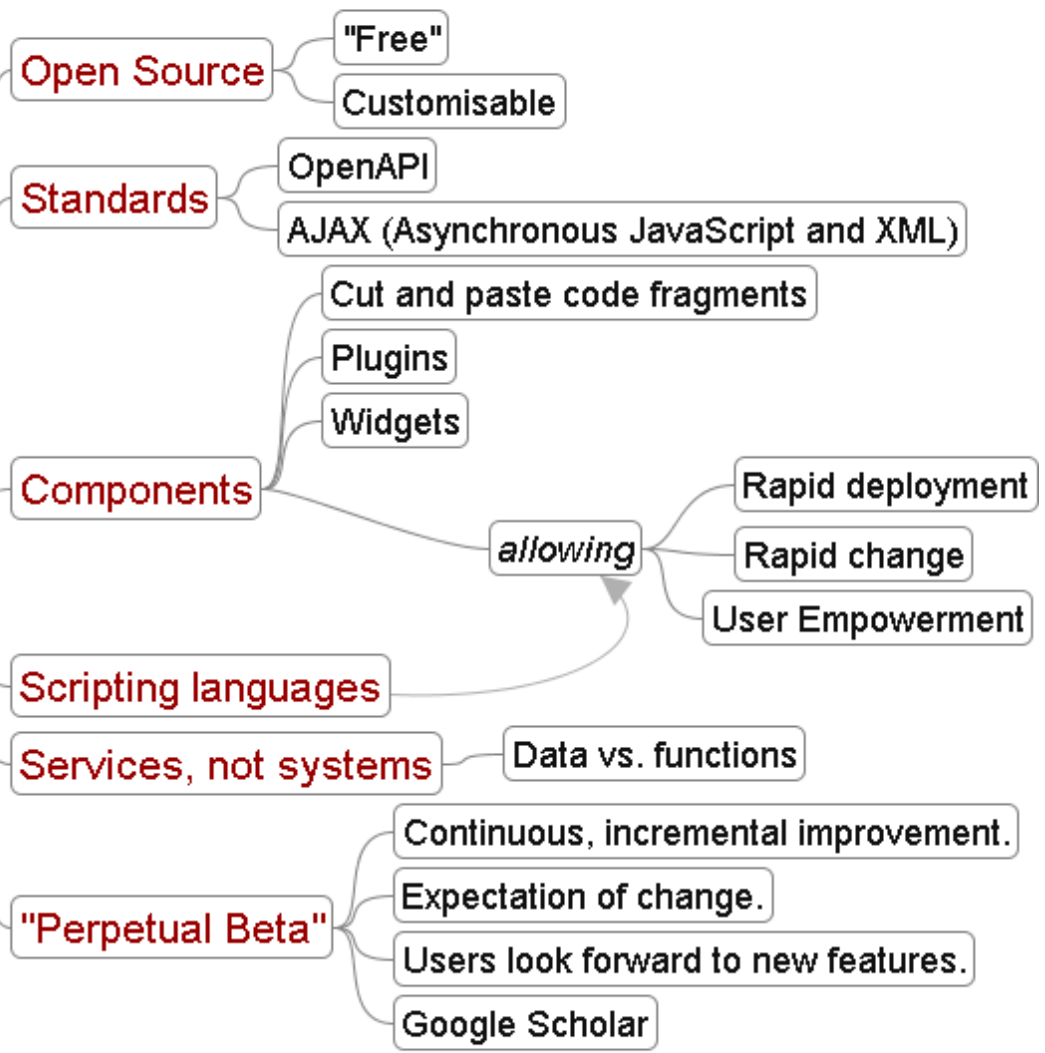
Architectural

Business

Social



"The Lightweight Application model"



"Data inside"

The Lightweight Application model

- Think *Services* not *Applications*.
- Don't package everything into one system.
- Assemble systems from distributed, independent components
- Use Open source software;
- Aim for Continuous improvement.

The Lightweight Application model

- The traditional software model is to build complex packages which provide a massive level of functionality (most of which most us never understand, use or even know of.)
 - MS Office.
 - Photoshop.
 - ILMS

The Lightweight Application model

- In contrast, Web 2.0 thinks in terms of **services** rather than applications.
- Whatever complexity may exist behind the scenes, the user ideally will see something simple, something that does just one thing and does it superbly well. Think Google search.

The Lightweight Application model

- The lightweight application strategy makes it much easier to release new features, more frequently.

The Lightweight Application model

- Something as complex as Office requires enormous amounts of testing before a new version can be released. Any single new feature may have any number of unintended side effects on seemingly unrelated parts of the package. So getting a new release out can (and does) take years.

The Lightweight Application model

- With a lightweight system, on the other hand, a new “release” can be brought out much more rapidly, new features may be added on a frequent basis, usually without prior announcement, and often as “beta” or trial versions.

The Lightweight Application model

- Instead of a development *cycle*, development becomes a continuous process of *incremental improvement*.

The Lightweight Application model

- As a result the user gets used to seeing regular updates with interesting new stuff in them;
- updates become part of the user experience, and even come to be expected;

The Lightweight Application model

- the user comes to feel like a participant in the development process, and their feedback becomes a vital part of further development. The product may always be in development, or beta, but nobody is unhappy with that, because the users feel they are engaged in the product, rather than merely its victims.

The Lightweight Application model

- Fine examples of this characteristic in action may be seen at Amazon and Google, where new “value added” features appear regularly, and experimentally.

Definition

Architectural

"The Lightweight Application model"

"Data inside"

Reuse and remix

Google Maps

Beyond the browser:
Mobile devices

Podcasting

The "Hunter-gatherer" model

RSS feeds

Aggregation

"Joy of Use"

Business

...

The Web as Platform

- The Desktop is no longer the centre of activity;
- tools and services are provided through the web browser, e.g.:
 - Authoring through blogging
 - Photo management through Flickr

“It’s the data. stupid!”

