

# Wisdom of the Crowd in the Era of Social Computing

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# What is my age and weight?



# Examples

- Who Wants to Be a Millionaire?
- Space Shuttle Challenger
- PageRank Algorithm
- Google's Flu Trend
- Wikipedia
- Recommender Systems





The grass is greener on the other side...

**Be inspired!**

Stories and more stories...

**Be informed!**

The devil is in the details...

**Be challenged!**

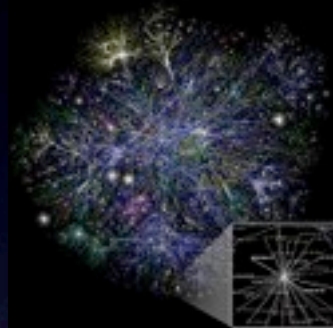
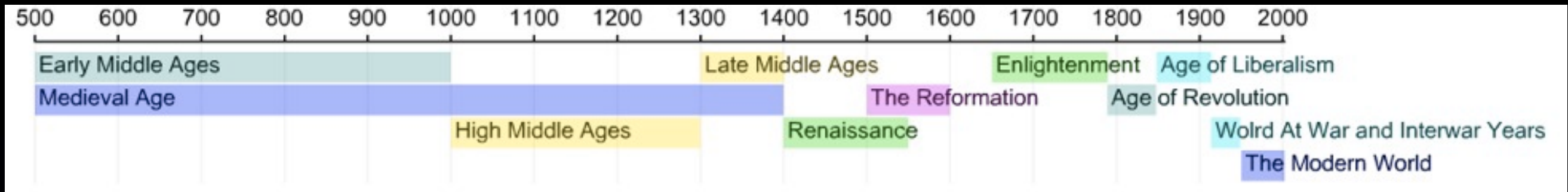




# Today's Menu

- Social Computing in e-Era
- Survey of Human Computation and Crowdsourcing
- Introduction to Game Theory
- Quality Assurance Techniques





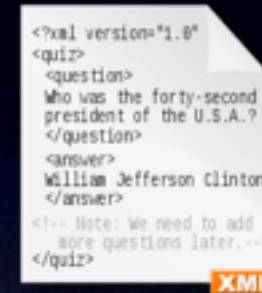
Birth of Internet



IBM Desktop PC



Apple Macintosh



Birth of XML



Time Magazine Person of the Year

1750

1945

1969

1975

1981

1983

1984

1989

1996

2004

2006

**Industrial Revolution**

**Information Age**

**Internet Age**

**www Age**

**Attention/Social Age**

ENIAC



The MITS Altair  
Apple II



Time Magazine Person of the Year



Birth of WWW



Birth of Web 2.0





# O'Reilly's Web 2.0

- The long tail
- Data is the next Intel inside
- Users add value
- Network effects by default
- Some rights reserved
- The perpetual beta
- Cooperate, don't control
- Software above the level of a single device





# O'Reilly's Web 2.0

- The long tail--everyone matters
- Data is the next Intel inside--social information
- Users add value--social monetization
- Network effects by default
- Some rights reserved
- The perpetual beta
- Cooperate, don't control--being organic
- Software above the level of a single device



