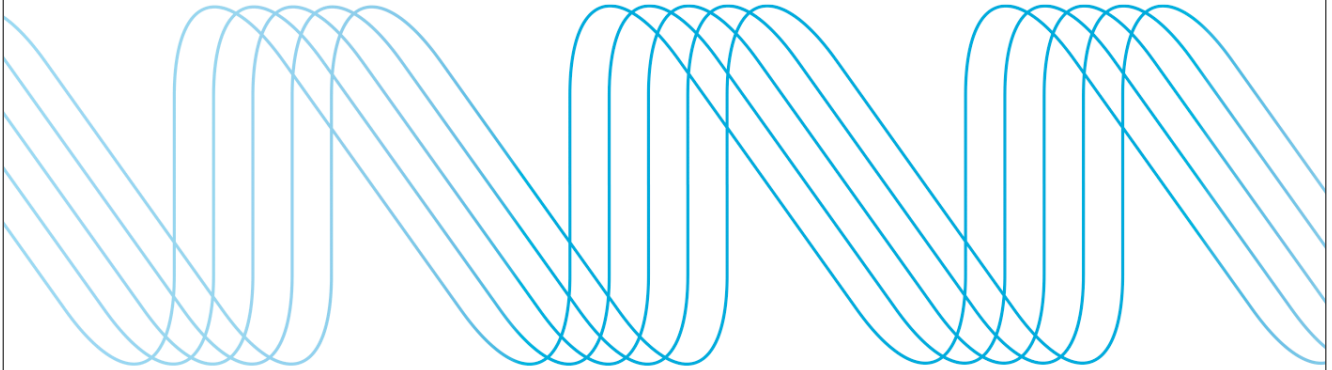


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## Maximising Online Resource Effectiveness



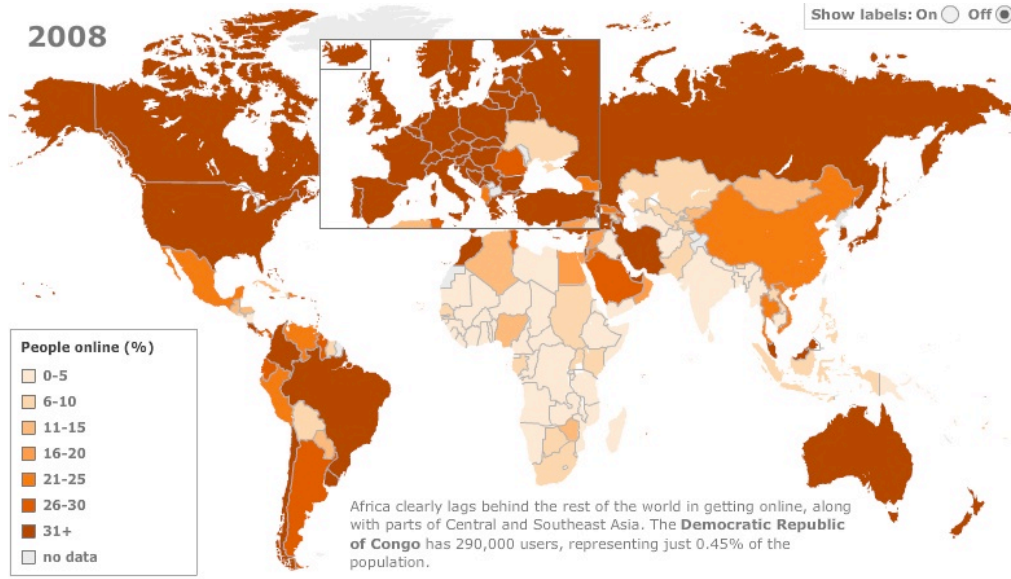
Session 2  
Backdrop—what's going on

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### Subtopics

- Accelerating increase in internet spread and number of users worldwide
- Technical advances enabling virtual compute servers with new possibilities for services
- Cloud computing and related software as a service offerings enabling every internet user to share data
- Devices also gathering and sharing data
- Mind boggling amount of available data
- New interfaces and data manipulation strategies needed
- Implications for how data is compiled and stored

## Internet spread



<http://news.bbc.co.uk/2/hi/technology/8552410.stm>

## Internet usage statistics

### The internet big picture

Miniwatts Marketing Group (using data from Nielsen Online, International Telecommunications Union, and GfK)

