5   Communities, the Web and Multimedia

Literature:

   T. Berners-Lee: Weaving the Web. Texere 2000

   T. O'Reilly: What is Web 2.0: Design Patterns and Business Models
      for the Next Generation of Software.
      Communications & Strategies, No. 1, p. 17, 2007.
      (http://oreilly.com/web2/archive/what-is-web-20.html – 2005)

Meet Sir Timothy John Berners-Lee

https://www.youtube.com/watch?v=OM6XIICm_qo

2009

The Key Idea of the Web

- T. Berners-Lee: "Information Management: A Proposal".
  CERN March 1989

  "CERN is a model in miniature of the rest of the world in a few years time."

- Discussions on Mosaic browser, 1993:

  "I ... made my now-standard case for making the Mosaic browser an editor, too. Marc [Andreessen] and Eric [Bina] explained that they had looked at that option and concluded that it was just impossible."

  (Weaving the Web p. 77)

- Tim Berners-Lee on the future of the Web:

  "My hope and faith that we are headed somewhere stem in part from the repeatedly proven observation that people seem to be naturally built to interact with others as part of a greater system."

  (Weaving the Web p. 223)

What is the Meaning of "Web 2.0" ?

> The relationship of Web 1.0 to the Web of tomorrow is roughly the equivalence of Pong to *The Matrix*.

> The first glimmerings of Web 2.0 are beginning to appear, and we are just starting to see how that embryo might develop.

Darcy DiNucci: Fragmented Future. *Print* **53** (4): 32, April 1999

- 1999 – 2003: Occasional usage of "Web 2.0", inconsistent meaning
- 2004: First O'Reilly "Web 2.0" conference
  - Tim O'Reilly, Dale Dougherty, John Battelle
  - After the burst of the dot-com bubble: Collecting surviving ideas
- September 2005:
  Tim O'Reilly: What is Web 2.0: Design Patterns and Business Models for the Next Generation of Software
- Web 2.0 is a buzzword, ***not a technology!***
  - Still used in varying meanings nowadays

Generations of the Web

Tim O'Reilly
Picture: Brian Solis
Source: Wikimedia

- Web 0.5
  - 1988-1995
  - Only predecessors of WWW exist
- Web 1.0
  - 1996
  - Static HTML pages, few publishers - many readers
- Web 1.5
  - 1996-2001
  - Dynamic Web pages, E-Commerce
- Web 2.0
  - 2005?
  - Collaboration, communities
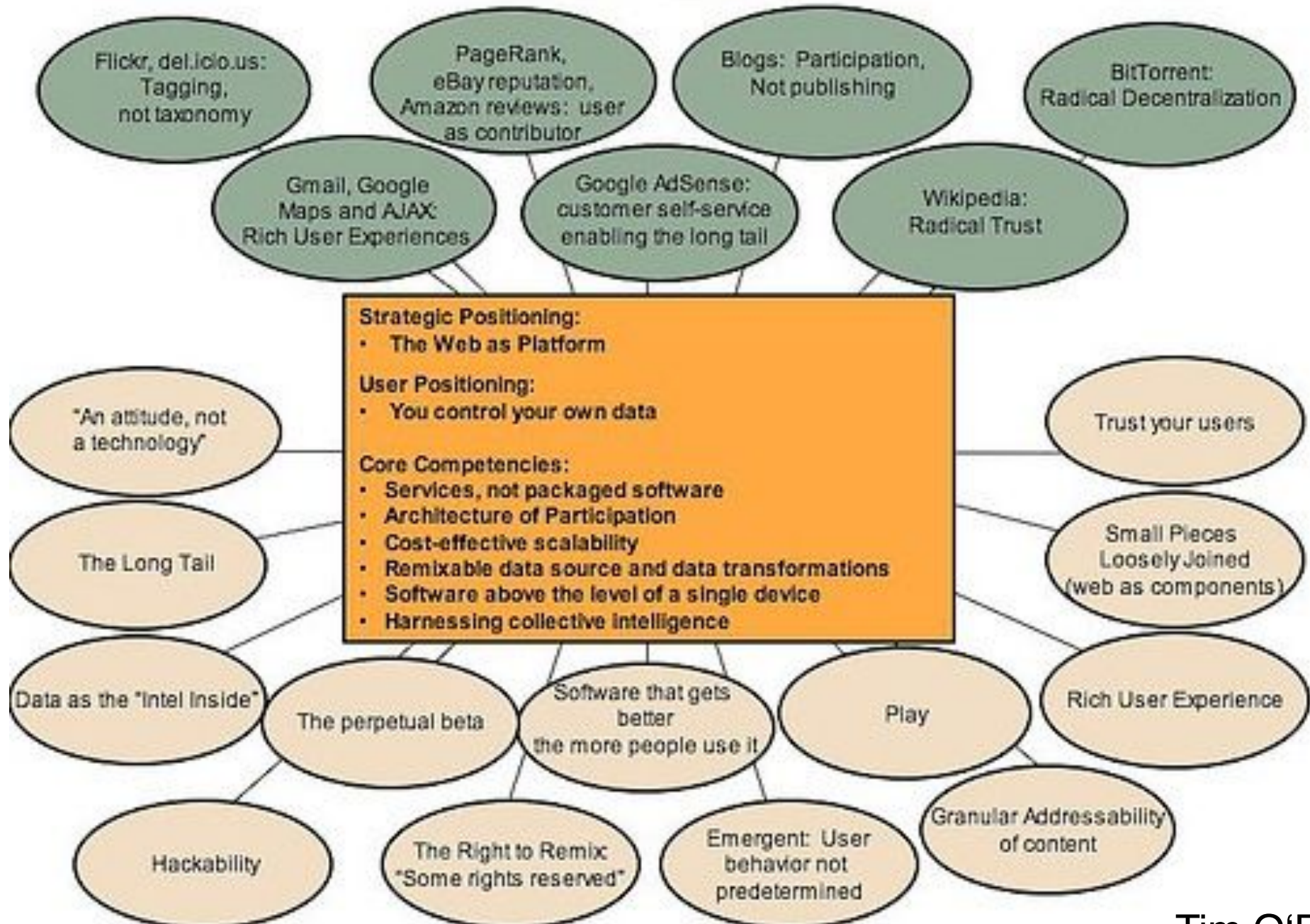 - Openness, standardization, liberty

Web 0.5, 1.0, 1.5 are *retronyms!*

Web 2.0 Meme Map

Flickr, del.icio.us:
Tagging,
not taxonomy

PageRank,
eBay reputation,
Amazon reviews: user
as contributor

Blogs: Participation,
Not publishing

BitTorrent:
Radical Decentralization

Gmail, Google
Maps and AJAX:
Rich User Experiences

Google AdSense:
customer self-service
enabling the long tail

Wikipedia:
Radical Trust

Strategic Positioning:
- The Web as Platform

User Positioning:
- You control your own data

Core Competencies:
- Services, not packaged software
- Architecture of Participation
- Cost-effective scalability
- Remixable data source and data transformations
- Software above the level of a single device
- Harnessing collective intelligence

"An attitude, not
a technology"

Trust your users

The Long Tail

Small Pieces
Loosely Joined
(web as components)

Data as the "Intel Inside"

The perpetual beta

Software that gets
better
the more people use it

Play

Rich User Experience

Hackability

The Right to Remix
"Some rights reserved"

Emergent: User
behavior not
predetermined

Granular Addressability
of content

Tim O'Reilly

Two Aspects of Web 2.0

- Social Aspect
  - Collaboration
  - User-Generated Content

- Technical Aspect
  - Rich Internet Applications (multimedia)
  - Web browser as application platform
  - Increasing interactivity in the browser

Comparison by Examples

Web 1.0

– DoubleClick   ⟷   – Google AdSense

– Ofoto   ⟷   – Flickr

– Akamai   ⟷   – BitTorrent

– mp3.com   ⟷   – Napster

– Britannica Online   ⟷   – Wikipedia

– Personal homepage   ⟷   – Blogging

– Personal bookmarks   ⟷   – Del.icio.us

– Content management   ⟷   – Wikis

– Taxonomy   ⟷   – Folksonomy

Web 2.0

Web 2.0 Principles

- ***Harnessing collective intelligence!***

- Reach out to the entire Web (including edges)

- Service **automatically gets better** by more people using it

- Build **value as a side-effect** of the ordinary use of their application.