# Web 2.0

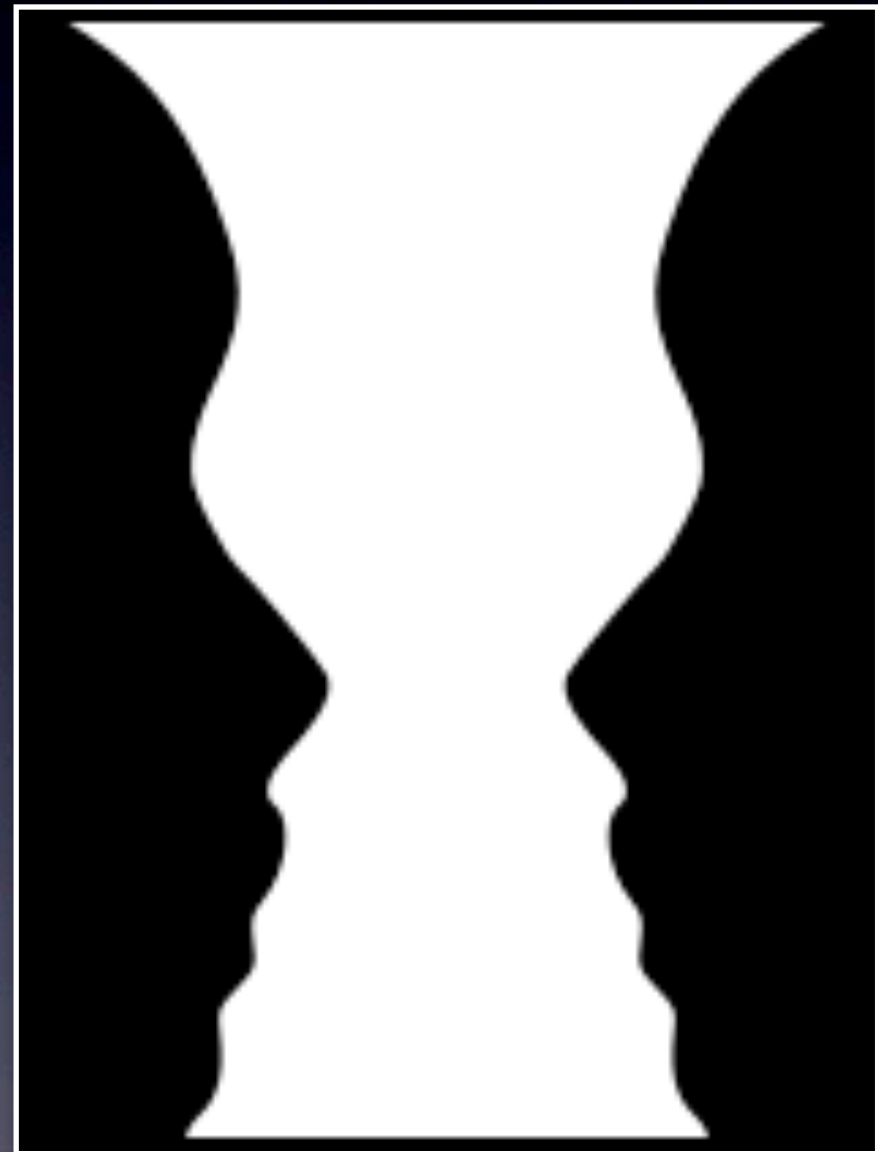
- Web as a medium vs. **Web as a platform**
- Read-Only Web vs. **Read-and-Write Web**
- Static vs. **Dynamic**
- Restrictive vs. **Freedom & Empowerment**
- Technology-centric vs. **User-centric**
- Limited vs. **Rich User Experience**
- Individualistic vs. **Group/Collective Behavior**
- Consumer vs. **Producer**
- Transactional vs. **Relational**
- Top-down vs. **Bottom-up**
- People-to-Machine vs. **People-to-People**
- Search & browse vs. **Publish & Subscribe**
- Closed application vs. **Service-oriented Services**
- Functionality vs. **Utility**
- Data vs. **Value**





# Web 2.0 Revolution

- **Glocalization**-think globally and act locally!
- **Weblication**-Web is the application!
- Three **C**'s
  - **Connectivity**
  - **Collaboration**
  - **Communities**





# Top Ten Most Populated Countries & Facebook



as of September 2012 (Facebook as of October 2012)



# Global Internet Traffic

Alexa as of August 2011	China	USA	Japan	India	Brazil	Global
1	Baidu	Google	Yahoo.jp	Google.in	Google.br	Google
2	<b>QQ</b>	<b>Facebook</b>	Google.jp	Google	Google	<b>Facebook</b>
3	Sina	Yahoo!	<b>FC2</b>	<b>Facebook</b>	<b>Facebook</b>	<b>YouTube</b>
4	Taobao	<b>YouTube</b>	<b>YouTube</b>	<b>YouTube</b>	<b>YouTube</b>	Yahoo!
5	Google.hk	Amazon	Google	Yahoo!	Universo Online	<b>Blogger</b>
6	163	<b>Wikipedia</b>	<b>Ameblo.jp</b>	<b>Blogger</b>	Windows Live	Baidu
7	<b>Weibo</b>	<b>Blogger</b>	rakuten	<b>Wikipedia</b>	Globo	<b>Wikipedia</b>
8	Google	<b>Twitter</b>	<b>livdoor</b>	<b>LinkedIn</b>	<b>Orkut.com.br</b>	Windows Live
9	ifeng	eBay	<b>Facebook</b>	<b>Twitter</b>	Yahoo!	<b>Twitter</b>
10	Yahoo	Craigslist	<b>Wikipedia</b>	Rediff	<b>Orkut.com</b>	<b>QQ</b>