- In Web therefore aesthetic
- “Portal” range of

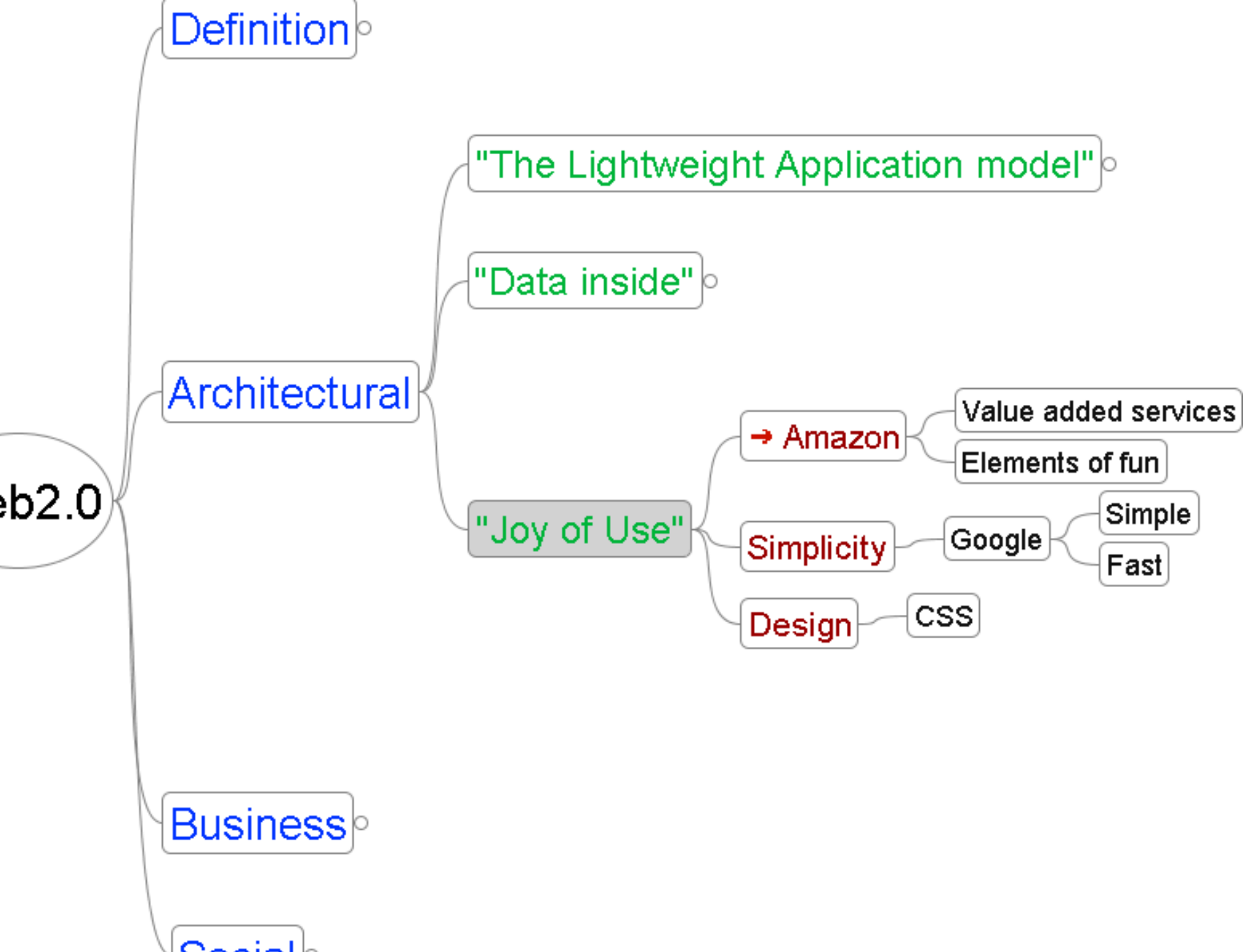
The screenshot shows the ninemsn.com.au website in a Microsoft Internet Explorer browser window. The browser title is "ninemsn.com.au - Microsoft Internet Explorer provided by The University of Adelaide". The address bar shows "http://ninemsn.com/". The website features a navigation menu with categories like "Autos/boats/bikes", "Careers", "Channel", "Computers & tech", "Entertainment", "Finance & business", "Health & lifestyle", "Magazines", "News/current affairs", "People & groups", "Property & renovation", "Shopping", "Sports", and "Travel". The main content area includes a "Latest news" section with a photo of a soldier and a "Poll: Should working mothers be given childcare priority?". There are also sections for "Today on ninemsn", "Top picks", "Special features", "Other highlights", and "Watch video". The footer shows "Appllet v51 started" and "Internet".

“It’s the data, stupid!”

- In Web 2.0, it’s the content that matters
- content may be reused and remixed in different ways by different services.
- Presentation and content are separated.
- E.g. RSS feeds

Think outside the browser

- the same content may be used on multiple, disparate devices:
- PC, mobile phone, PDA, iPod, ...



Definition

"The Lightweight Application model"

"Data inside"

Architectural

"Joy of Use"

→ Amazon

Value added services

Elements of fun

Simplicity

Google

Simple

Fast

Design

CSS

Web 2.0

Business

Social

Utility plus Playfulness

- Another common characteristic of Web2.0 is a sense of fun.
- While the service provides something useful, the developers are not above having a little fun at the same time.
- For example ...

Utility plus Playfulness

Inside This Book [\(learn more\)](#)

First Sentence:

You will never hear those words spoken in a television ad. [Read the first page](#)

Statistically Improbable Phrases (SIPs): [\(learn more\)](#)

[networked markets](#), [market conversation](#), [pen chains](#), [org chart](#)

Capitalized Phrases (CAPs): [\(learn more\)](#)

[Fort Business](#), [Getting F-'ed By My Saturn Dealer](#), [Appian Technology](#), [United States](#), [World War](#), [World Wide Web](#), [Cluetrain Manifesto](#), [Industrial Revolution](#), [Sun's Java](#), [Western Digital](#), [General Motors](#), [Hart Scientific](#), [Word of Web](#)

New!

[Books on Related Topics](#) | [Concordance](#) | [Text Stats](#)

Browse Sample Pages:

[Front Cover](#) | [Copyright](#) | [Table of Contents](#) | [Excerpt](#) | [Back Cover](#) | [Surprise Me!](#)

Search Inside This Book:



-
- Here's a snippet from an Amazon book page. It provides all kinds of "value-added" data about this book. Is it useful? Maybe, maybe not, but Amazon did it anyway because (a) it might be useful to someone; and (b) because they could; and (c) because it's fun – for them and for you.

Amazon.com: The Cluetrain Manifesto: The End of Business as Usual: Books: Christopher Locke,Ric - Microsoft Internet Explorer p

File Edit View Favorites Tools Help

Back Forward Stop Home Favorites Search Print Mail Stop

Address http://www.amazon.com/gp/product/sitb-next/0738204315/ref=sbx_con/104-6263919-4532749?%5Fencoding=UTF8#concordance

Text Stats

Readability (learn more)		Compared with other books (learn more)	
Fog Index:	12.0	Easier	Harder
Flesch Index:	54.9	Easier	Harder
Flesch-Kincaid Index:	9.4	Easier	Harder

Complexity (learn more)			
Complex Words:	15%	Fewer	More
Syllables per Word:	1.6	Fewer	More
Words per Sentence:	15.4	Fewer	More