- Race **to own certain classes of core data** (e.g. location, identity, calendaring, product identifiers)

- Consequences for software development:
  - "**Perpetual beta**"
  - Users as co-developers
  - Design for **remix-ability**

2.0 Everywhere!

Internet-Protest
gegen Online-Überwachung
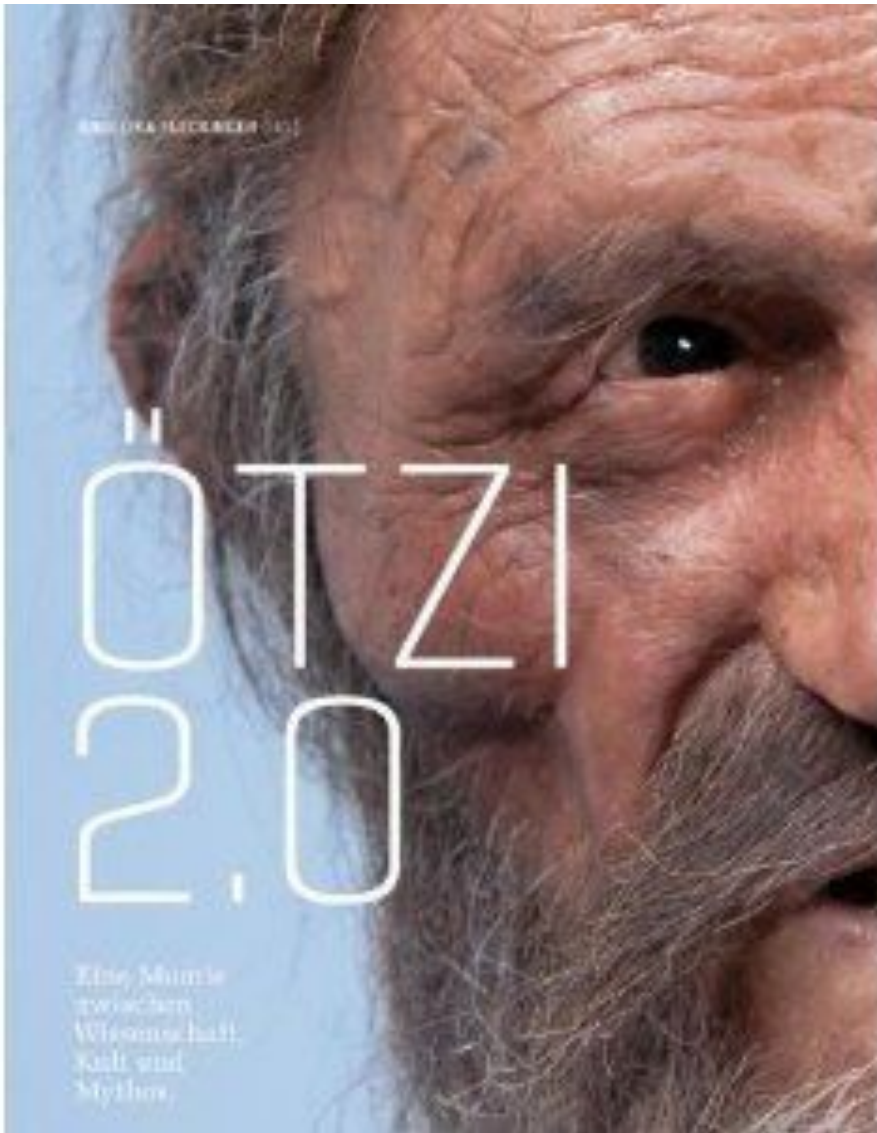
Buch von Angelika Fleckinger 2011

Buchtitel 2010

The Long Tail

- Clay Shirky 2003,
  Chris Anderson 2004:
  – "The future of entertainment is in the millions of niche markets at the shallow end of the bitstream" (Anderson)

- Business models for online sales:
  – Create large revenue out of low individual sales for many niche products
  – Driven by low production and distribution costs

The New Marketplace

- Theory:
  – Zipf/Pareto style of distribution
  – Traditional Pareto principle: 20% of products give 80% of sales volume
  – Different ratios in online business?

5 Communities, the Web and Multimedia

Literature:
> Brian Solis: The Essential Guide to Social Media
> > http://www.briansolis.com/2008/06/essential-guide-to-social-media-free/

> Hana S. Noor Al-Deen, John Allen Hendricks (eds.):
> > Social Media -Usage and Impact, Lexington Books 2012

Social Networks, First Generation

StayFriends™
Schulfreunde wiederfinden

Hier sind Ihre Schulfreunde

Hauptmenü | Anmeldung

Log in

Leistungen	Basis	Gold
Klassenfoto einstellen und Mitschüler markieren	✓	✓
Aktives Auffinden selbst festlegen	✓	✓
Klassentreffen melden	✓	✓
Alle Klassentreffeninformationen einsehen		✓
Mit dem Organisator des Klassentreffens in Kontakt treten		✓
Mailingliste für Klassentreffen verwalten		✓
»Eigene Seite« anlegen und Profil erstellen	✓	✓
Fotos auf »Eigene Seite« hochladen	✓	✓
»Eigene Seite« von anderen komplett einsehen		✓
Fotos ansehen		✓
Nachrichten hinterlegen	✓	✓
Nachrichten lesen und beantworten		✓
Kontaktliste anlegen	✓	✓
Ein Poesiealbum führen	✓	✓
Jedes Poesiealbum lesen		✓

- College traditions:
  - Class listings, alumni listings, freshman listings
  - Personal profiles
  - Keeping in touch (classmate reunions)
- 1995: Classmates.com
  - German version: stayfriends.de
- Many similar platforms
  - E.g. Original facebook.com

Social Networks, Second Generation

- From documentation of existing relationships to creation of new relationships

- General platform for self presentation
  - Easy way to personal homepage

- Examples:
  - MySpace.com
  - Friendster.com
  - StudiVZ.de
  - Xing.com (OpenBC)

- Establishment of "friend" link by mutual agreement

- Tracing of social network
  - 2nd degree contacts
  - Former colleagues

Xing.com

Einzigartige Suchfunktionen
- Finden Sie neue Vertriebskanäle, Mitarbeiter und Jobs
- Finden Sie schnell die richtigen Entscheidungsträger
- Erreichen Sie Ansprechpartner tausender Unternehmen

Holtzbrinck zahlt Millionenpreis für StudiVZ
03. Jan 2007 17:52, ergänzt 18:54

Holtzbrinck beerdigt VZ-Netzwerke

spiegel.de, 11.06.2012

Example: facebook.com (1)

- History:
  - Mark Zuckerberg and friends, Harvard, October 2003:
    - » Facemash: Comparing student photos
  - Mark Zuckerberg, February 2004: "The Facebook" for Harvard students
  - Stepwise expansion to other universities, colleges and high schools
  - Sept, 2006: Open to everybody of age 13 and up
- Popularity:
  - Alexa.com: Number 2 globally
    - » Sept. 2006: Traffic rank 60
    - » 2012 rank 1 in six countries
  - Future growth unclear
    - » Fake account removal
    - » Princeton study: Will lose 80% of peak user base between 2015 and 2017

Facebook Users in the World by Regions - September 2012

Region	Millions of Subscribers
Europe	243.2
Asia	236.0
North America	184.2
South America	134.6
Africa	48.3
Central America / Mexico	47.0
Middle East	22.8
Oceania / Australia	14.6
the Caribbean	6.7

Source: Internet World Stats - www.internetworldstats.com/facebook.htm
The total number of Facebook subscribers in the world is estimated to be 937,407,180 on September 30, 2012.
Copyright © 2012, Miniwatts Marketing Group

Cannarella, John, and Joshua A. Spechler. "Epidemiological modeling of online social network dynamics." *arXiv preprint arXiv:1401.4208* (2014).

Example: facebook.com (2)

User demographics for Germany 2013 (socialbakers.com)

User age distribution

65–100 years
55–64 years
13–15 years
16–17 years
25–34 years
45–54 years
35–44 years
18–24 years

socialbakers

Male/Female User Ratio

female

male

socialbakers
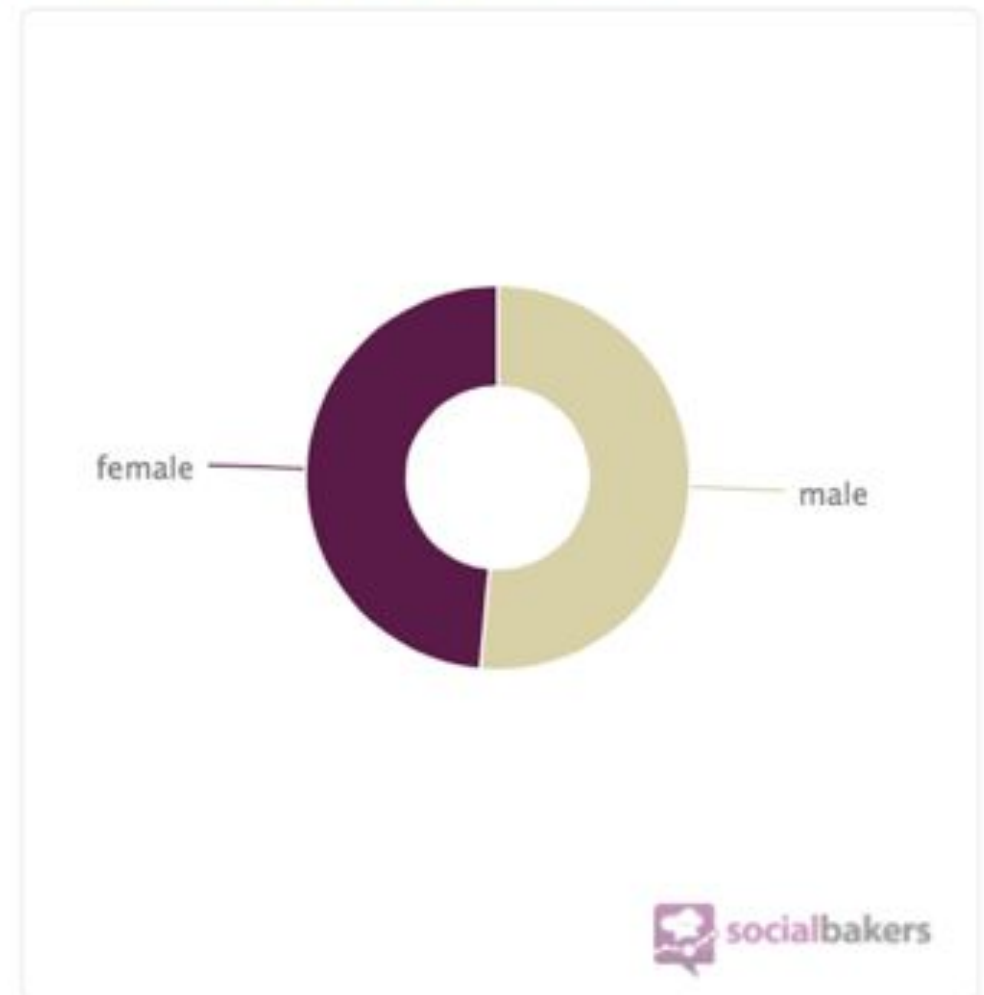
Example: facebook.com (3)