31 March 2011

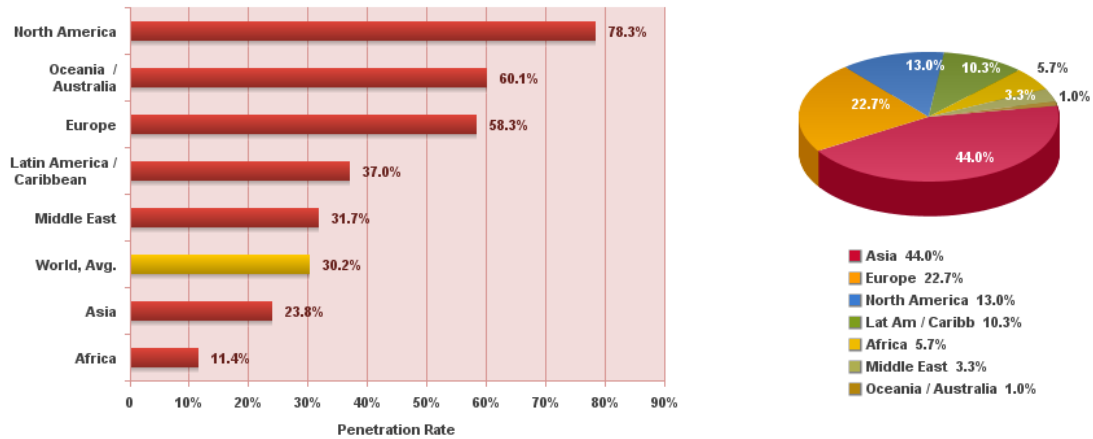
WORLD INTERNET USAGE AND POPULATION STATISTICS						
World Regions	Population (2011 Est.)	Internet Users Dec. 31, 2000	Internet Users Mar. 31, 2011	Penetration (% Population)	Growth 2000-2011	Users % of Table
<a href="#">Africa</a>	1,037,524,058	4,514,400	118,609,620	11.4 %	2,527.4 %	5.7 %
<a href="#">Asia</a>	3,879,740,877	114,304,000	922,329,554	23.8 %	706.9 %	44.0 %
<a href="#">Europe</a>	816,426,346	105,096,093	476,213,935	58.3 %	353.1 %	22.7 %
<a href="#">Middle East</a>	216,258,843	3,284,800	68,553,666	31.7 %	1,987.0 %	3.3 %
<a href="#">North America</a>	347,394,870	108,096,800	272,066,000	78.3 %	151.7 %	13.0 %
<a href="#">Latin America/Carib.</a>	597,283,165	18,068,919	215,939,400	36.2 %	1,037.4 %	10.3 %
<a href="#">Oceania / Australia</a>	35,426,995	7,620,480	21,293,830	60.1 %	179.4 %	1.0 %
<b>WORLD TOTAL</b>	6,930,055,154	360,985,492	2,095,006,005	30.2 %	480.4 %	100.0 %

# Internet usage statistics

## The internet by region

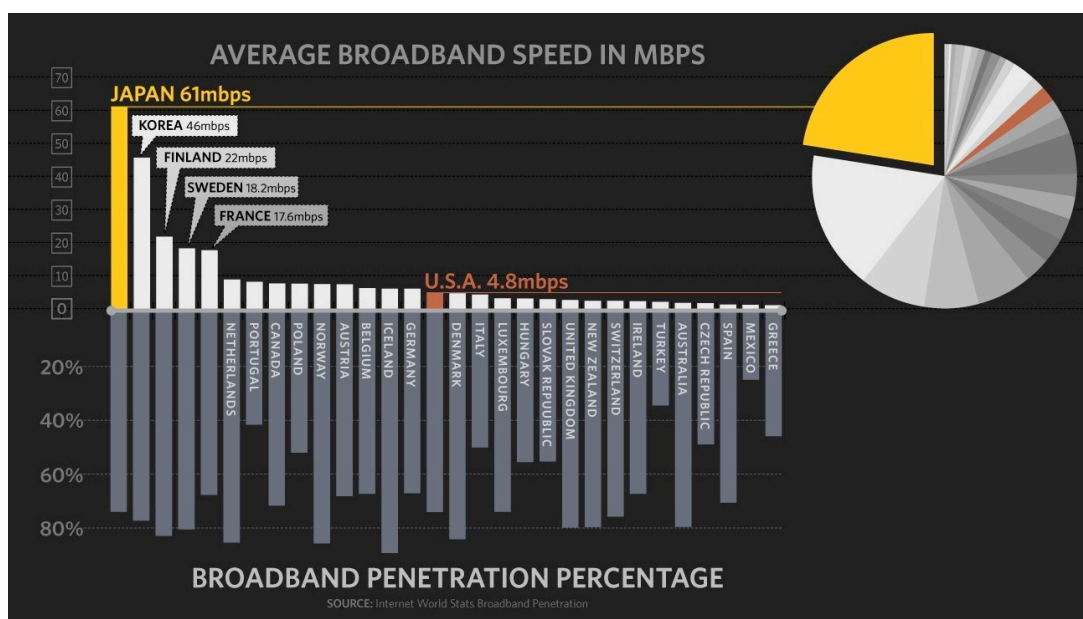
Miniwatts Marketing Group (using data from Nielsen Online, International Telecommunications Union, and GfK)