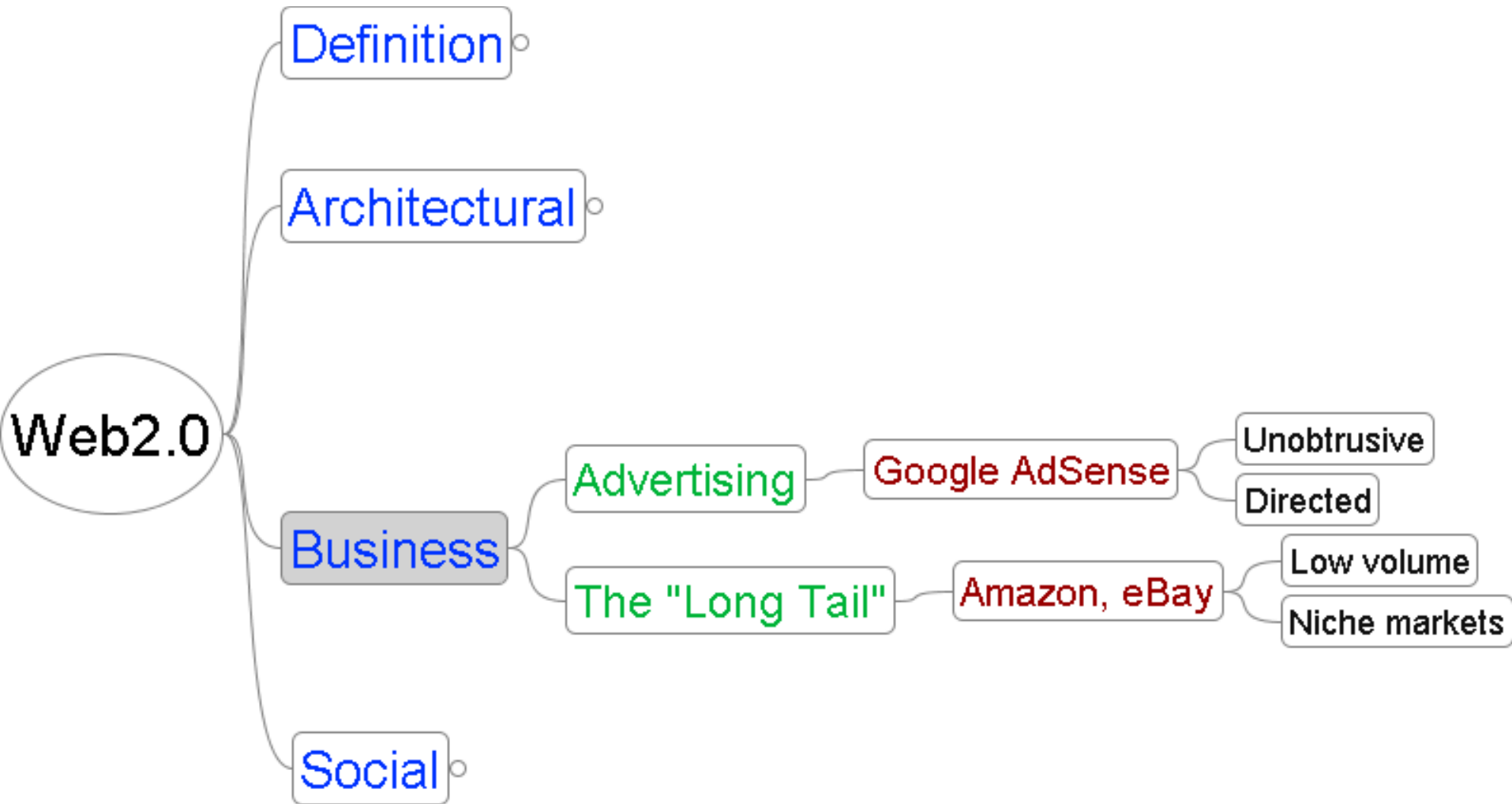
Number of			
Characters:	365,255	Fewer	More
Words:	60,553	Fewer	More
Sentences:	3,931	Fewer	More

Fun stats			
Words per Dollar:	5,617		
Words per Ounce:	4,980		

Done Internet

Useful

Fun



“The Long Tail”

- Although it generally relates more to opportunities for commercial exploitation, “The Long Tail” needs a brief discussion here, if only because it always surfaces in discussions of Web 2.0.
- Also known as: Pareto’s Principle, 80/20 rule, the vital few v. the trivial many

“The Long Tail”

The traditional business model focuses attention on volume and market size. The bigger the potential sales volume, the larger the customer base, the more attention the subject will receive from business. Think bestsellers.

The “Long Tail” refers to that other portion of the market, involving small volumes and niche markets.

The phrase *The Long Tail* was first coined by Chris Anderson.

Products that are in low demand or have low sales volume can collectively make up a market share that exceeds the relatively few high demand/high volume products.

The Web provides a distribution channel that is large enough to allow exploitation of the Long Tail.



“The Long Tail”

“We sold more books today that didn't sell at all yesterday than we sold today of all the books that did sell yesterday.”