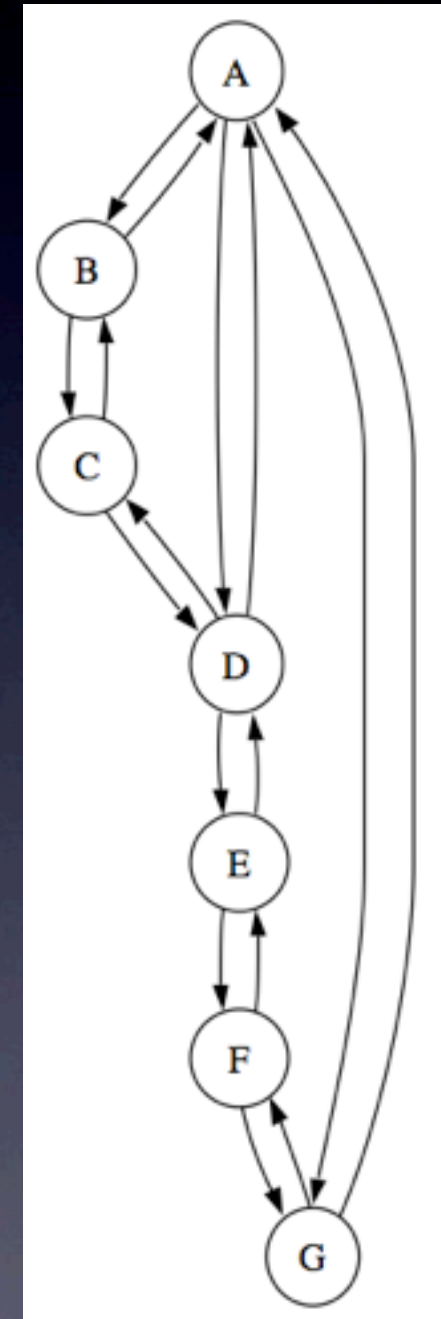
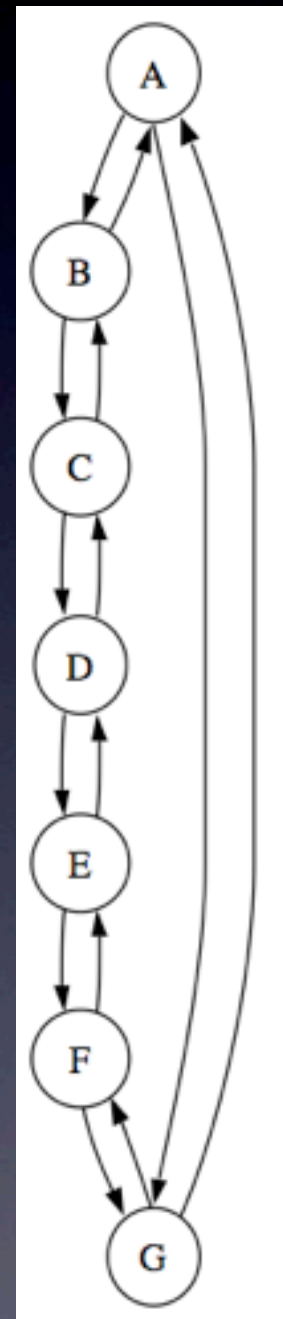
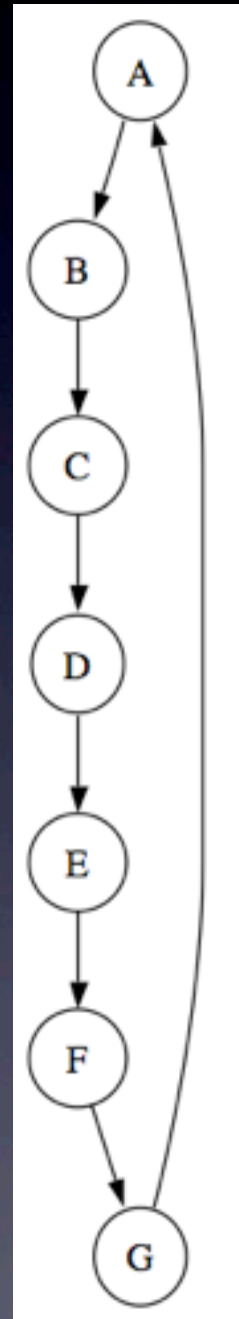