31 March 2011



<http://www.internetworldstats.com/stats.htm>

# Connection costs and population take up



<http://www.itif.org/media/explaining-international-broadband-leadership>

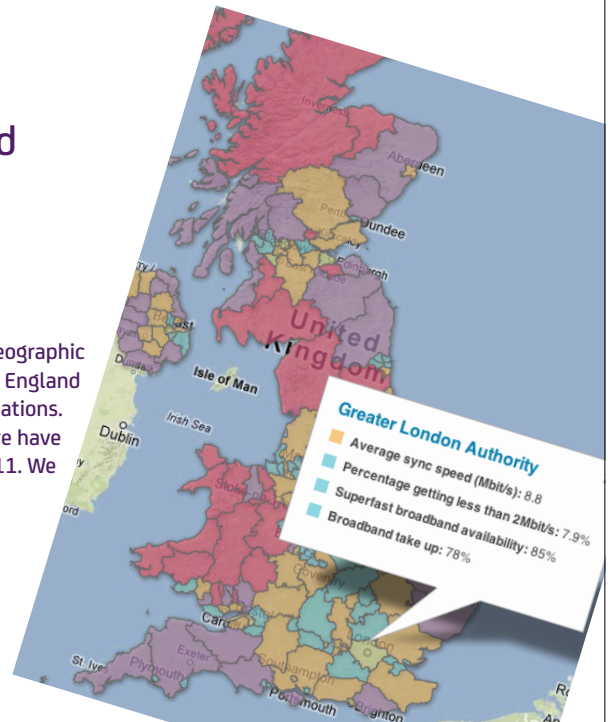
## UK broadband

### Ofcom—-independent regulator and competition authority for the UK communications industries

Update, 15 March 2012

Ofcom has published some of the 2011 data at a more detailed geographic level. This data is presented by Local Authority District and covers England only; there is no equivalent administrative level for the other UK nations. We have excluded superfast broadband from this data set, as there have been significant changes since this data was gathered in early 2011. We intend to update all our broadband speeds data later this year.

<http://maps.ofcom.org.uk/broadband/>



## “Leap frog technology”

### Bigger, better broadband

Michael Moyer, February 2010 Scientific American Magazine

At the turn of the millennium, the U.S. had some of the best broadband access in the world. It reached more homes, and at a lower price, than most every other industrial country.

Today about 51 percent of U.S. households have broadband access, and those that do pay roughly \$45 per month. Contrast that with South Korea, where 94 percent of households browse the Web at \$37 per month (and at download speeds on average eight times quicker)...



<http://www.scientificamerican.com/article.cfm?id=bigger-better-broadband>



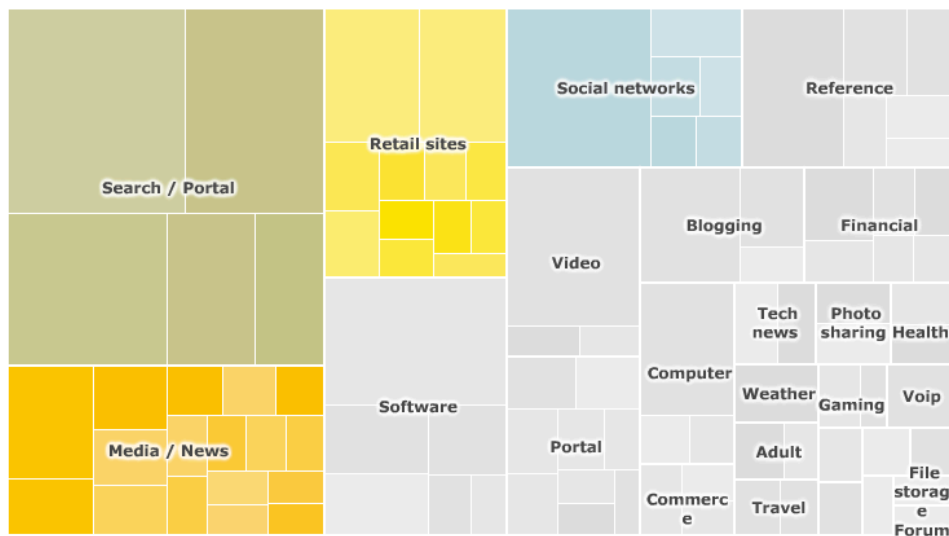
# What's happening today

## Society & Media

<b>482,686</b>	New book titles published this year
<b>347,036,023</b>	Newspapers circulated today
<b>483,947</b>	TV sets sold worldwide today
<b>3,575,273</b>	Cellular phones sold today
<b>121,592,275</b>	Money spent on videogames in the world today (US\$)
<b>2,172,656,286</b>	Internet users in the world
<b>237,460,872,429</b>	Email messages sent today
<b>2,770,158</b>	Blog posts today
<b>113,046,042</b>	Tweets sent today
<b>2,447,110,844</b>	Google searches today

<http://www.worldometers.info/>

# Top 100 web sites



<http://news.bbc.co.uk/2/hi/technology/8562801.stm>

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## YouTube videos

13 hours of video uploaded every  
minute every day...