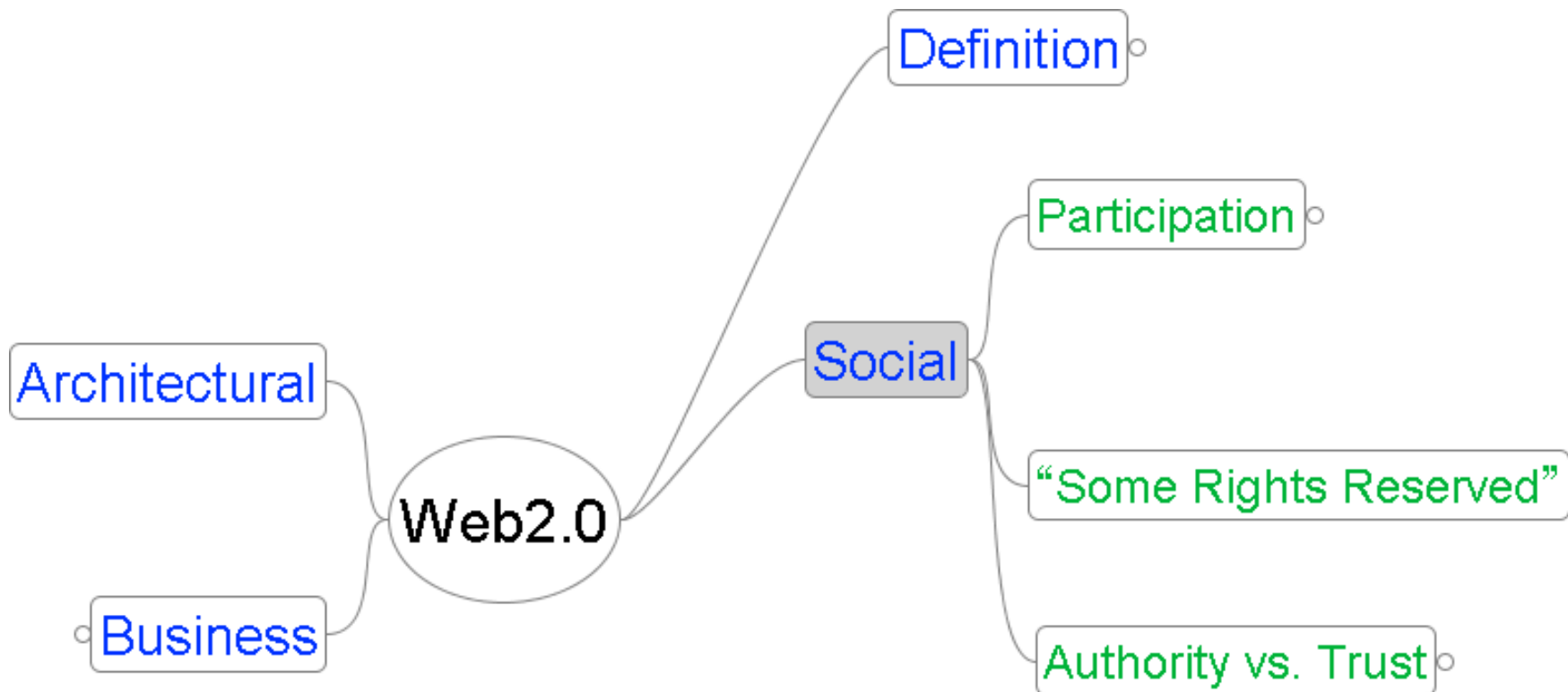
– *Amazon employee*

Long Tail implications for culture

- Where the cost of inventory storage and distribution is high, only the most popular products are sold. But where the Long Tail works, minority tastes are catered to, and individuals are offered greater choice.
- E.g. TV stations have limited time slots, so the opportunity cost of each time slot is high; stations therefore choose programs that have the broadest appeal. But as the number of TV stations grows or TV programming is distributed through other digital channels, the choice of TV programs grows and the **cultural diversity rises**.

“The Long Tail”

- Of course, the Long Tail should be a familiar idea to librarians, as another expression of Ranganathan’s “every reader his book” and “every book its reader”.



Social networks

- Web 2.0 is social, collaborative and interactive.
- The ability of “readers” to respond to what they read is a key feature of all Web 2.0 services, from “Comment on this” options, to reader reviews on Amazon to user contributed articles on Wikipedia.
- And this invitation to audience participation adds value to content, by adding information and diversity of opinion.

cial

Participation

Authoring

Blogs

→ example

Collaborating

Wikis

→ Wikipedia

Sharing

Flickr

→ PictureAustralia

Organising

Recommending

Indirectly through use

→ "readers who bought x also bought y"

"Comment on this"

Customer reviews

Tagging

Tag Cloud

→ Flickr

Folksonomy

"Collective intelligence"

Bookmarking

→ del.icio.us

→ CiteULike

Connecting

Chat, IM

MySpace

The “architecture of participation”

- The phrase “architecture of participation” was coined by Tim O’Reilly to describe systems that are designed for user contribution, such as open source software development, and the [Wikipedia](#) encyclopedia project.
- The previous section described the benefits of end-user involvement in the development process. This notion builds on that, but also extends it outside the software arena.

The “architecture of participation”

- In software development, open source means that you have potentially hundreds or thousands of developers working on your system, all looking for bugs and fixing them, or finding interesting new ways to extend functionality. And even better, they are doing this not because they get paid (they don't) but because they are interested, which is the best of all motives.

The “architecture of participation”

- A similar paradigm can be exploited to develop information systems, the pre-eminent and obvious example being Wikipedia. Rather than employ people to create your encyclopedia entries, why not just invite the general public in to do it for you?

The “architecture of participation”

- This does require a radical shift in our approach to authority and degree of trust (and more about that later), but it is inescapable that at least on some level this process works. Wikipedia now has well over a million separate articles, all donated through this “architecture of participation”, often by experts in relevant fields.

Participation v. publication

- Blogs mean that the user can have their say immediately.
- Blogs provide a platform for everybody (not always a good thing!)
- Blogs allow expert opinion to be promulgated without the long delays and tedious rituals of traditional publication methods.
- The reward comes from recognition.

Recommendation and Collaborative filtering

- Participation may also occur in less obvious, and “involuntary” ways.
- A well-known example is the Amazon “readers who bought x also bought y” paradigm, whereby the usage patterns of users is leveraged through software to provide recommendations to the current user – recommendations which are provided by other users simply by their actions.

Recommendation and Collaborative filtering

- Compare this with the Library Catalogue related works linking, where relationships are defined only narrowly through authorship, or through subject headings assigned by librarians, rather than by other users.
- What if we could create “related works” links defined by lending patterns? How would this affect “reading lists” for courses?

Taxonomy vs. Tagging

- Recommendation can also be done actively by users, by inviting and encouraging the user to tag items with keywords or category labels that they see as appropriate and meaningful.
- The user participates in the creation of metadata.

All time most popular tags

africa amsterdam animal animals **april** architecture **art** australia baby barcelona
beach berlin **birthday** black blackandwhite blue boston building bw california
cameraphone camping **canada** canon car **cat** cats **chicago** china
christmas church **city** **clouds** color **concert** day dc **dog** dogs **england** europe
family festival film florida flower flowers food france **friends** fun
garden geotagged **germany** girl graffiti **green** halloween hawaii hiking **holiday**
home honeymoon hongkong **house** india ireland island **italy** **japan** july kids lake
landscape light **london** losangeles **macro** march may **me** **mexico** moblog mountain
mountains museum **music** nature new **newyork** newyorkcity newzealand **night**
nikon **nyc** ocean **paris** park **party** people photo **portrait** red river roadtrip
rock rome san **sanfrancisco** school scotland sea **seattle** show **sky** **SNOW** spain
spring street **summer** sun **sunset** sydney taiwan texas thailand tokyo toronto
travel tree trees trip uk urban usa **vacation** vancouver washington water
wedding white winter yellow york zoo

All your items (16)

« [earlier](#) | [later](#) » page 1 of 2

[Tao \(The Way\)](#) [edit](#) / [delete](#)

Quirky modern interpretation of the Taoist classic
to [tao taoism ebooks](#) ... [saved by 16 other people](#) ... on aug 4

[Maze Maker](#) [edit](#) / [delete](#)

Nice online tool for generating mazes. Fast.
to [maze fun](#) ... [saved by 11 other people](#) ... on aug 2

[centricle : css filters \(css hacks\)](#) [edit](#) / [delete](#)

to [css hacks webdesign browsers](#) ... [saved by 1543 other people](#) ... on july 25