# Milgram's Experiment

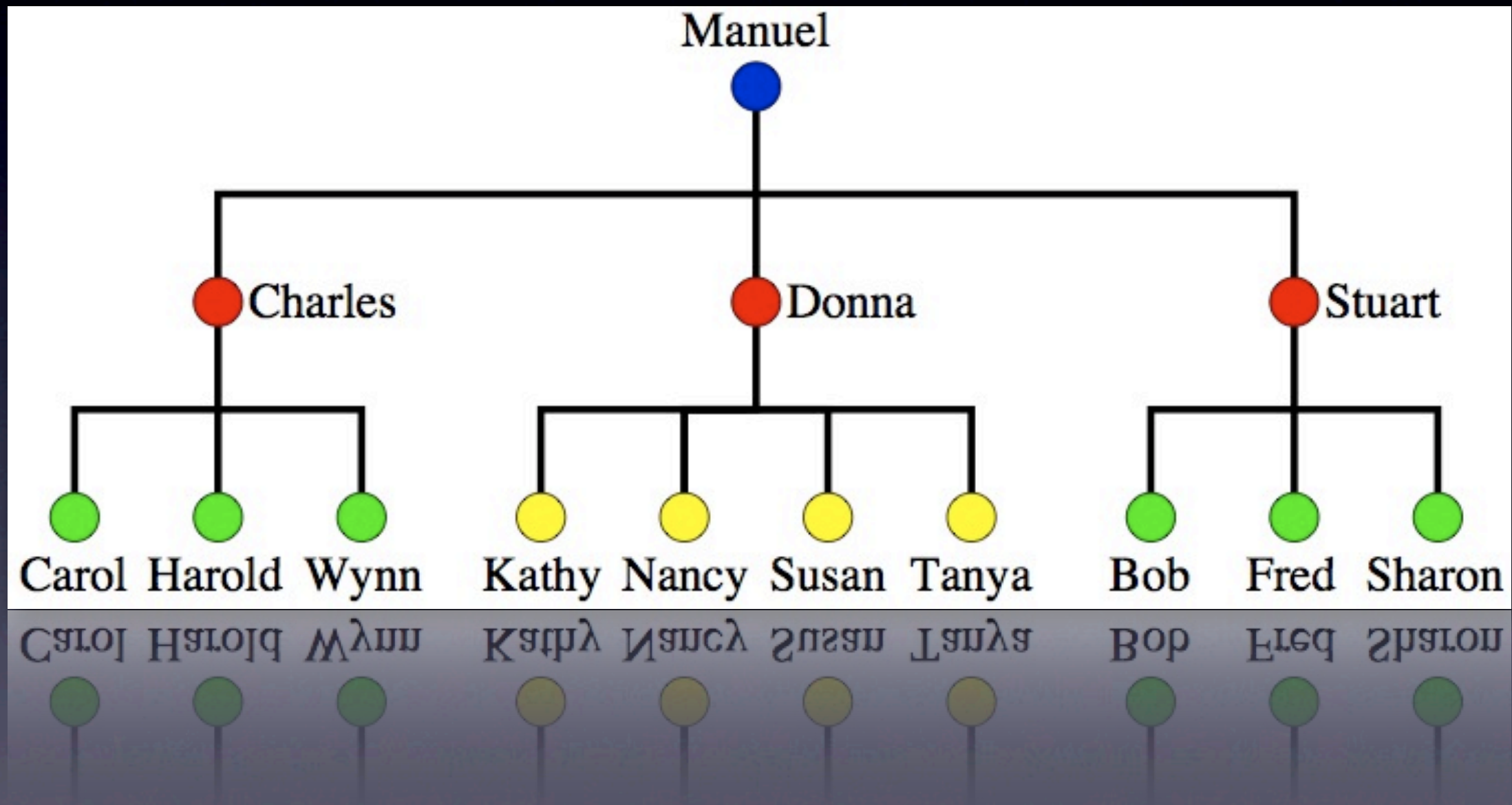




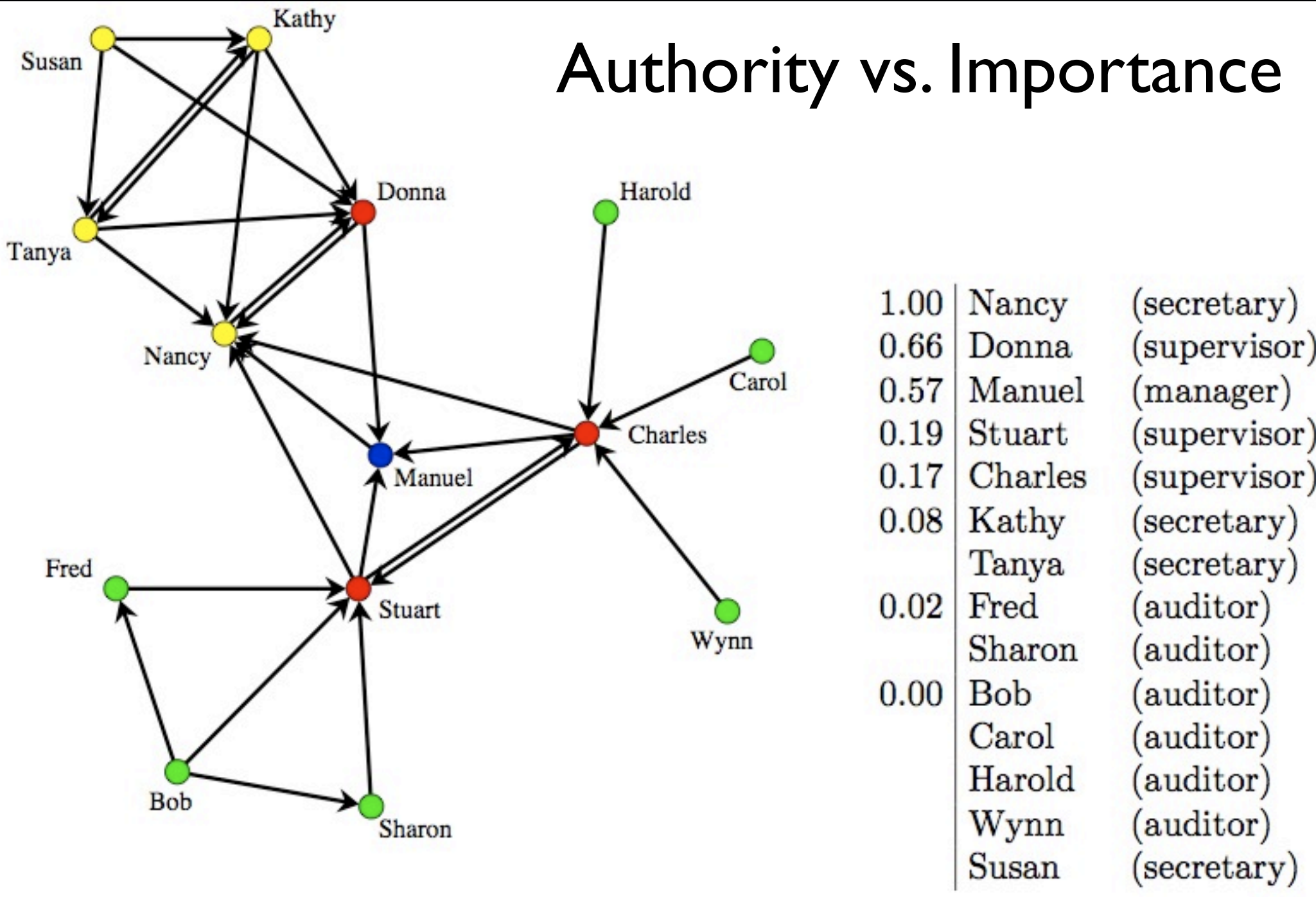
# The Flow of Information



# Organizational Chart



# Social Network