<http://www.brandinfiltration.com/dailygrind/2010/07/18/what-the-fk-is-social-media-now/>

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## 420 years to watch every YouTube video



<http://www.brandinfiltration.com/dailygrind/2010/07/18/what-the-fk-is-social-media-now/>

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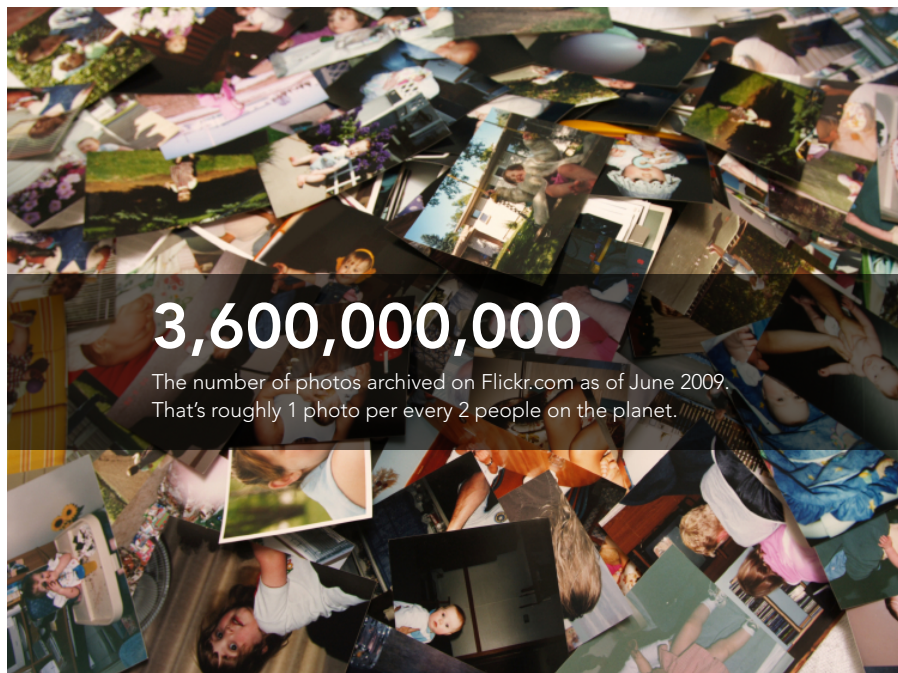
## 100 million YouTube videos viewed daily



<http://www.brandinfiltration.com/dailygrind/2010/07/18/what-the-fk-is-social-media-now/>

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## Photographic data



<http://www.brandinfiltration.com/dailygrind/2010/07/18/what-the-fk-is-social-media-now/>

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## Facebook addicts

# 5,000,000,000

The number of minutes spent on Facebook each day.



<http://www.brandinfiltration.com/dailygrind/2010/07/18/what-the-fk-is-social-media-now/>

---

## Data generated by everyone

# 1,000,000,000

The amount of content  
(web links,  
news stories,  
blog posts,  
notes,  
photos,  
etc.)  
shared each week  
on Facebook.



<http://www.brandinfiltration.com/dailygrind/2010/07/18/what-the-fk-is-social-media-now/>

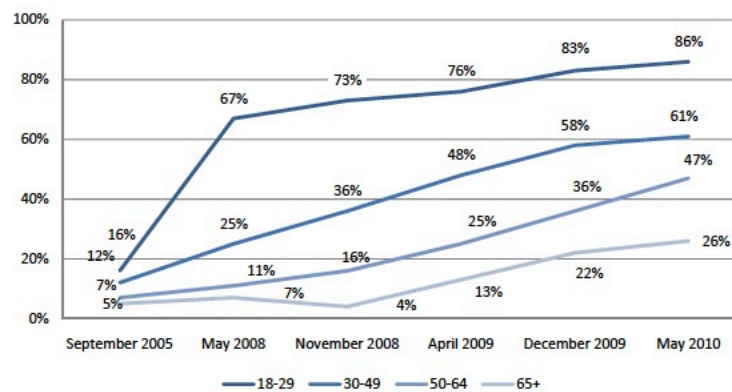


## Age related internet usage

### Users over 50 double social networking use in a year

Jack Marshall, September 2010

A research report titled "Older Adults and Social Media," based on telephone interviews with over 2,250 respondents aged over 50 in April and May this year, found that 42 percent of users in that age group claimed to make use of services such as Facebook and Twitter, compared with 22 percent that claimed to do so in April 2009. Among that group, users aged 65 and over demonstrated the most significant growth, with twice as many using social networks in 2010 than in 2009.



<http://www.clickz.com/clickz/stats/1731723/users-over-double-social-networking-use-year>

## Data and information

### Part of the daily American diet, 34 Gigabytes of data

Nick Bilton, December 2009

The average American consumes about 34 Gigabytes of data and information each day—an increase of about 350 percent over nearly three decades—according to a report published Wednesday by researchers at the University of California, San Diego.

According to calculations in the report, that daily information diet includes about 100,000 words, both those read in print and on the Web as well as those heard on television and the radio. By comparison, Tolstoy's "War and Peace" contains about 460,000 words.