[Caveat Lector » DSpace item title hack](#) [edit](#) / [delete](#)

How to make DSpace use the item title as the page title
to [DSpace repository jsp hacks](#) ... [saved by 1 other person](#) ... on july 22

[Inside Higher Ed :: New Model for Scholarly Publishing](#) [edit](#) / [delete](#)

to [publishing ebook](#) ... [saved by 6 other people](#) ... on july 16

[Depth and Breadth of Google Scholar: An Empirical Study](#) [edit](#) / [delete](#)

This study compares the contents of 47 different databases with that of Google Scholar. Included in this investigation are tests for Google Scholar publication date and publication language bias, as well as a study of upload frequency. Tests show Google S
to [Google Scholar](#) ... [saved by 760 other people](#) ... on june 27

[data visualization & visual culture - information aesthetics](#) [edit](#) / [delete](#)

▼ tags

- 1 [art](#)
- 1 [book](#)
- 1 [browsers](#)
- 1 [css](#)
- 1 [cyberspace](#)
- 1 [data](#)
- 1 [design](#)
- 1 [dom](#)
- 1 [DSpace](#)
- 2 [ebook](#)
- 1 [ebooks](#)
- 1 [fiction](#)
- 1 [fun](#)
- 1 [Google](#)
- 2 [hacks](#)
- 1 [html](#)
- 1 [information](#)
- 1 [jsp](#)
- 2 [legal](#)
- 3 [library2.0](#)
- 1 [maze](#)
- 1 [network](#)
- 2 [publishing](#)
- 1 [radical](#)

Taxonomy vs. Tagging

- While on an individual level this may not always work, the expectation is that over a large enough population, the tagging will become statistically useful, reflecting the conceptual understanding of the users.

Taxonomy vs. Tagging

- This process has been dubbed “**folksonomy**”, to distinguish it from, and oppose it to the idea of an imposed taxonomy provided by experts.

Social

Participation

“Some Rights Reserved”

Authority vs. Trust

Participation vs. Publication

Recognition as reward

→ Creative Commons

License to allow reuse

The author's choice

“Some Rights Reserved”

- Underpinning the architecture of participation is a radical shift in notions of ownership and reward.

“Some Rights Reserved”

- For example:
- people write quite extensively through blogs, which are entirely free, with no expectation of royalty payment. Their reward comes from recognition, which is a much more powerful motivator than money.
- Other people post their photos online at Flickr, or post reviews of books they have read at Amazon, and so forth.

“Some Rights Reserved”

- In order that rights not be completely thrown away, while still allowing easy re-use of the author’s material, a new form of licensing has arisen, using the Creative Commons licenses, in which a user may choose a custom made license which reserves some rights (usually to commercial exploitation) while specifying the conditions under which their work can be used (usually freely for non commercial use, with attribution.)



C O M M O N S D E E D

Attribution-NonCommercial-ShareAlike 2.1 Australia

You are free:

- to copy, distribute, display, and perform the work
- to make derivative works

Under the following conditions:



Attribution. You must attribute the work in the manner specified by the author or licensor.



Noncommercial. You may not use this work for commercial purposes.



Share Alike. If you alter, transform, or build upon this work, you may distribute the resulting work only under a license identical to this one.

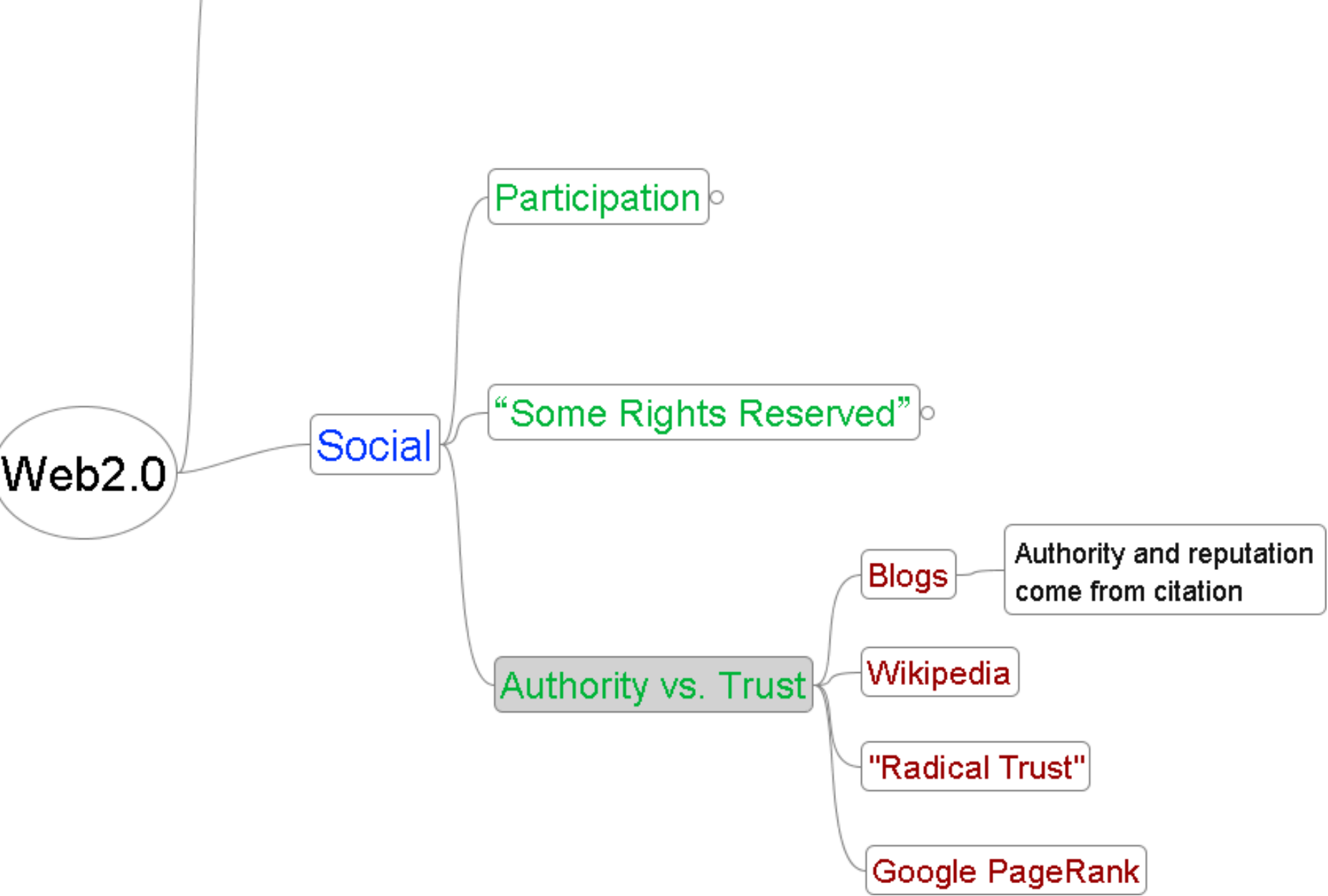
- For any reuse or distribution, you must make clear to others the license terms of this work.
- Any of these conditions can be waived if you get permission from the copyright holder.