- 1.35 billion monthly active users as of September 2014
  (was 1.19 billion one year ago)
- 1.12 billion mobile monthly active users as of September 30, 2014
  (was 604 million in 2012, 874 million in 2013).
- Financial side:
  – 2007: Microsoft buys 1.6% share for $240 million
  – September 2009: First time positive cash flow
  – IPO: May 2012, market capitalization $104 billion
  – Offering price per share was $38.00
  – Current price (Nov 14): around $74.6 (nasdaq.com)
- Business model based on advertisement

INVESTING | 7/18/2012 @ 7:18AM | 4,842 views

Facebook Needs a Mobile Business Model Now

Christopher Versace, Contributor

http://newsroom.fb.com/Key-Facts

forbes.com

Social Networks, Third Generation

- Battle for market share
- Single universal platform vs. specialized platforms?
- Long-term archive vs. short-living information?
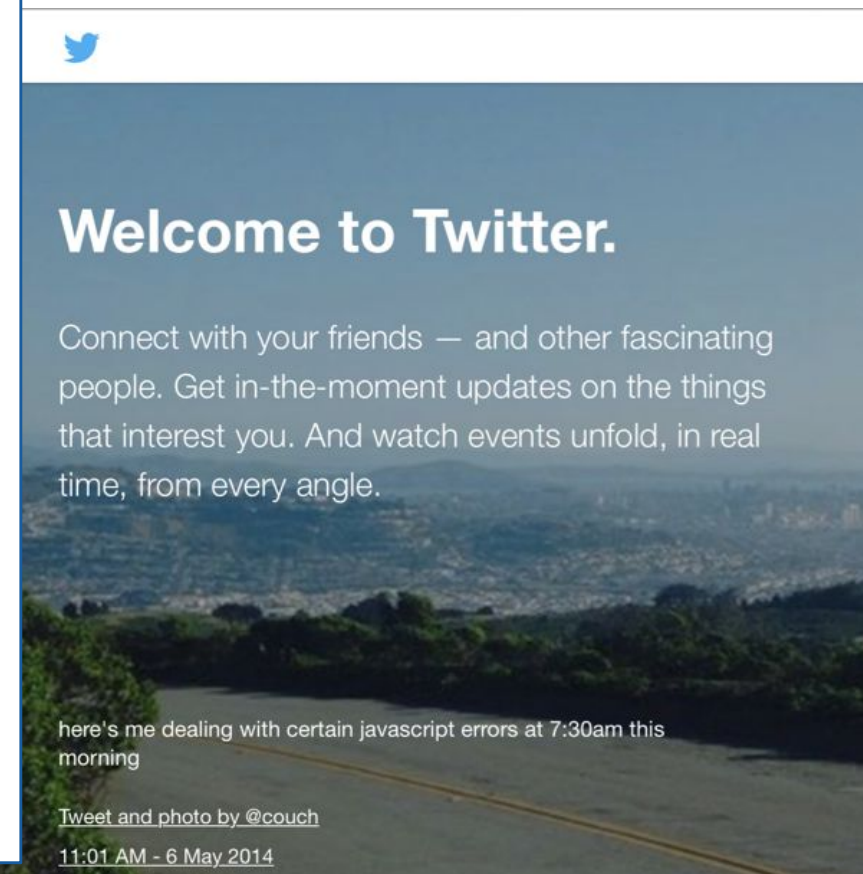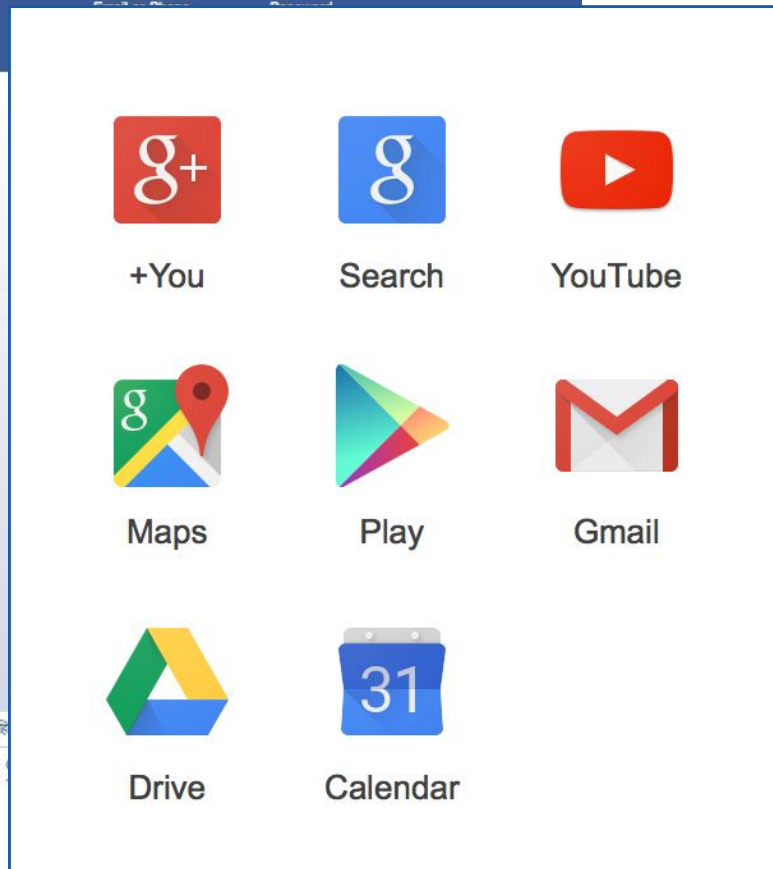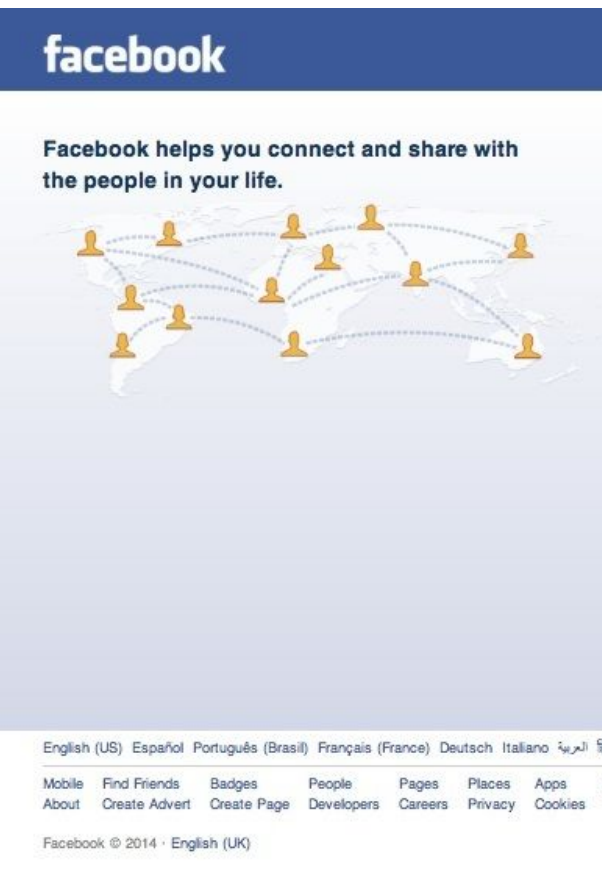
Usage of Social Networks by US Teens
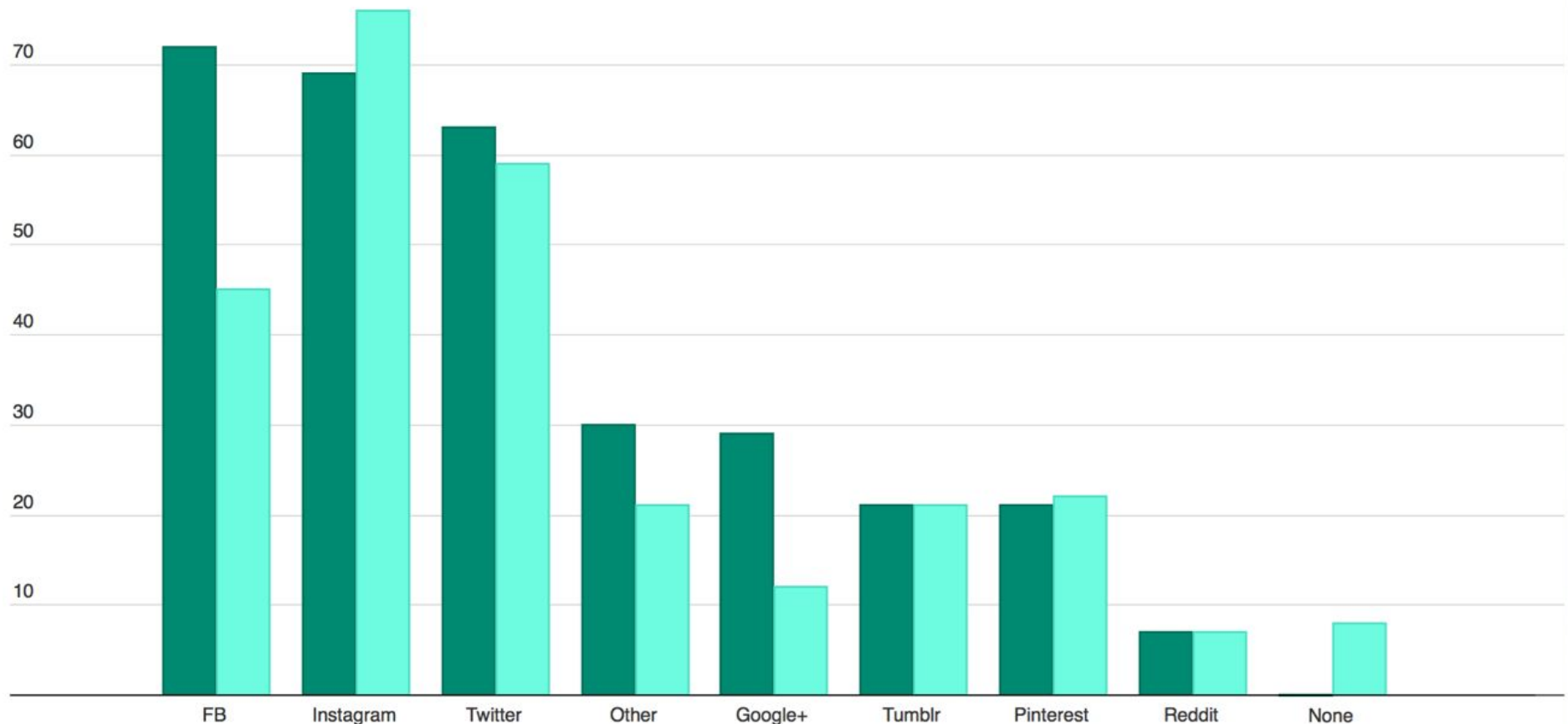
Piper Jaffray research: 7,200 US students