[http://www.nytimes.com/2009/12/10/technology/10data.html?\\_r=4&partner=rss&emc=rss](http://www.nytimes.com/2009/12/10/technology/10data.html?_r=4&partner=rss&emc=rss)

## Open University recommendations

Our collective challenge

Transforming information into meaningful knowledge



<http://www.jisc.ac.uk/media/documents/events/2010/04/presentations/openingkeynote.pdf>

## Visualisation of lots of data



[http://www.ted.com/talks/gary\\_flake\\_is\\_pivot\\_a\\_turning\\_point\\_for\\_web\\_exploration.html](http://www.ted.com/talks/gary_flake_is_pivot_a_turning_point_for_web_exploration.html)



## A powerful platform

### Cloud computing

Fergus Gloster, former SVP Salesforce.com

Cloud computing is a fairly new metaphor to describe the internet and the way we interact with it. What you don't see in the "cloud" is the complex infrastructure that keeps everything running, but what you do get are powerful IT solutions and technologies that can be harnessed by people without requiring the specialised knowledge of how they work. This approach has taken the complexity out of the system, freeing people to get on with the task at hand.



<http://www.youtube.com/watch?v=E1qsz6vzNs0>

## Data shifting capability



<http://www.youtube.com/watch?v=6ILQrUrEwE8>

## Cloud computing and software as a service

### Web-based software from 37signals

#### 37signals believe:

- Useful is forever. Bells and whistles wear off, but usefulness never does.
- Our customers are our investors. We answer to them, not investors or the stock market.
- Clarity is king. No buzzwords, lingo, and sensationalized marketing-speak.
- Great service matters. We're known for fast, concise, and friendly customer service and support. We work hard to make sure we live up to that reputation every day.
- Contracts suck. No one likes being locked into something for a year or two or more. We never lock anyone in. Our customers can cancel at any time, no questions asked (and we never charge a setup or termination fee).
- Business software should be affordable. Some business software costs tens of thousands of dollars a year. That's obscene. Our products start at \$12/month and our most expensive plans are \$149/month for unlimited users.
- Software that requires training is failed software. Our products are intuitive. You'll pick them up in seconds or minutes, not hours, days or weeks. We don't sell training—no need!
- The basics are beautiful. We'll never overlook what really matters: great service, ease of use, honest pricing, respect for our customer's time, money, and trust.



<http://37signals.com/>

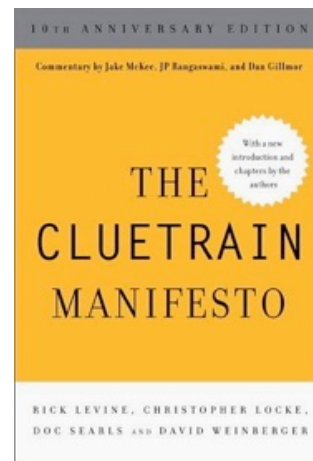
## A changing business world

### The cluetrain manifesto

Chris Locke, Doc Searls, David Weinberger and Rick Levine,  
April 1999

Online Markets... networked markets are beginning to self-organize faster than the companies that have traditionally served them. Thanks to the web, markets are becoming better informed, smarter, and more demanding of qualities missing from most business organizations.

*“When you think of the Internet, don’t think of Mack trucks full of widgets destined for distributorships, whizzing by countless billboards. Think of a table for two.”*



<http://cluetrain.com/>

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## New perspectives

### David Weinberger

#### Social learning

The internet is not primarily an information resource.  
It's a form of connection.



[http://www.youtube.com/results?search\\_query=David+Weinberger&aq=f](http://www.youtube.com/results?search_query=David+Weinberger&aq=f)

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## Marketing turned on its head

### To tweet or not to tweet?

Treena Clarke, Head of Marketing at Harbinson Mulholland Accountants, Harbinson Mulholland Correspondent, September 2010

Then came the emergence of social media and marketing was turned on its head forever. Businesses are now able to interact and participate in online communities full to bursting with potential customers actively wanting to share opinions and perspectives with each other.

Issue 13

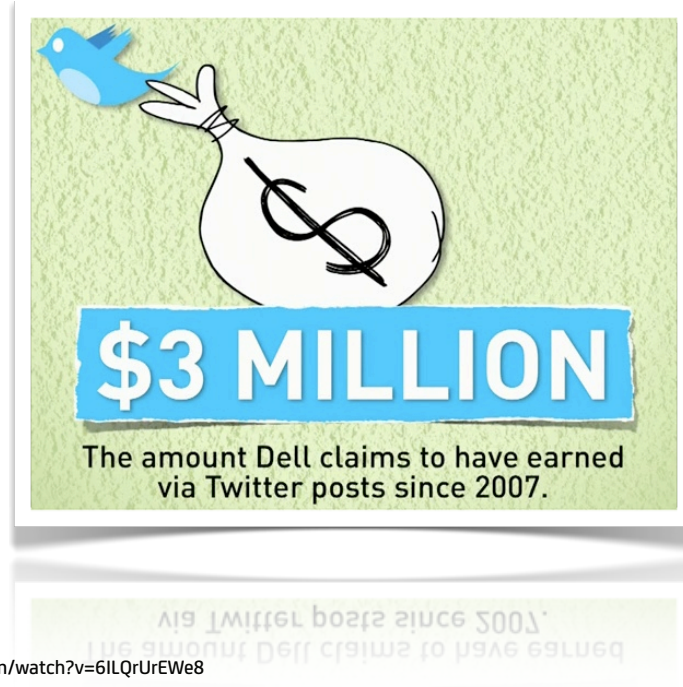
September 10

**hm**  
correspondent  
Harbinson Mulholland Client Newsletter

<http://www.harbinson-mulholland.com/>

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## Revenue from social networking



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## Seeking investment

### Software company completes fundraising using only LinkedIn

Gordon Smith, The Irish Times, Friday, 22 January, 2010

GOSHIDO, A Limerick company which has developed software for managing projects, has completed a private fundraising round using only the social networking website LinkedIn.