“Some Rights Reserved”

- Thus while the traditional Copyright statement tends to stymie any and all reuse, the Creative Commons license is designed to allow reuse and remixing of information, under reasonably controlled circumstances, supporting a culture of experimentation, “hackability” and “remixability.”

“Some Rights Reserved”

- For most people, this is not a problem :
When the likelihood that you’ll get paid for your content is low, most of us will settle for recognition every time. (Which is of course why the ability to post comments, and to cross-link, is key to the success of blogging.)



Web2.0

Social

Participation

"Some Rights Reserved"

Authority vs. Trust

Blogs

Authority and reputation come from citation

Wikipedia

"Radical Trust"

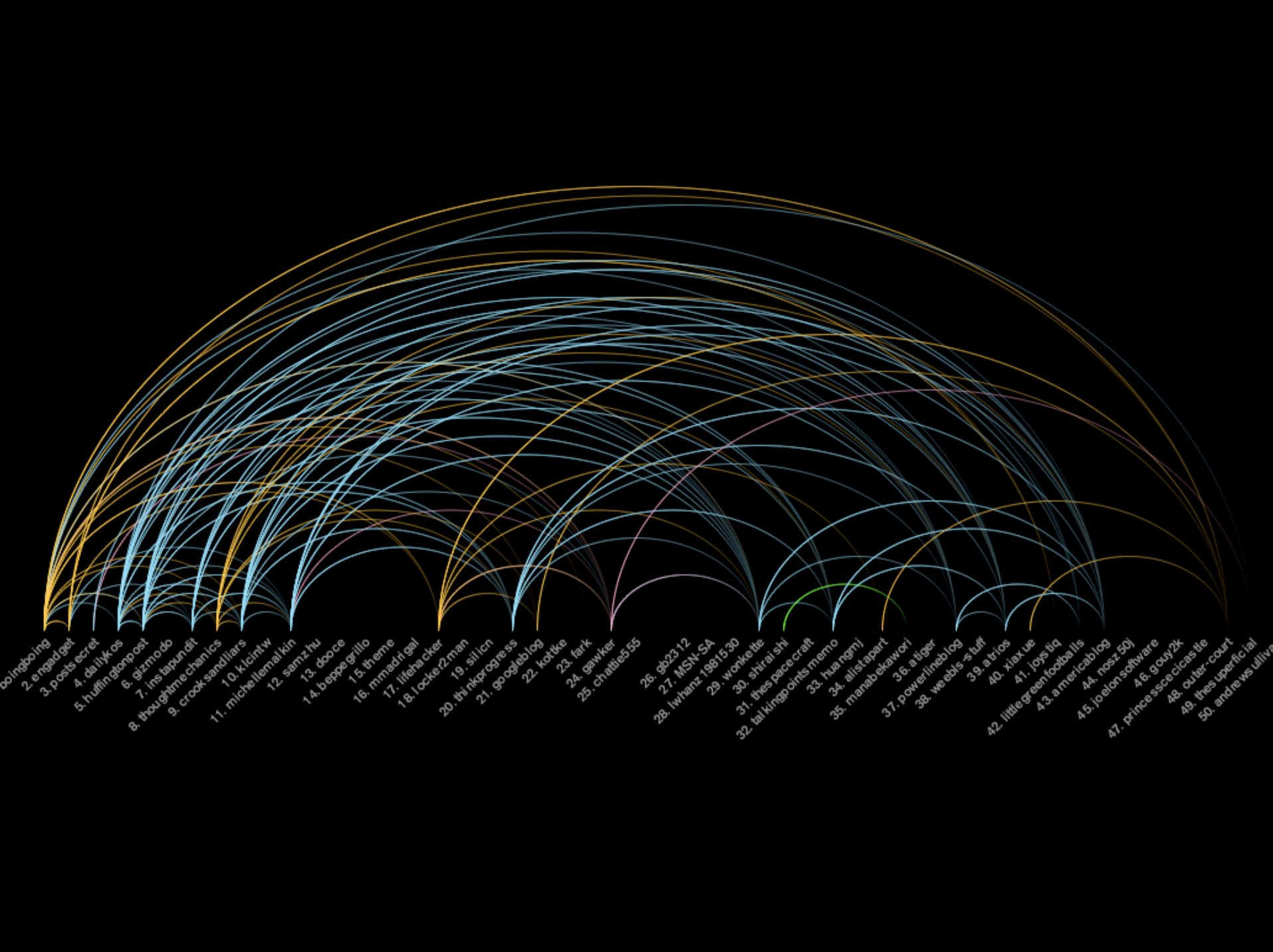
Google PageRank

Authority v. Trust

- The architecture of participation requires a rethink of our notions of trust and authority.
- There is a trade-off between authority and participation : when anyone can “publish”, how do we tell the good from the bad?

Authority vs.Trust

- Web 2.0 has its own unique methods of establishing authority, or reputation, for example through cross-linking and “track-back” of blog entries.
- Well-respected authors tend to be quoted more often and receive more links from others.
- The Web establishes a form of authority which is, in its way, stronger than traditional “peer” review.



Authority vs.Trust

- Accepting that all this will work – that the architecture of participation, folksonomy and so forth will lead to valuable outcomes, requires a rethink of our notions of trust of the users.
- Quoting Darlene Fichter ...

Radical Trust

- “Radical trust is about trusting the community. We know that abuse can happen, but we trust (radically) that the community and participation will work. In the real world, we know that vandalism happens but we still put art and sculpture up in our parks. As a online community we come up with safeguards or mechanisms that help keep open contribution and participation working.”

http://library.usask.ca/~fichter/blog_on_the_side/2006/04/web-2.html

Web2.0

Definition

"Web 2.0 generally refers to a second generation of services available on the World Wide Web that let people collaborate, and share information online. ..."
-- <http://en.wikipedia.org/wiki/Web2.0>

Participation



"Some Rights Reserved"