Chart



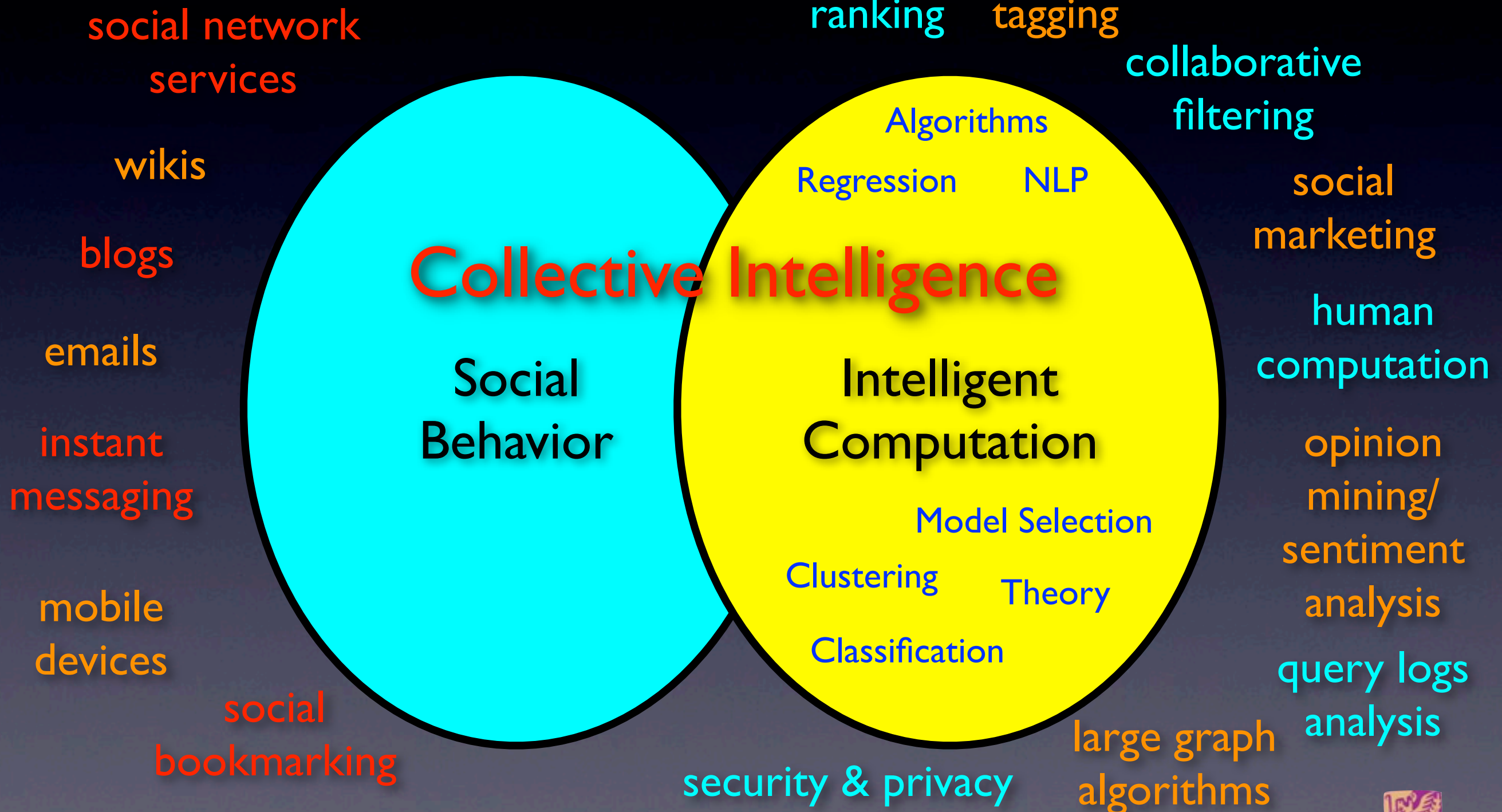


# Social Relations

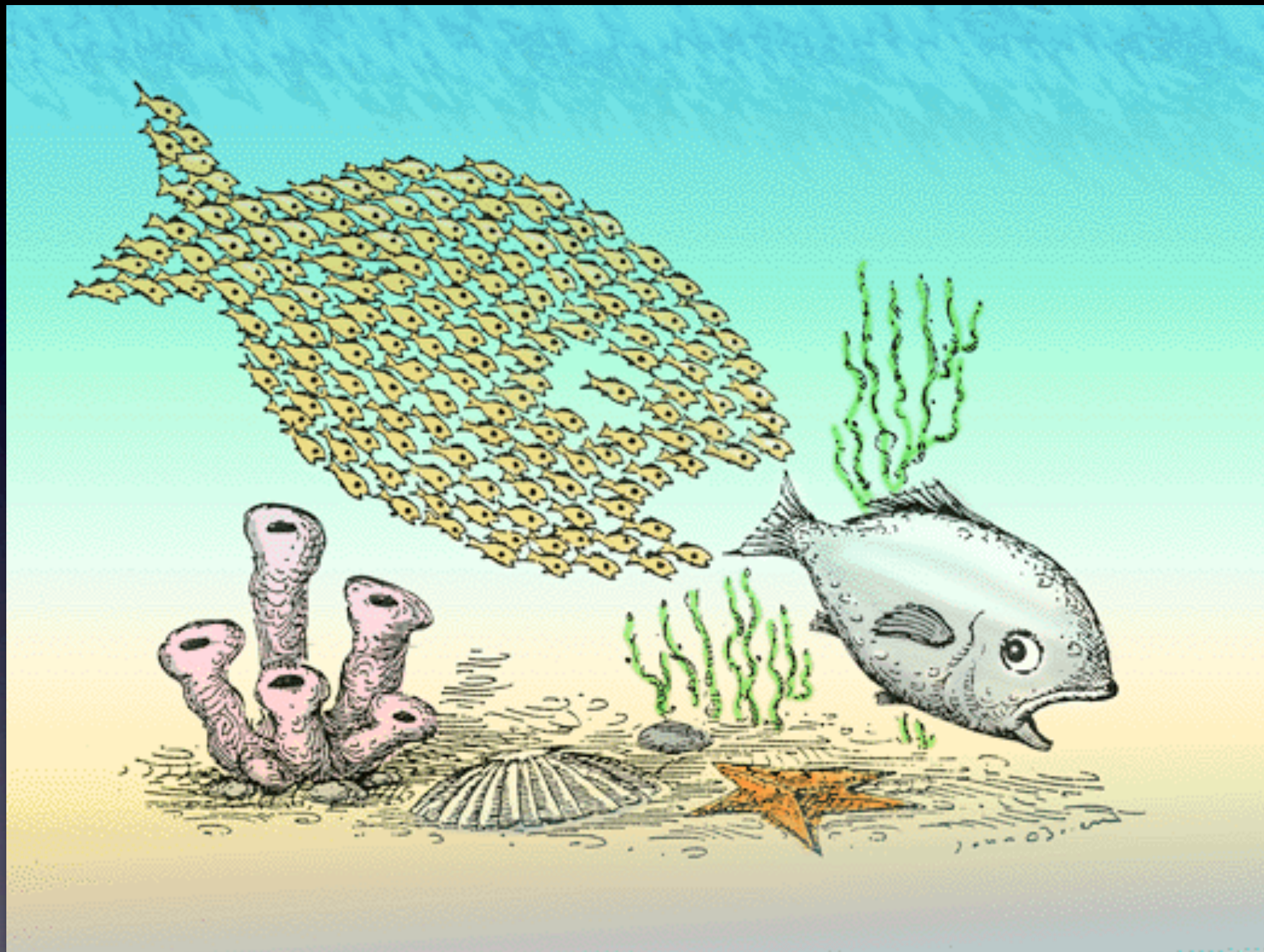
presence  
crew  
teams  
populations  
squad  
organizations  
cohorts  
markets  
communities  
partners  
groups  
binary  
identity  
cardinal  
integer  
real  
reputation  
social role  
expertise  
trust  
ownership  
accountability  
knowledge