Social Networks, Fourth Generation?

- Mobile device centered
- Real-time
- Media-Rich
- Anonymous
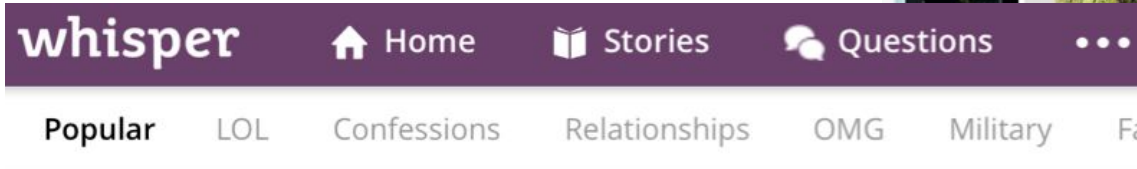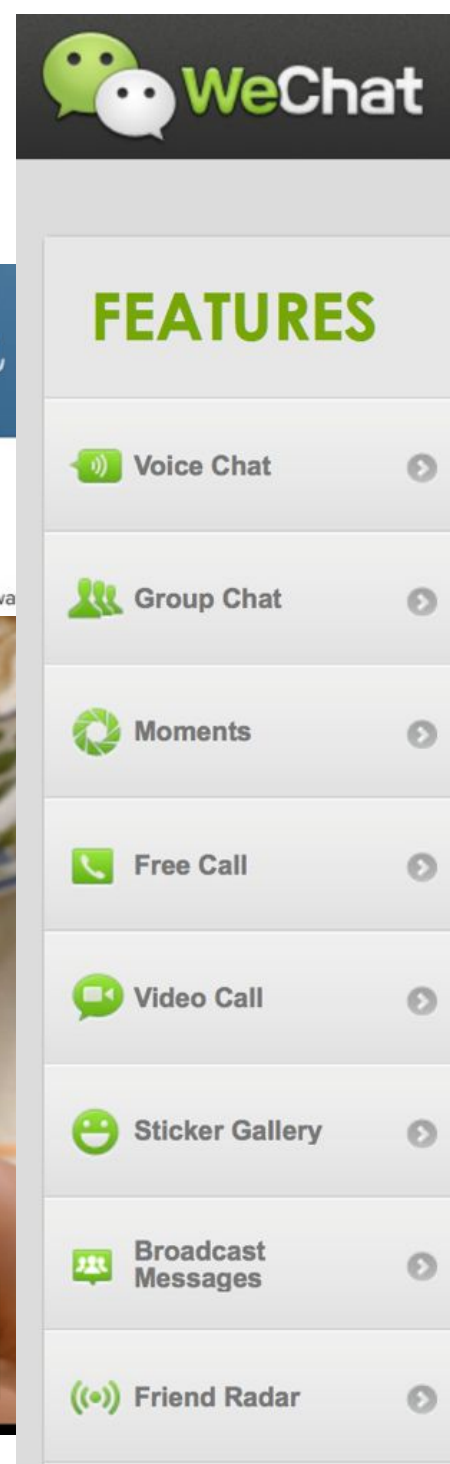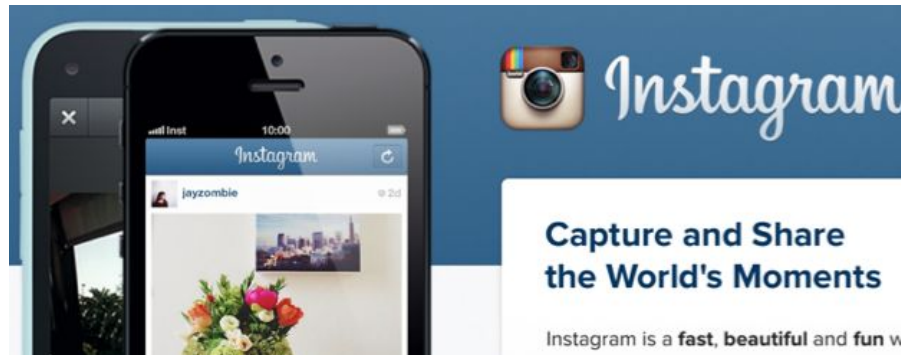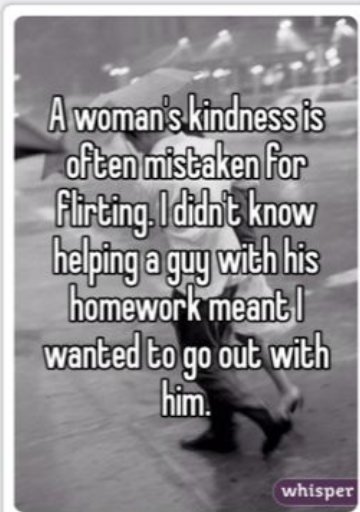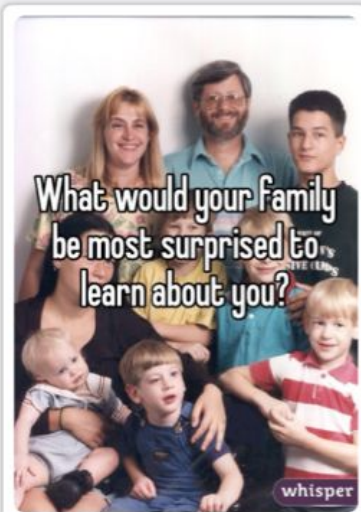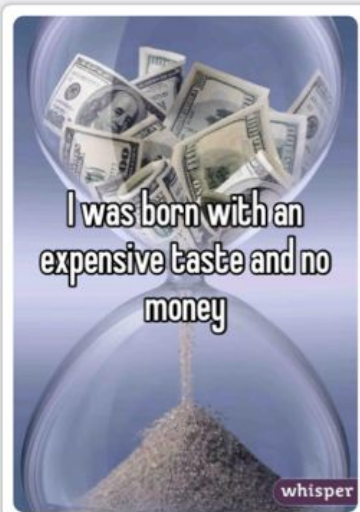
Social Bookmarks