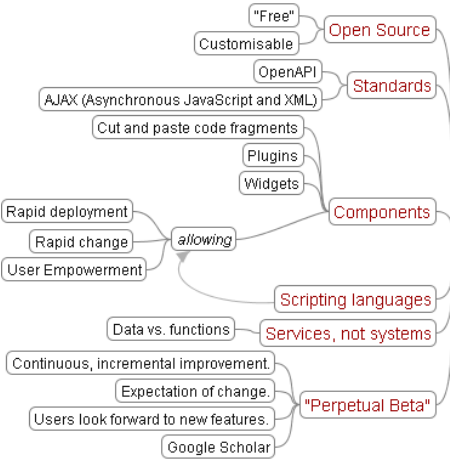


Authority vs. Trust

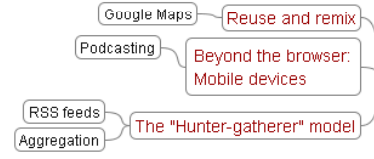


Architectural

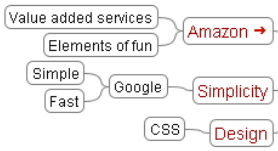
"The Lightweight Application model"



"Data inside"



"Joy of Use"



Business



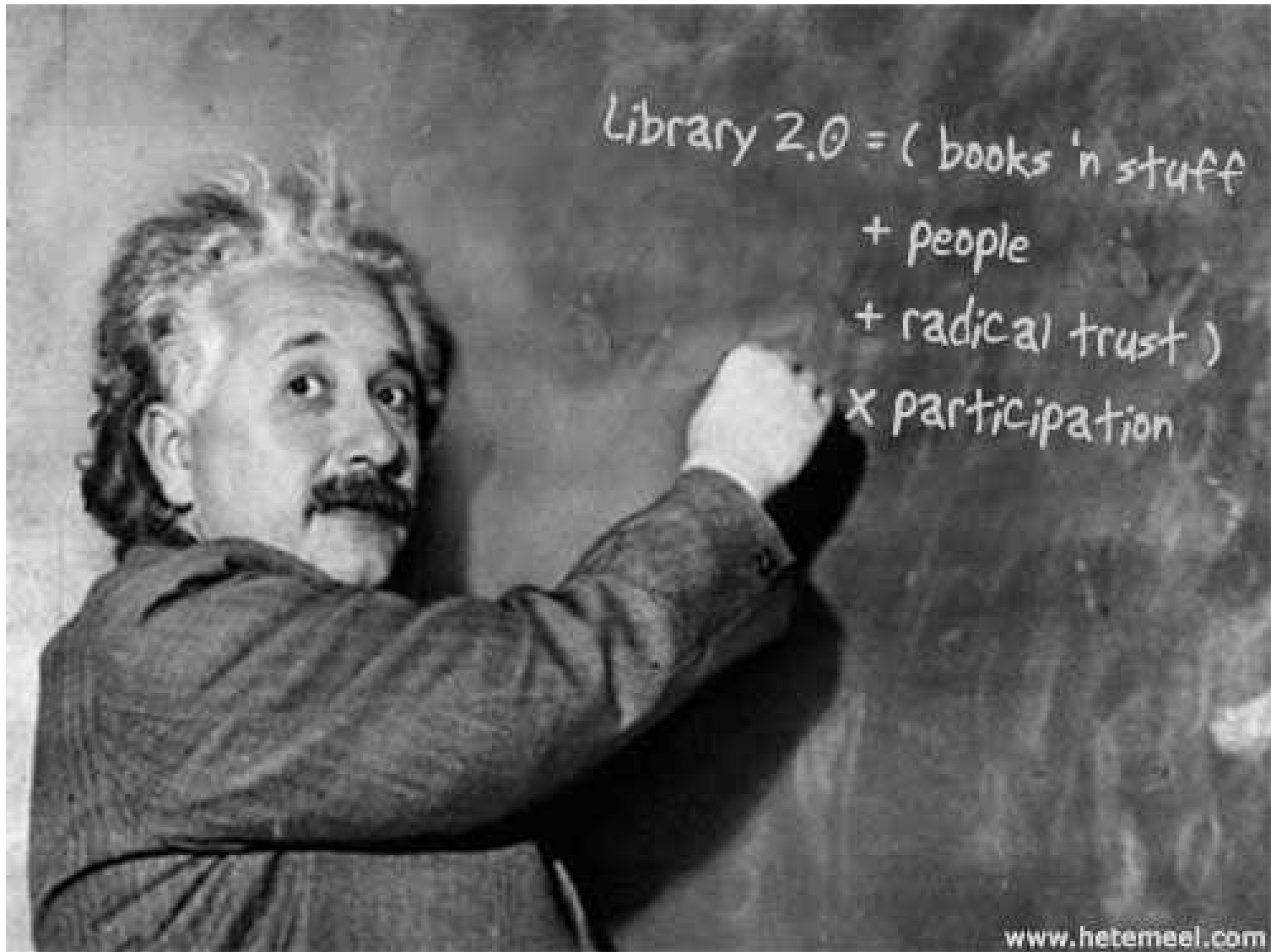
So what is Library 2.0?

LIBRARY 2.0 MEME MAP



So what is Library 2.0?

- The world is undecided about what it is :
e.g.
 - [Defining Library 2.0: Is it More than Technology?](#)
- The more common view seems to be that it is more than technology, and reflects changing attitudes to library service delivery.



Source: http://library.usask.ca/~fichter/blog_on_the_side/2006/04/web-2.html

What is Library 2.0?

- Keywords:
 - Participation; integration; flexibility; fun
- Changes to information access & delivery:
 - Comments; tagging; RSS feeds
- Physical space:
 - Group study places; mobile phones; ...

The Web as Platform

- The web-accessible OPAC is still quite new – less than a decade – and there is still room for improvement.
- Catalogues are usually part of the “dark web” – inaccessible to search engines. Meaning that the user is confined to using the Catalogue for information discovery.
- Ideally, we need more flexible information delivery. RSS feeds are one possibility, but we still need smarter and more open catalogue systems.

The Lightweight Application model

- Library 2.0 favours Open Source software. This allows the Library to participate directly in the development process, and allows for faster development.
- It also permits continuous improvement -- the Perpetual Beta :
 - Constant change instead of lengthy upgrade cycles;
 - Rapid deployment of enhancements;
 - Incremental improvements

User participation

- Library users should be able to craft and modify library provided services:
 - Tagging and comments;
 - Wikis? Blogs?
- We will need to trust our users more than at present.

Library 2.0

- In general terms, we need to be willing to harvest and integrate ideas and products from other fields into library service models
- This will demand greater flexibility.
- We must continue to examine how we do things and be willing to replace them with newer and better services.