# Social Computing

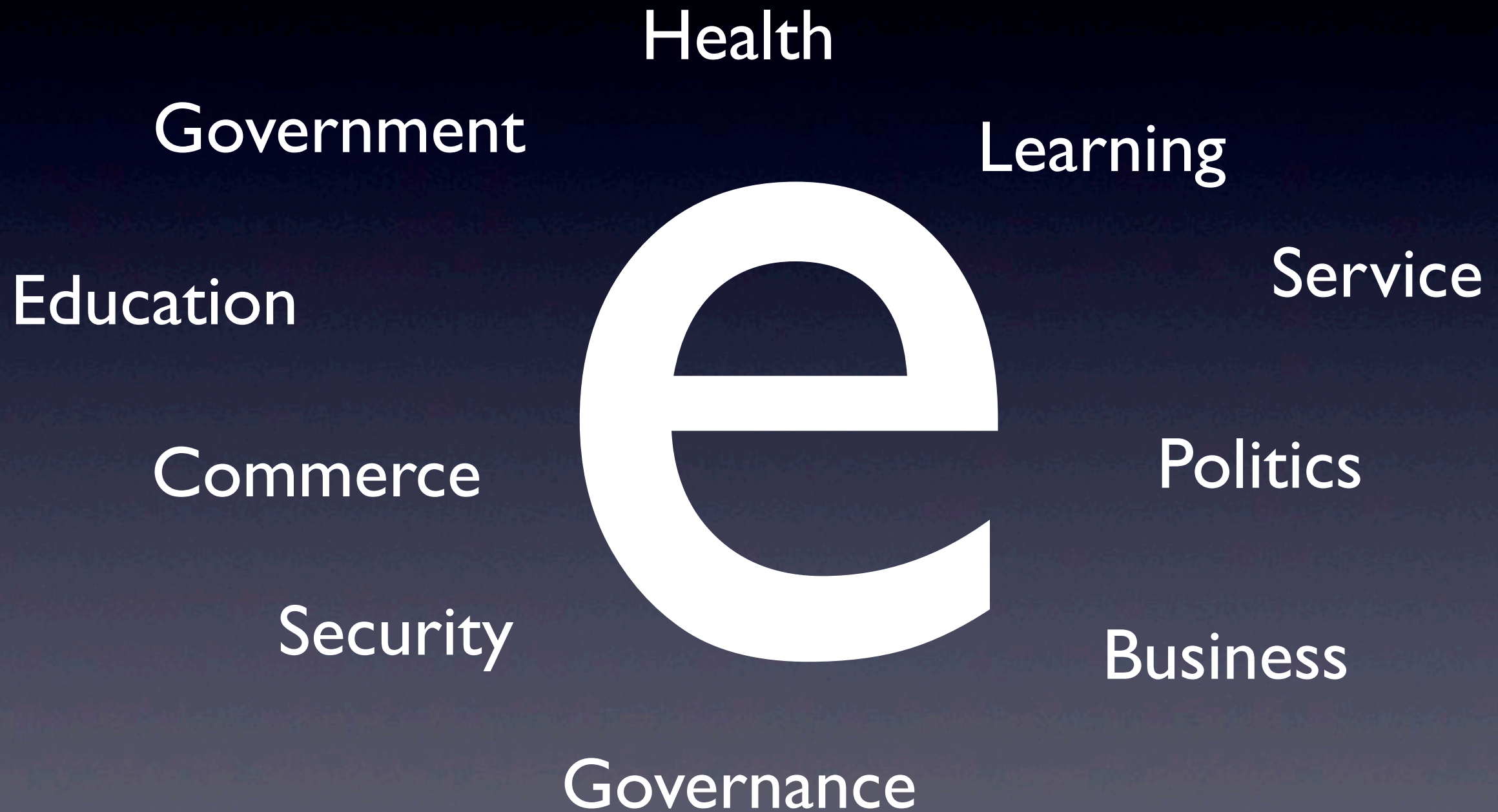








# The e-Era



# The 2-Era

Government(s)  
Consumer(s)  
Business(es)  
Citizen(s)  
Employee(s)