- Sharing platform for links to information in the Web
  - Examples: Delicious, diigo.com, digg.com, reddit.com
- Tagging (folksonomy):
  - Adds a semantic dimension to Web search
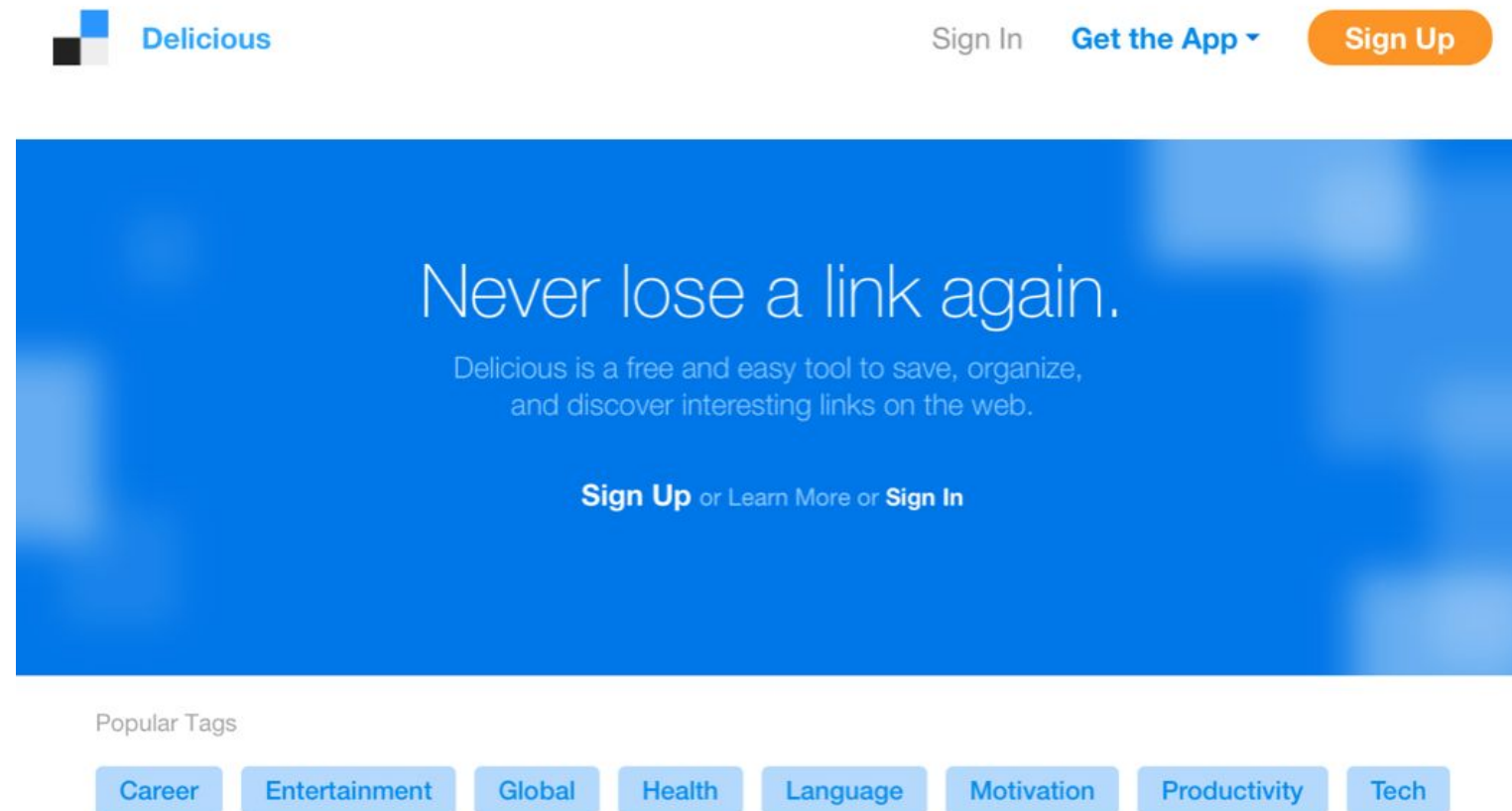
Weblog, Blog

> *Definition:* A collection of chronologically (backwards) ordered, regularly added contributions to an umbrella topic.
> (adapted from Ebner/Baumann/Krcmar)

- Technical view:
  - Simple content management system, often push notifications (RSS feed)
- History:
  - First online diary by Simon Gisler 1994 (according to Wikipedia)
  - John Barger 1997: Term "Weblog"; Term "Blog" since 1999 (Peter Merholz)
  - Huge popularity since 2002
- Platforms: e.g. wordpress.com, blogger.com
  - Links point to individual contribution and are permanent ("permalinks")
- Variants by media type:
  - Vlog, linklog, photoblog, moblog
- Problematic issues:
  - Borderline between advertisement, propaganda, free speech

Blog as an "Oscillation Medium"

- Traditional web sites (including online versions of traditional media):
  - Closed content, mostly internal links
- Bookmark collections:
  - Completely open content, mostly outward links
- *Oscillation media*:
  - Both closed and open
  - Blog comments on a link and contains external links
  - Reader is "oscillating" between open and closed reading
    » Shall I follow the link?
    » Shall I read on?
  - Hypertextuality as a media creation force
  - Invites creation of *User-Generated Content*

From: Eigner/Leitner/Nausner/Schneider: Online-Communities, Weblogs und die soziale Rückeroberung des Netzes, Nausner & Nausner 2003

Blog Search

- Blog search engine
  - Combining information from many blogs
  - Including tagging, rating etc.
  - (Historic) examples: Technorati.com, blogsearch.google.com
  - Variant: Media rating (e.g. Hype Machine)

2012

2014

We use technology and real-time market insights to optimize digital advertising interactions across an expanding high-quality publisher network.

Diversity of Blog Topics
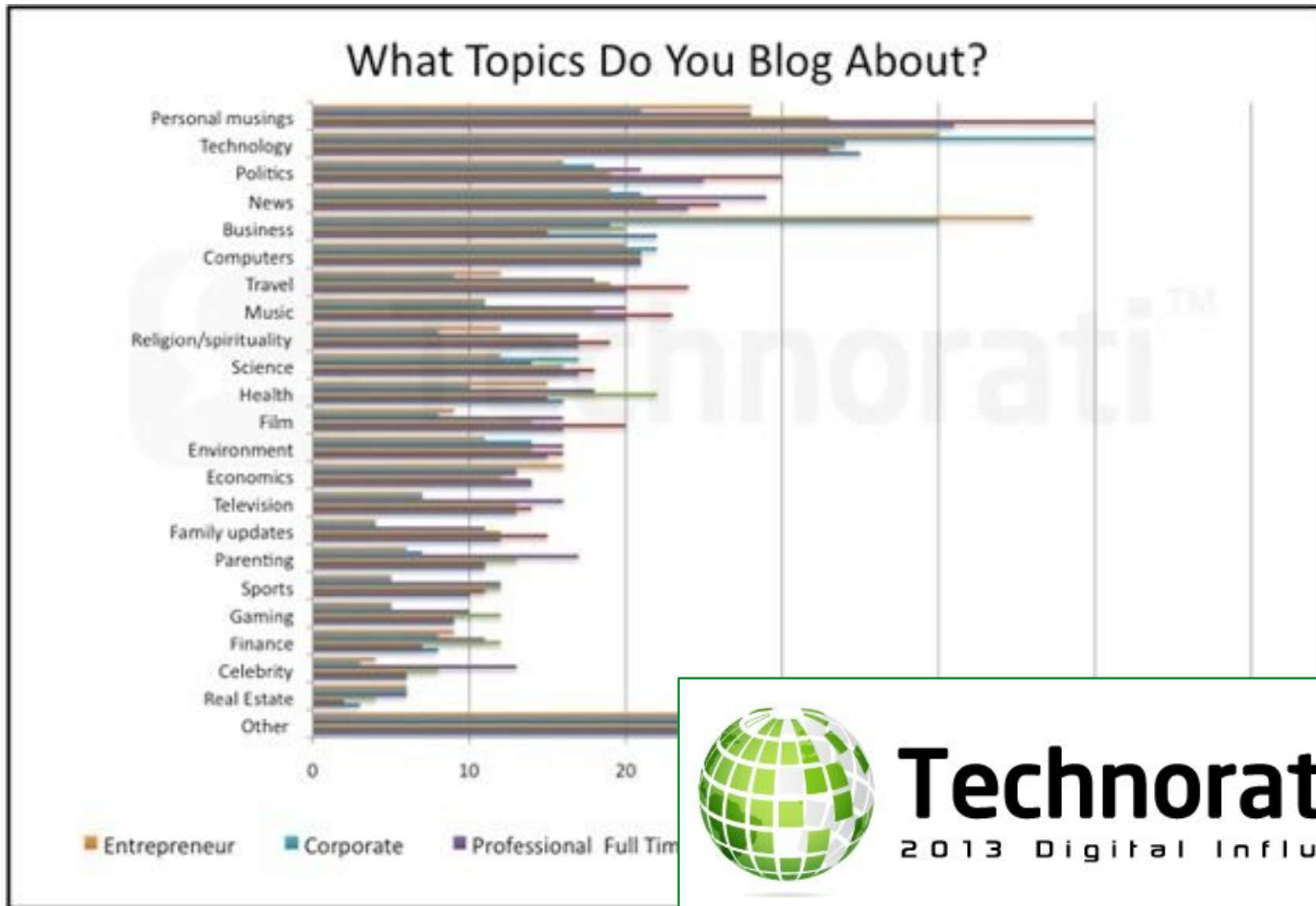
Technorati.com State of the Blogosphere 2011 (last edn.)