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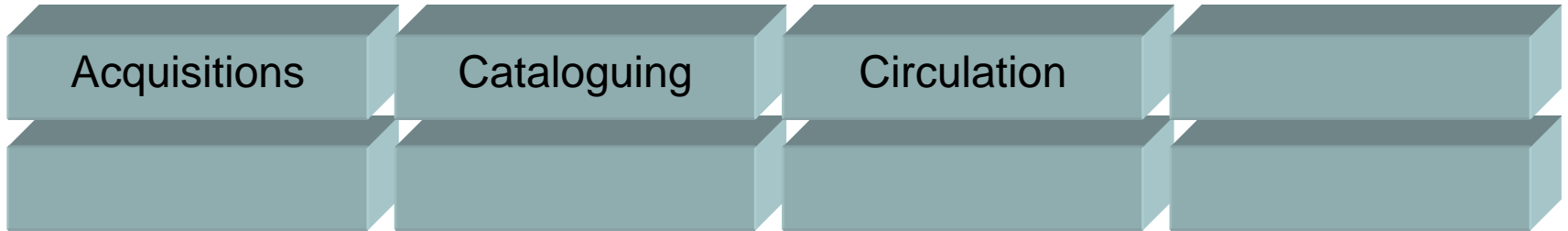
The Future of Library Systems

The Integrated Library Management System

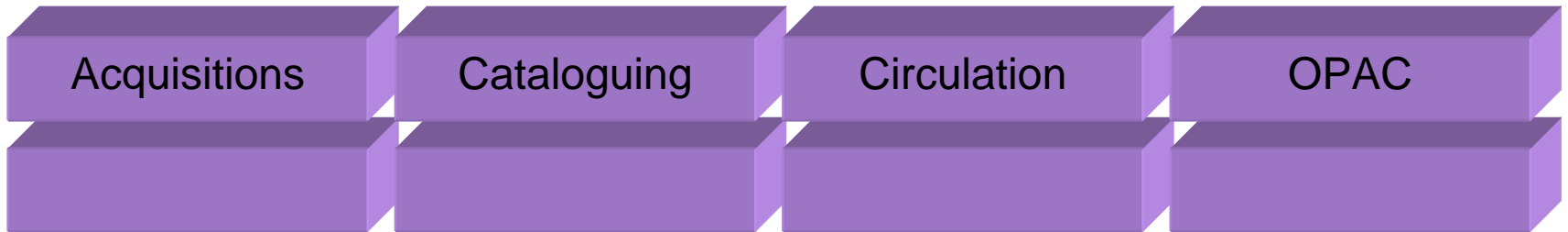
- Existing ILMS systems are monolithic – single package providing “all” functions needed to support core library activities.

Typical Multi-Tier Library System Architecture

Client or Desktop layer



Applications (server) layer



Database

Operating System

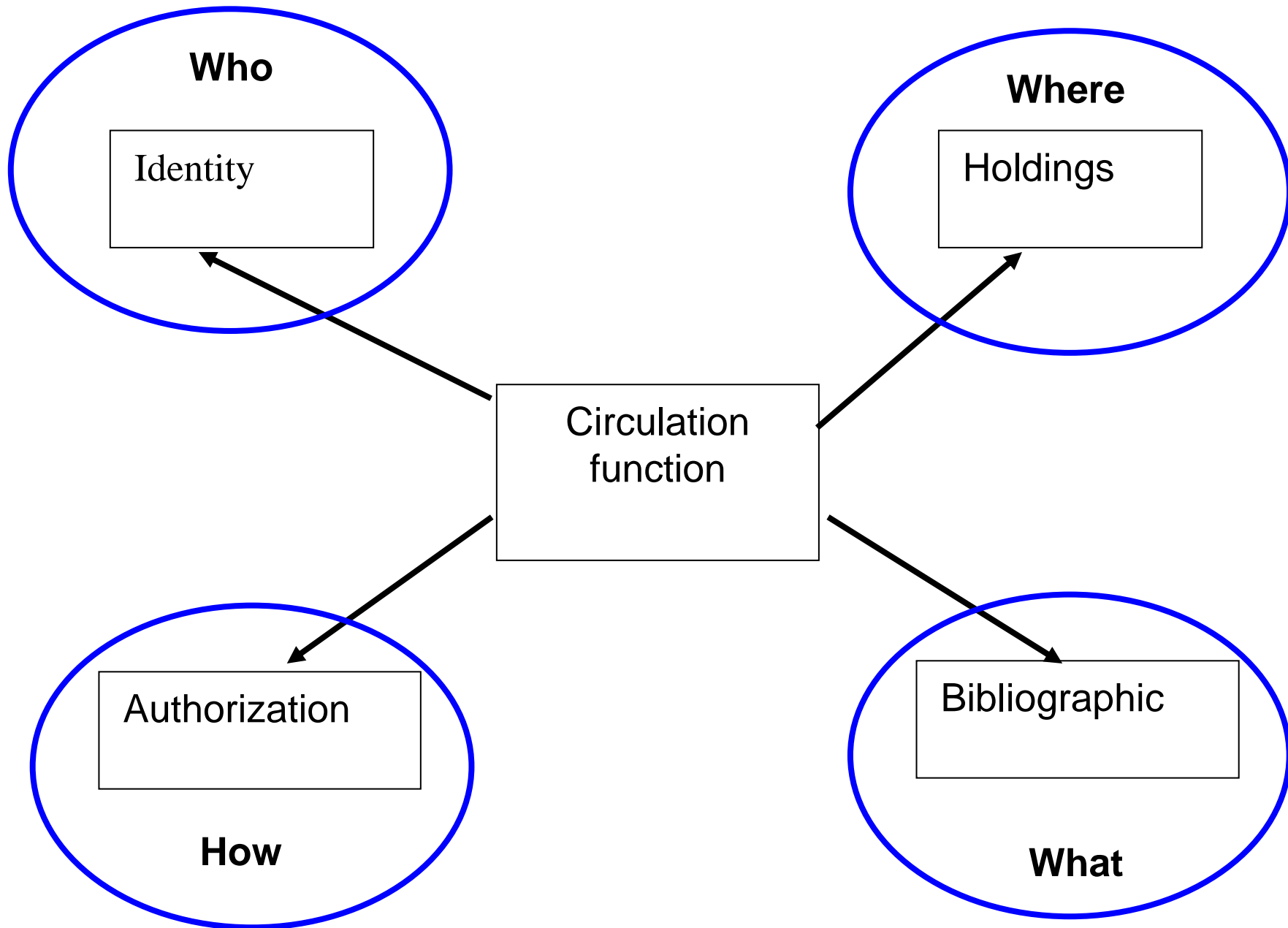
The Integrated Library Management System

Trade-off :

- Dependence on Vendor
- Slow delivery of enhancements tied to release schedules
- Difficult to add functionality or cooperate with other systems

The Dis-Integrated Library Management System

- Design based on services model
- Use Open Source components.
- Pick and choose components to suit our needs.
- Use existing services : don't duplicate data



The Dis-Integrated Library Management System

- There is no reason why these four services, who what where and how, need come from the same system :
 - Identity could come from Peoplesoft
 - Authorization from LDAP.
- One could build a custom-made Library “system” using existing services from a variety of sources.

Thanks!

References

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- Librarycrunch (blog)
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