According to executive chairman Frank Hannigan, the company is selling off 10 slots to investors at €25,000 each equivalent to a 2 per cent stake in the company. Seven hundred e-mails were sent to potential investors through LinkedIn earlier this month, generating 200 replies by phone, e-mail and Twitter. The company raised €162,500 in just eight days.



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## Other reasons for using social networking sites

### How twitter is changing our lives

Mary Gazze, CTV.ca News Staff, January 2010

If you weren't one of the hundreds of thousands of people who jumped on the twitter bandwagon this year, you might be missing out. Even if you don't want to know what your friends had for breakfast, users and experts say twitter has changed our lives this year.

And if making new friends isn't for you and if you don't care about getting messages directly from celebs, politicians or companies, tech experts say you are robbing yourself by not taking part in a medium that keeps people informed about world events and even giving us a peek inside countries that are closed to the Western world.



[http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20091218/holiday\\_twitter\\_100101/20100101](http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20091218/holiday_twitter_100101/20100101)

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## The ubiquity of social networking

### Gel conference presentation

Improv Everywhere, May 2011

At the recent conference in New York, speaker John Reynolds is suddenly interrupted by a man who refuses to turn off his cell phone.

People want to share!



<http://www.youtube.com/watch?v=soAk3F0wX9s>

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## Connectivity, collaboration, transparency

### Open science: a future shaped by shared experience

**Bobbie Johnson, The Observer, Sunday 22 May 2011**

The first and most powerful change has been the use of the web to connect people and collect information. The internet, now an indelible part of our lives, allows like-minded individuals to seek one another out and share vast amounts of raw data. Researchers can lay claim to an idea not by publishing first in a journal (a process that can take many months) but by sharing their work online in an instant.

Real science is a slow, expensive process that has been hewn into shape over centuries of experimentation, false starts and the occasional success... But open scientists suggest that it doesn't have to be that way. Their arguments are propelled by a number of different factors that are making transparency more viable than ever.



<http://www.guardian.co.uk/education/2011/may/22/open-science-shared-research-internet>

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## Democratisation of science

### Synthetic biology and the rise of the 'spider-goats'

**Adam Rutherford, The Guardian, 14 January 2012**

Genes have evolved over millions of years to bestow survival on their hosts by having very specific functions. By standardising these genetic elements in an online registry, anyone can piece them together in any order to create biological circuits with entirely designed purpose. Even the language used is more the stuff of electrical engineering than traditional biology.

Over the last few years, BioBricks has grown into a global phenomenon.

*The Registry of Standard Biological Parts currently contains thousands of bits of DNA, all freely available, and this democratisation of science is built into the BioBricks ethos.*



<http://www.guardian.co.uk/science/2012/jan/14/synthetic-biology-spider-goat-genetics> [http://partsregistry.org/Main\\_Page](http://partsregistry.org/Main_Page)



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## Citizen participation in scientific research

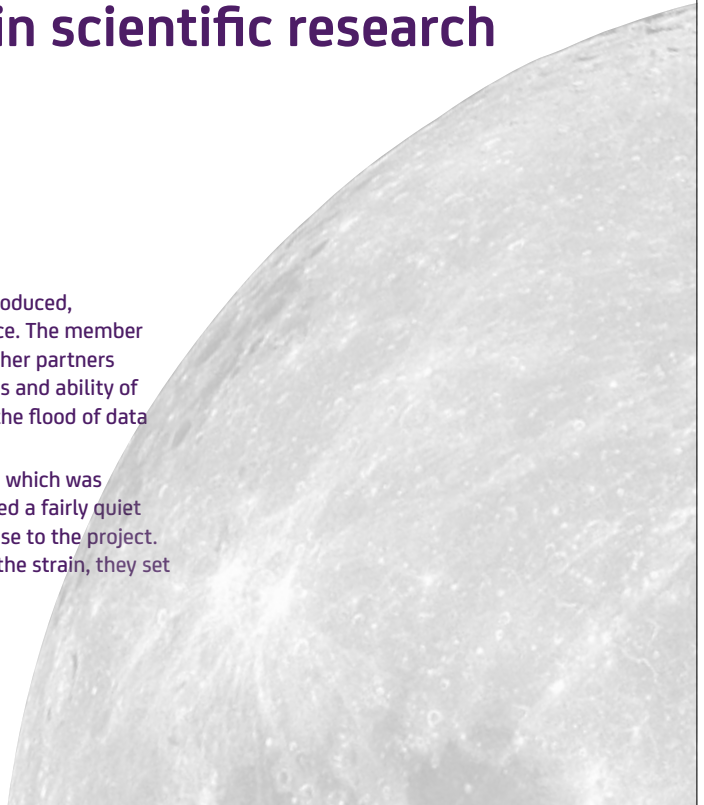
### ZOONIVERSE

#### Real science online

The Zooniverse and the suite of projects it contains is produced, maintained and developed by the Citizen Science Alliance. The member institutions of the CSA work with many academic and other partners around the world to produce projects that use the efforts and ability of volunteers to help scientists and researchers deal with the flood of data that confronts them.