Microblogging

April 2005: Term "tumblelog"

- Tumblelog:
  - Relatively unstructured "stream of consciousness"

- Simplified blogging platforms
  - Tumblr (2006)
  - Twitter (2006/2007)

- Microblog:
  - Short text or small media units
  - Often submitted from mobile devices

- Trend towards pictures, video

tout.com
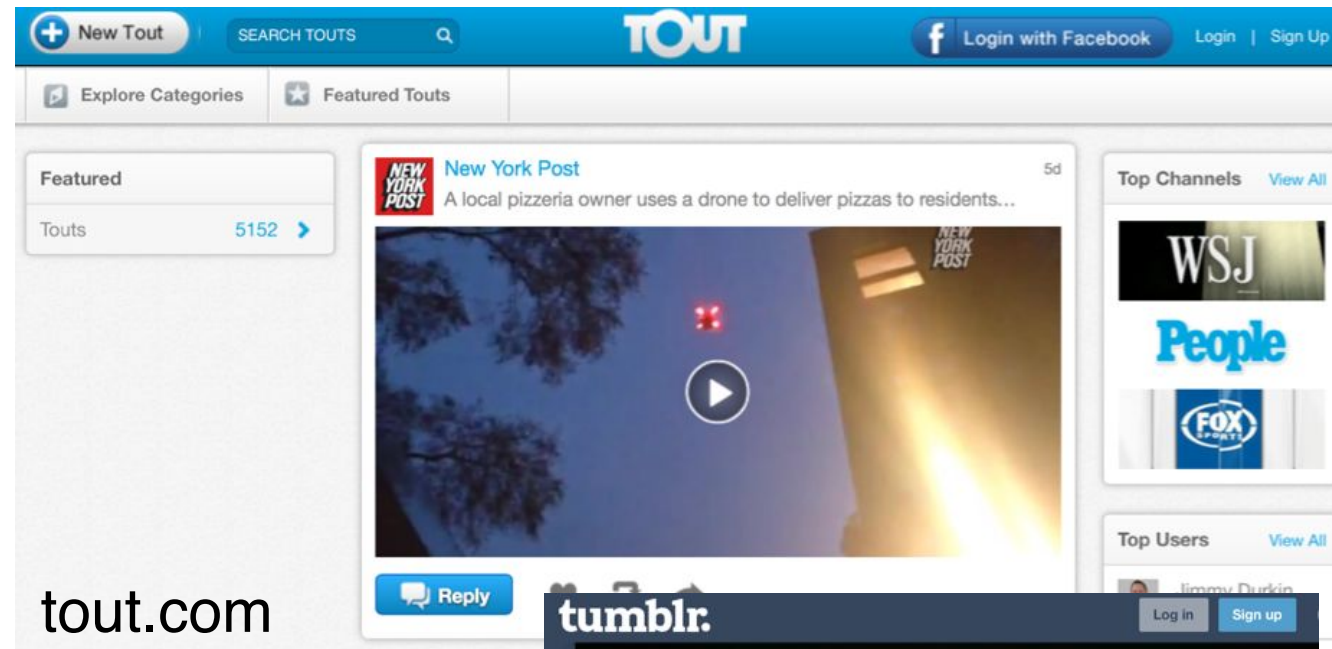
Real Time Media

- ***Everything in the world is now real time.***

- Current main example: Twitter

  - Social analytics built around real-time communication

  - Triggering innovations:

    - » Shorthand URLs

- Other applications

  - Notify manufacturer *immediately* if a certain product is not selling at a certain shop.

  - "Houdini" system used by Obama campaigners

Location-Based Services and Communities

- Driven by mobile networked devices like Smartphones
  - Geographical location through satellite navigation, cellular network, WLAN identification, …
- Long-term research topic ("restaurant finder" example)

Suggestions for **Top Picks**   ⇕ TOP PICKS

Show me places ...

☐ I haven't been to   ☐ My friends have been to
☐ I have been to before   ☐ With Foursquare specials

Pommes Boutique
8.6   Amalienstraße 46
1   Fast Food

+2

Die Pommes sind wirklich extrem lecker. Sehr interessant sind zudem die reiche auswahl an verschiedenen dip-möglichkeiten. Gerne wieder - hmm lecker! - Joachim B.

You and 8 friends have been here   🔖 Save   ♥ Like

Cafe Flower
Amalienstraße 33
2   Other - Food

Der Koch/Besitzer des Soul Kitchen ist nun hier zu finden. Wer es schon vermisst hat, nichts wie ab ins Cafe Flower!!! - Alexander D.

A new spot in the neighborhood   🔖 Save   ♥ Like

Zum Koreaner
7.7   Amalienstr. 51
3   Korean · 1 here now

+1

Map labels: RAMBERGSTRASSE, ADALBERTSTRASSE, AKADEMIESTRASSE, ALTEN NÖRDLICHEN FRIEDHOF, SCHNORRSTRASSE, ARCISSTRASSE, ZIEBLANDSTRASSE, BARER STR, BLUTENSTRASSE, TÜRKENSTRASSE, Amalienpassage, SCHELLINGSTRASSE, HESSSTRASSE, Neue Pinakothek, THERESIENSTRASSE, Universität, WALTER-KLINGENBECK-WEG, SCHÖNFELDVO, LUDWIGSTRASSE, AMALIENSTRASSE, Pinakothek der Moderne, Oskar-von-Miller-Ring, ALTSTADTRINGTUNNEL, JÄGERSTRASSE, Bayerisches Staatsministerium der Finanzen

Map markers: 22, 11, 8, 12, 14, 27, 26, 17, 20, 16, 24, 5, 1, 21, 28, 7, 10, 18, 2, 6, 19

Podcasting

- "History": iPod & Broadcasting
  - Discussed since 2000, massive use since 2003
  - Word of the year of the New Oxford American Dictionary 2005
- Media file distributed regularly (paid or unpaid)
  - Subscription or individual download
  - Originally mainly audio
- **_User-Generated Content (UGC)_**:
  - Amateur (audio)podcasts: minimal hardware/software requirements

Context-Sensitive Advertisement

- Important source of revenue in Web 2.0 sites
  - Advertisement precisely targeted at customer

- Market leader: Google AdSense
  - Ad server operated by Google
  - Websites register with Google
    - » Advertisement placed based on analysis of content of page to be shown (Javascript)
    - » Generate revenue per click or per thousand impressions
  - Selection among relevant ads and order of ads by real-time auction
    - » Ads creating highest revenue are shown
    - » Using bid price of advertised and quality score of the ad (e.g. Click-Through-Rate)
    - » Paid price may be lower than the bid (minimal price to keep position on the list)
  - Advertisers arrange fixed budgets in advance

- See: http://www.google.com/adwords/displaynetwork/control-your-costs/pricing.html

Improper Placement of Advertisement

http://img34.imageshack.us/img34/7545/bilddefail.jpg

5   Communities, the Web and Multimedia

5.1 Evolution of the Web

5.2 Social Networks and Social Media

5.3 Web Content Aggregation and Integration

5.4 Virtual Worlds in the Web

5.5 Web of Data and Things

Literature:
R. Yee: Pro Web 2.0 Mashups, Remixing Data and Web Services, Apress 2008

Content Aggregation, Indexing, Curation

- Content aggregation:
  - Combination of content on specific topics from various sources
  - Finding content (indexing), filtering content, publishing combined content
- Indexing:
  - Different types of source (web, blogs, local sources)
- Filtering:
  - Automatic filtering
  - Careful manual selection of content: *Curation*
  - Community-based automatic filtering (voting, tagging, counts)
- Publishing
  - User-configurable content (personal news)
  - Syndication to other online media
  - Basis for non-online media (e.g. print media)

http://emediavitals.com/article/1005/how-publishers-curate-world-content
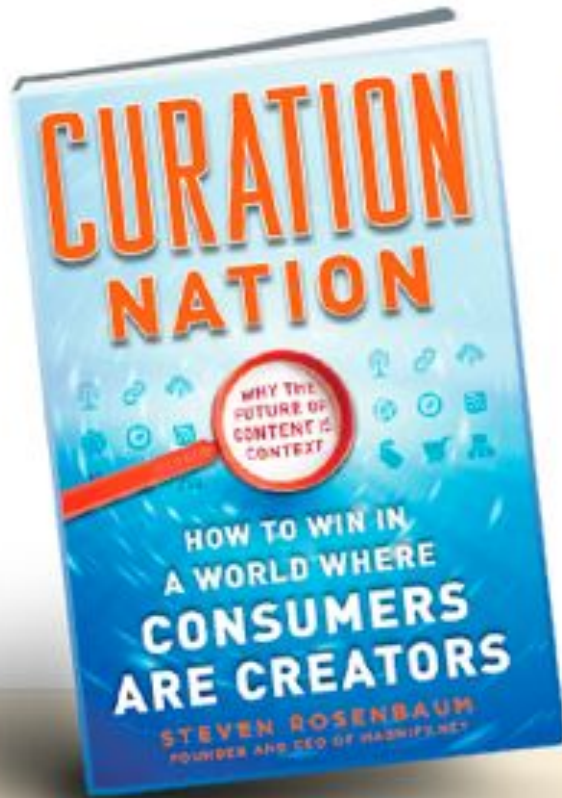
Curation

Steven Rosenbaum's Curation Nation

"With the explosion of content, curation is the next great frontier."

"Curation Nation is a must-read to succeed in this hyper-connected age where community and contribution is of utmost important to creating value and relevancy."

-Shira Lazar,
Creator / Host "What's Trending" CBS News

BUY THE BOOK   amazon.com   800ceoread   BORDERS.   BARNES&NOBLE BOOKSELLERS   BUY IN BULK

curationnation.org
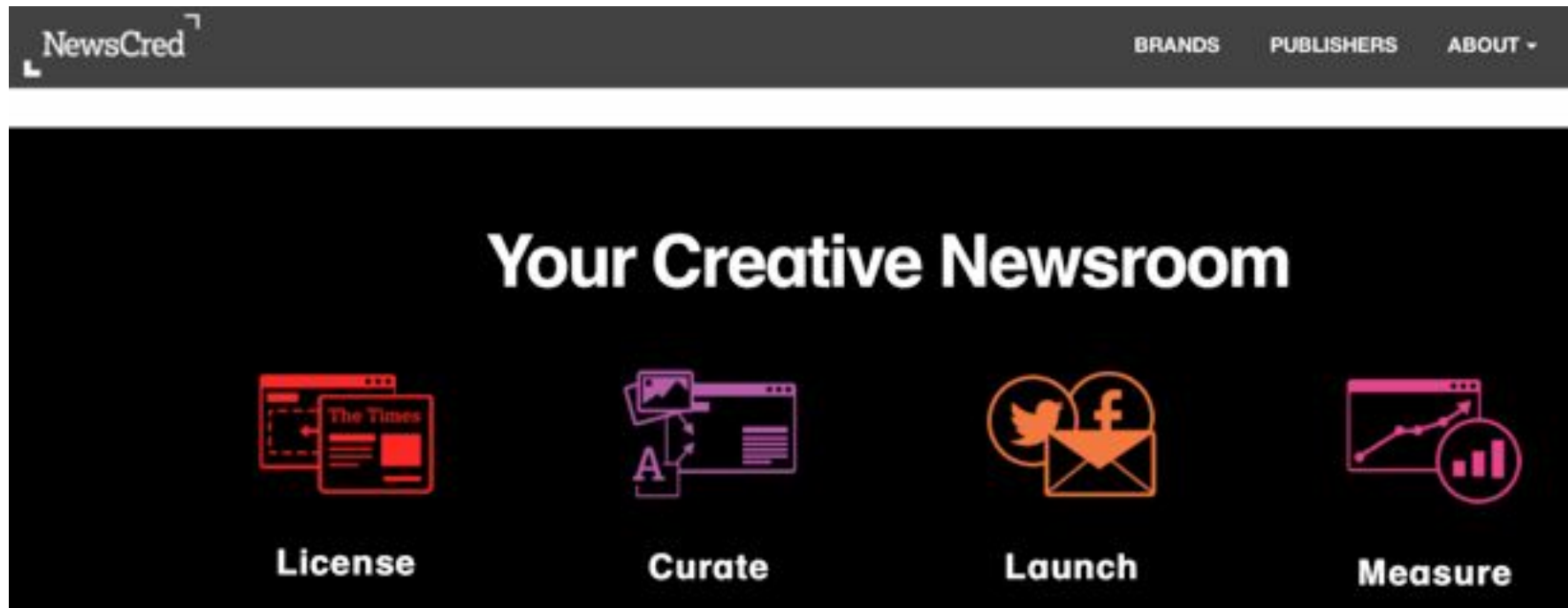
Content Indexing + Automatic Filtering: Examples

hpana.com

News Curation Tools and Services: Examples

newscred.com

storycrawler.com

Video Curation and Aggregation: Example

enterprise.waywire.com
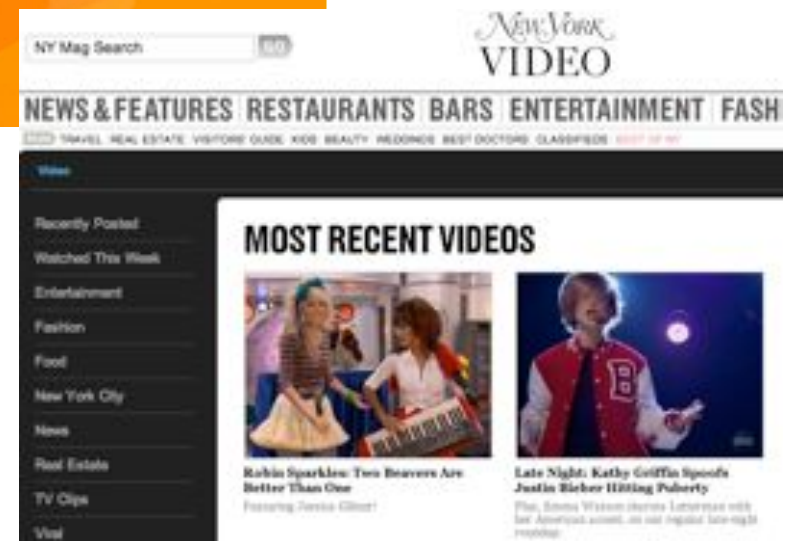
videos.nymag.com

Print Media from Curated Online Content

Dr. Pierce's Modern Cure

by Evan Ratliff

More selections from Issue Zero

In May 2010, we conducted a two-day media experiment. 8,000 people signed up, 1,500 submissions came in, 35 editors selected 70 pieces to fill a 60-page magazine.

People liked it. We broke our distributor's sales records, received positive reviews in The New York Times, PBS, and the Village Voice, and won a Knight-Batten Award for Innovation in Journalism. Here, we present selected work from the print edition of Issue Zero.

48hrmag.com

Mashup

- Application integrating diverse Web content seamlessly
- Presentation screen and layout:
  – May be based on existing Web site
  – May be created specifically
- General architectural principle:
  – Program access (API) to Web service over Internet
- Basic alternatives:
  – Client-side mashup
  – Server-side mashup (more frequent)
- Various technologies for transmission/invocation:
  – REST
  – SOAP
  – XML-RPC

World of Web APIs

See programmable web.com

Web Service APIs

- Example: Flickr API

- Existing methods are grouped in packages

- For each method, allowed parameters are define

- Often a registration key is required which has to service provider

flickr.photos.getInfo

Get information about a photo. The calling user must have permission to view the photo.

Authentication

This method does not require authentication.

Arguments

api_key (Required)
Your API application key. See here for more details.

photo_id (Required)
The id of the photo to get information for.

secret (Optional)
The secret for the photo. If the correct secret is passed then permissions checking is skipped. This enables the 'sharing' of individual photos by passing around the id and secret.

people

- flickr.people.findByEmail
- flickr.people.findByUsername
- flickr.people.getInfo
- flickr.people.getPublicGroups
- flickr.people.getPublicPhotos
- flickr.people.getUploadStatus

photos

- flickr.photos.addTags
- flickr.photos.delete
- flickr.photos.getAllContexts
- flickr.photos.getContactsPhotos
- flickr.photos.getContactsPublicPhotos
- flickr.photos.getContext
- flickr.photos.getCounts
- flickr.photos.getExif
- flickr.photos.getFavorites
- flickr.photos.getInfo
- flickr.photos.getNotInSet
- flickr.photos.getPerms
- flickr.photos.getRecent
- flickr.photos.getSizes
- flickr.photos.getUntagged
- flickr.photos.getWithGeoData
- flickr.photos.getWithoutGeoData
- flickr.photos.recentlyUpdated
- flickr.photos.removeTag
- flickr.photos.search
- flickr.photos.setContentType
- flickr.photos.setDates
- flickr.photos.setMeta
- flickr.photos.setPerms

(excerpt)

REST (Representational State Transfer)

- REST: One method to call a Web Service API

- History:
  - Roy Fielding 2000, Ph.D. thesis

- Main features which made the Web architecture successful:
  - Identification of resources (in most cases by URIs)
  - Manipulation of resources through these representations
  - Stateless operation of server (regarding application state)
  - Hypermedia as base engine

- Applying REST to Web Services:
  - All resources on the server are identified by URI strings
    » API method plus parameters coded in URI
  - Client uses only standard HTTP methods, mainly GET

Example: REST Request/JSON Response

- Request:

```
http://api.flickr.com/services/rest/
?method=flickr.blogs.getList&api_key=8c...93
&format=json
```

- Response:

```
jsonFlickrApi({
    "stat": "ok",
    "blogs": { "blog": [
      {"id": "73",
       "name": "Bloxus test",
       "needspassword": "0",
       "url": "http://remote.bloxus.com/"},
      {"id": "74",
       "name": "Manila Test",
       "needspassword": "1",
       "url": "http://flickrtest1.userland.com/"}]
    }
})
```

http://www.flickr.com/services/api/response.json.html

SOAP and XML-RPC

- Remote procedure call (RPC):
  - Technology to execute a procedure (method) with certain parameter values on a different (remote) computer
  - Various technologies exist (e.g. CORBA, DCOM) outside the Web area

- Web Service Invocation:
  - Invoking a Web Service using Web standards

- SOAP (earlier acronym: Simple Object Access Protocol)
  - XML-based syntax for messaging between applications
  - Independent of transport protocol
  - Web Services are a special application of SOAP
  - W3C standard

- XML-RPC:
  - Similar to SOAP (somehow its predecessor)
  - Transport protocol is HTTP
  - Simpler but limited in functionality

SOAP Example

- From Flickr.com:

```
<s:Envelope
    xmlns:s=http://www.w3.org/2003/05/soap-envelope
    xmlns:xsi=http://www.w3.org/1999/XMLSchema-instance
    xmlns:xsd="http://www.w3.org/1999/XMLSchema">
    <s:Body>
        <x:FlickrRequest xmlns:x="urn:flickr">
            <method>flickr.test.echo</method>
            <name>value</name>
        </x:FlickrRequest>
    </s:Body>
</s:Envelope>
```

- SOAP makes use of XML namespaces

- Relatively high organizational overhead

- Compare equivalent REST request format

```
http://api.flickr.com/services/rest/
?method=flickr.test.echo&name=value
```

XML-RPC Example

- From Flickr.com:

```
<methodCall>
  <methodName>flickr.test.echo</methodName>
  <params>
    <param>
      <value>
        <struct>
          <member>
            <name>name</name>
            <value><string>value</string></value>
          </member>
        </struct>
      </value>
    </param>
  </params>
</methodCall>
```

- Simple structure, deep nesting, also large overhead

Conceptual Difference REST vs. SOAP/XML-RPC

- Tradeoff between
  - diversity of method names and
  - complexity of parameter structure

- Simple classical example
  - Special method name: fib
    - » Call: fib(13)
    - » SOAP style
  - Universal method name: exec
    - » Call: exec(fib, 13)
    - » REST style (GET is universal method name)

- Programs as data structures

API Kits

- Requests are constructed and responses are evaluated within scripts

  – Mostly server-side scripts, e.g. PHP

  – Constructing a request in PHP:
  `$content = file_get_content($url);`

- Simplifying development for specific API:
  API Kits

  – Example: phpflickr.com

  – "Wrapper" around API functions and invocation

  – Direct PHP call to required functionality

  – Response processed and data array returned

    » Example functions:
    `people_findByUsername(), getPhotos()`

ActionScript
- flickr api (docs)
- Flashr
- Flickr API Interfaces REST
- as3 flickr lib