The Zooniverse began with a single project, Galaxy Zoo , which was launched in July 2007. The Galaxy Zoo team had expected a fairly quiet life, but were overwhelmed and overawed by the response to the project. Once they'd recovered from their server buckling under the strain, they set about planning the future!

<https://www.zooniverse.org/projects>



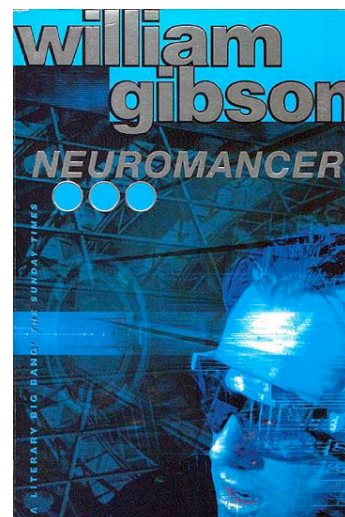
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## Science or science fiction

**“The future is already here. It’s just not very evenly distributed.”**

#### William Gibson

Interview by Brooke Gladstone, with Anne Simon and David Brin on NPR’s “Talk of the Nation” radio show, November 30, 1999.



<http://www.npr.org/templates/story/story.php?storyId=1067220>

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## The internet of things

### A smarter planet

IBMSocialMedia, featuring Mike Wing, Andy Stanford-Clark and John Tolva, IBM

Over the past century but accelerating over the past couple of decades, we have seen the emergence of a kind of global data field. The planet itself—natural systems, human systems, physical objects—have always generated an enormous amount of data, but we didn't used to be able to hear it, to see it, to capture it. Now we can because all of this stuff is now instrumented. And its all interconnected, so now we can actually have access to it. So, in effect, the planet has grown a central nervous system.

Look at that complex set of relationships among all of these complex systems. If we can actually begin to see the patterns in the data, then we have a much better chance of getting our arms around this. Thats where societies become more efficient, thats where more innovation is sparked.



[http://www.youtube.com/watch?v=sfEbMV295Kk&feature=player\\_embedded](http://www.youtube.com/watch?v=sfEbMV295Kk&feature=player_embedded)

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## Structured data

### Computable web data?

- Wolfram|Alpha uses its own carefully "curated" data which provides a framework for exceptionally intelligent "searches".
- If a similar framework of linked data existed within the web then searches may begin to approach the power of Wolfram's performance.



<http://www.wolframalpha.com/screencast/introducingwolframalpha.html>

What is the weather in Toronto in April

About 12,300

# Google compared to Wolfram Alpha

- Toronto in April** - what to expect when you travel to Toronto in April in terms of weather and events.  
[gocanada.about.com/od/canadiancities1/p/apriltoronto.htm](http://gocanada.about.com/od/canadiancities1/p/apriltoronto.htm) - Cached - Similar

**Canada in April - Canada in April Weather and Event Guide** - 6:25pm  
 A guide to visiting Canada in April. What kind of weather to expect, what to ...  
[gocanada.about.com/od/canadatravelplanner/.../japrilcanada.htm](http://gocanada.about.com/od/canadatravelplanner/.../japrilcanada.htm) - Cached - Similar

**Toronto in March - Weather and Event Guide for Toronto in March** - 6:25pm  
 Toronto in February | Toronto in April | March Weather in Toronto. March ...  
[gocanada.about.com/od/.../marchtoronto.htm](http://gocanada.about.com/od/.../marchtoronto.htm) - Cached - Similar

**Toronto Weather** - Current and forecast for Toronto, Ontario, Canada. Toronto weather averages, ...  
[www.tripadvisor.co.uk/.../toronto-weather-averages](http://www.tripadvisor.co.uk/.../toronto-weather-averages)

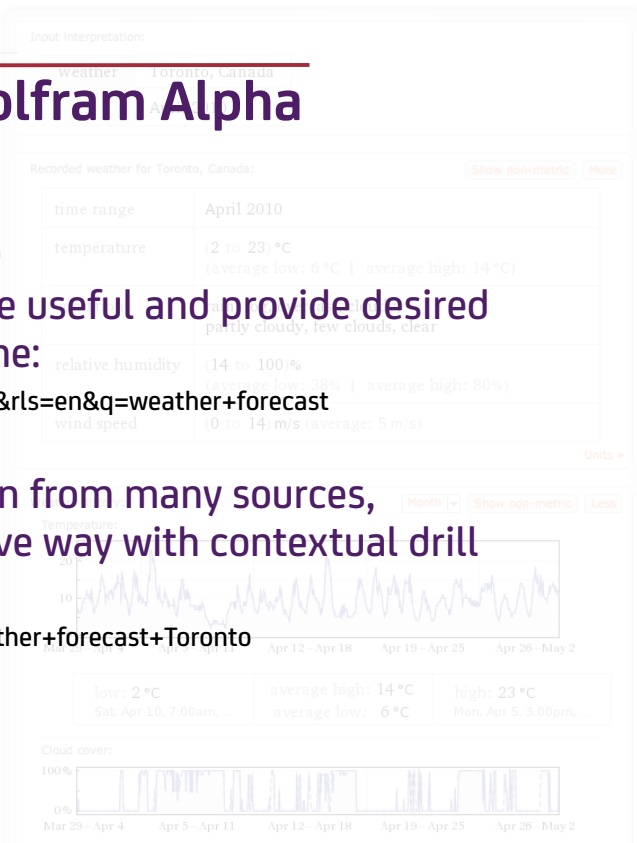
**Toronto Weather** - View Toronto weather forecasts, Toronto weather averages, ...  
 April, 52.7 °F, 33.1 °F, 2.50 in, May, 65.1 °F, 43.0 °F, 2.60 in  
[weather.yahoo.com/.../toronto-weather-averages](http://weather.yahoo.com/.../toronto-weather-averages)

**Weather forecast in Toronto, Ontario, Canada**  
 Average Weather in Toronto, Ontario, Canada. Warmest day temperature in Celsius.  
[www.weatherforecast.com/compare/toronto-weather](http://www.weatherforecast.com/compare/toronto-weather)

**Toronto Weather Forecast: Climate, What to Expect, Weather in Toronto**  
 Toronto Weather Forecast: Climate, What to Expect, Weather in Toronto ...  
[www.toronto-world-guides.com/toronto\\_weather.html](http://www.toronto-world-guides.com/toronto_weather.html) - Cached - Similar

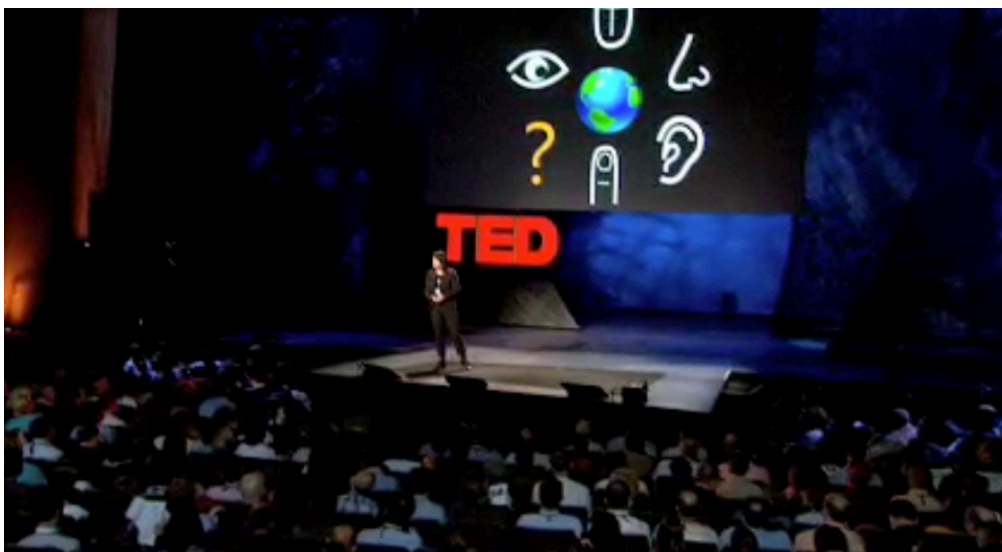
**Travel: Toronto, Canada - The Weather Network**  
 Get travel information about Toronto, Canada to help prepare for your ... Eastern Daylight Time (EDT), which is observed from the first Sunday in April to the last Sunday in ... Toronto weather stats. Time Zone: Eastern Time. Language: ...  
[www.theweathernetwork.com/index.php?product...](http://www.theweathernetwork.com/index.php?product...) - Cached - Similar

**2011 Long-Range Weather Forecast for Toronto, Ontario**  
 2011 Long-Range Weather Forecast for Toronto, Ontario. Summer Cast | Check out  
<http://www.wolframalpha.com/tour1.html>



<http://www.wolframalpha.com/tour1.html>

## Better interaction with the *information cloud*



[http://www.ted.com/talks/pattie\\_maes\\_demos\\_the\\_sixth\\_sense.html](http://www.ted.com/talks/pattie_maes_demos_the_sixth_sense.html)

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## Or perhaps...



[http://www.youtube.com/watch\\_popup?v=6Cf7IL\\_eZ38](http://www.youtube.com/watch_popup?v=6Cf7IL_eZ38)

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## Crazy dreams to commonplace reality—fast!



<http://www.wimp.com/dadipad/>



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## There's no slow bike coming



photo: ©GM 2010

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## Practical exercise



In the context of what you have just heard, write down the three most important things that have caught your interest or caused you to take notice, with regard to your work.



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## Things to note

**Internet related developments or features I should know more about**

1.

2.

3.