C
- Flickcurl

Cold Fusion
- CFlickr

Common Lisp
- Clickr

cUrl
- Curlr

Delphi
- dFlickr

Java
- flickrj
- jickr

.NET
- Flickr.NET

Objective-C
- ObjectiveFlickr

Perl
- Flickr::API 0.03
- Flickr::Upload 1.06

PHP
- PEAR::Flickr_API
- phpFlickr

PHP5
- Phlickr

Selected(!) API Kits
for Flickr

Python
- Beej's Python Flickr API
- flickr.py

Yahoo Pipes

- Example of a tool (Web application itself) for *data mashup* development:
  - Interactive feed aggregator and manipulator

- Graphical environment to
  - Fetch data from source
  - Extract data
  - Apply filters
  - Apply simple programming tools

heise.de
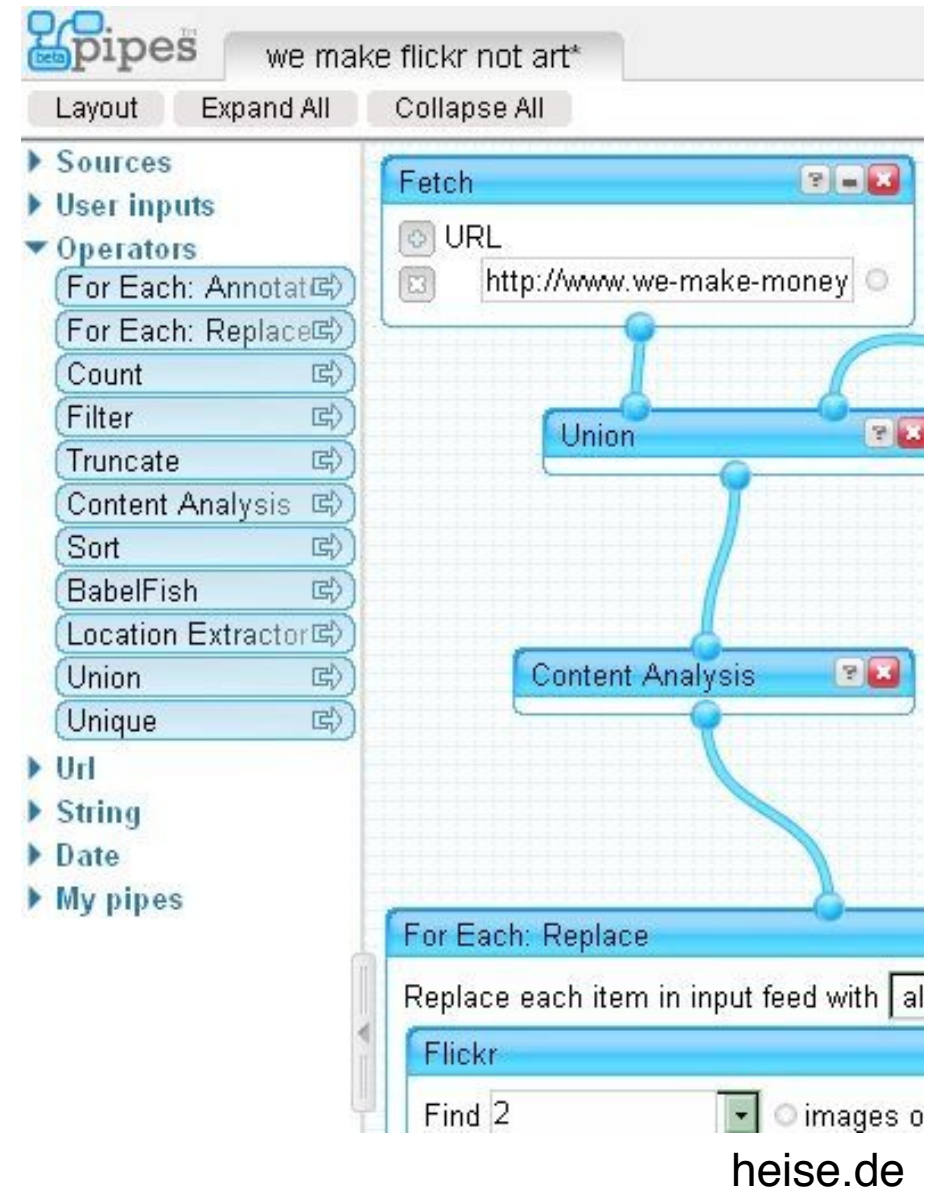
pipes.yahoo.com

HTML5 Geolocation API

- Very simple high-level JavaScript API to deal with geolocation
- Implementation automatically uses best available information source
  - GPS for mobile devices if available
  - GSM/CDMA cell
  - WLAN/Bluetooth/IP data
- Getting a position:
  - `navigator.geolocation.getCurrentPosition`
    `(successCallback, errorCallback)`
- Reading out location and using it in Google Maps:
  - ```
    function showMap(position) {
    // Show a map centered at
        (position.coords.latitude, position.coords.longitude).
    }
    ```
- Supports "one-shot" requests as well as continuous updates

Screenscraping

- Technically the following is possible (*"Screenscraping"*):

  - Send HTTP request from server script to a Web site
    (even if it does not offer a Web Service API)

  - Analyze the returned HTML code

  - Proceed depending on the result

- The script simulates a human person using a Web browser

  - "Web Robot"

  - Frequently used by search engines

- Most Web site providers do not agree with automated access

  - Dangerous in particular in the area of authentication

  - Recommendation:
    Check Terms of Use carefully, or better refrain from Screenscraping

5 Communities, the Web and Multimedia

Virtual Worlds

- Online communities and online games are merging
  - Example World of Warcraft
- Non-Game online communities with virtual world
  - Old idea, see
    - » Gibson: Neuromancer
    - » Stephenson: Snow Crash
  - Was tried several times, but this time a bit more successful...
- Secondlife.com
  - Created and run by Linden Labs
  - Sixteen million accounts (2009)
  - One million reular users (2014)
  - Full virtual environment, avatars, extensive creative tools
- Other virtual worlds, e.g.
  - habbo.com

Example: Habbo.de

Second Life

Images: Wikipedia

Second Life and Business

- Large companies are/were using Second Life
  - For meetings, conferences, customer care
  - As sales channel

francisanderson.wordpress.com
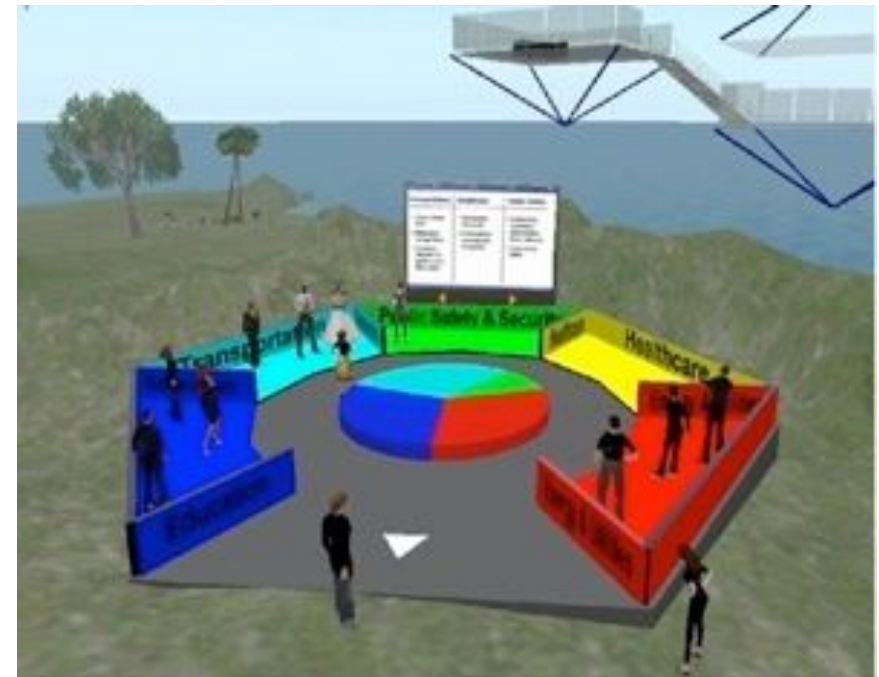
IBM Conferences, using Opinionator

https://www.ibm.com/developerworks/opensource/library/os-social-secondlife/

5 Communities, the Web and Multimedia

5.1 Evolution of the Web

5.2 Social Networks and Social Media

5.3 Web Content Aggregation and Integration

5.4 Virtual Worlds in the Web

5.5 Web of Data and Things

Literature:

T. O'Reilly, J. Battelle: Web Squared: Web 2.0 Five Years On
(www.web2summit.com/websquared – 2009)

Web 2.0 Five Years On:
Web Squared

- Smartphones and wearables:
  - Collective intelligence
  - Driven by sensors
  - Talking to the Web (Hello Google, Siri)
  - Information shadows, Internet of Things: Web meets World
  - Geo-tagging of pictures (GPS in camera)
  - Face recognition in photo archive
  - Object recognition via smartphone
- Key competency of the Web 2.0 era: Discovering *implied metadata*

Nikon Android camera

Sir Timothy John Berners-Lee, Again

https://www.youtube.com/watch?v=OM6XIICm_qo