·  
·  
·

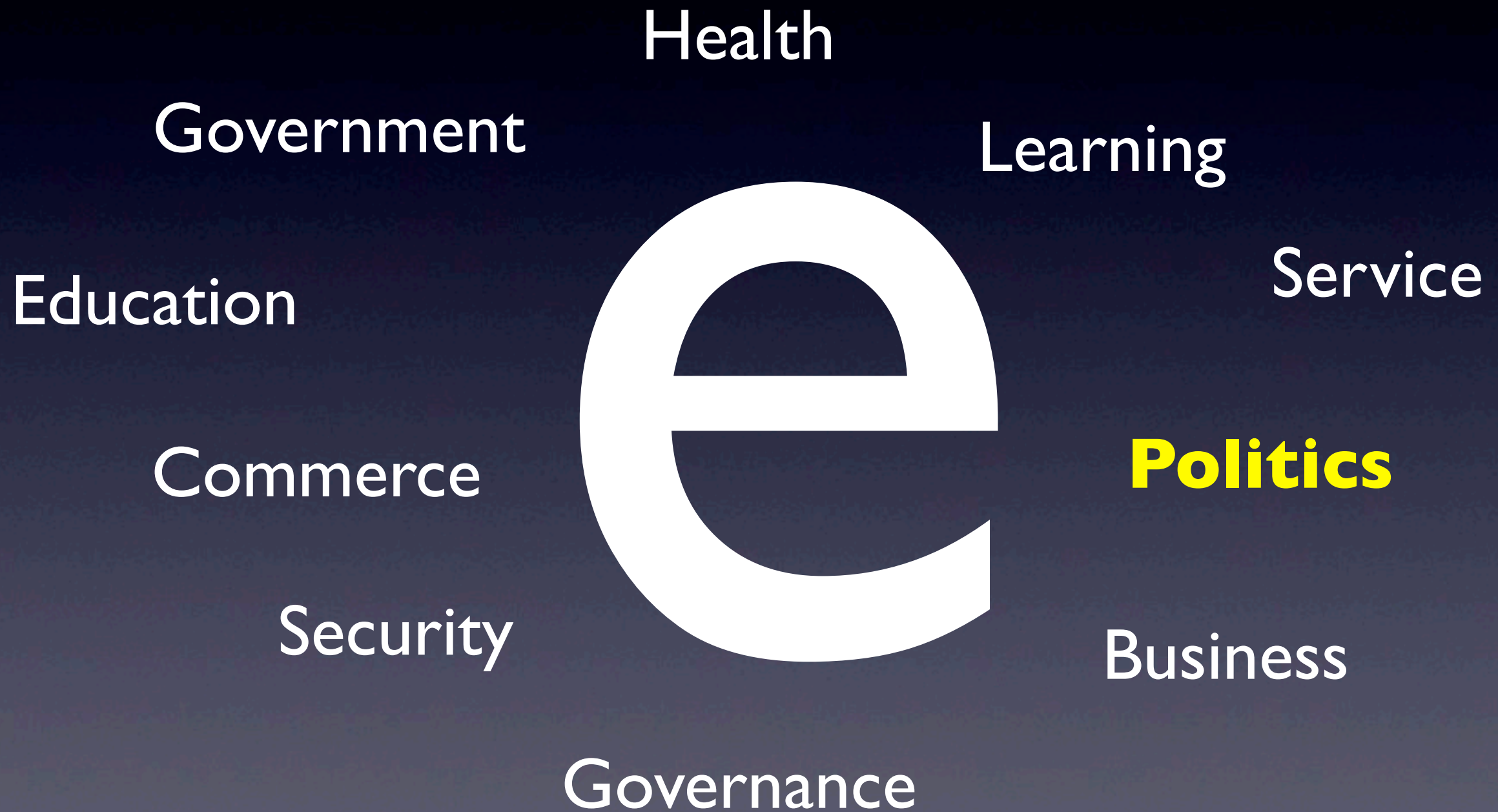


Government(s)  
Consumer(s)  
Business(es)  
Citizen(s)  
Employee(s)

·  
·  
·



# The e-Era





# The Rise and Fall of an Era in a Nation



Barack Obama



Hosni Mubarak





# The Presidential Campaign on Social Media

By JENNA WORTHAM

It's not enough for the presidential candidates Barack Obama and Mitt Romney to kiss babies, shake hands and lunch at small-town diners to win over voters. In 2012, they also need to cozy up to citizens online. Here's a look at how each campaign is making use of the social Web to get its message across and appeal to voters.

OBAMA

ROMNEY

## Tumblr

Followers: Unknown\*



giphy.com

Sneaking up on Dad

WATCH Obama's full acceptance speech from last night.

Best.

(via theatlantic)

posted 3 weeks ago 14,561 notes Tags: DNC 2012, election 2012, gifs giphy

Obama's Tumblr

### ABOUT

This is the Obama 2012 campaign's official home on Tumblr. Have a story, photo, or video you'd like to share here? Go ahead and submit it today.

### GET UPDATES

Sign up to say you're in for 2012.

Your email address

SIGN UP

### SUPPORT the CAMPAIGN

The other guys have corporate lobbyists and special interests on their side; we've got you.

DONATE

Followers: Unknown\*



Page 1 of 20



"America needs a comeback team - Mitt Romney and Paul Ryan are that team." - Former Denver Broncos Quarterback John Elway

21 hours ago 83 notes

Romney's Tumblr



FOLLOW

ABOUT

DONATE

GET UPDATES

SHARE YOUR STORY





# Social President

- There is **no "i"** in (the social media) team
- Reach out to **influencers**, including **early adopters**
- **Fight back with class**--and a cheeky photo helps, too
- Treat your social media training like a **marathon**, not a sprint
- Think **mobile**--not just apps, but your website too

## Social-Media Insights Inspired By Barack Obama, America's First Truly Social President

BY AMBER MAC | SEPTEMBER 7, 2012



No politician in history has leveraged social media to the extent of President Obama. Here's how his administration stays ahead of the curve--and what you can learn about effective social brand-building from the Tweep-in-Chief.



<http://www.fastcompany.com/3001091/social-media-insights-inspired-barack-obama-americas-first-truly-social-president>





# The e-Era

**Health**

Government

Learning

Education

Service

Commerce

Politics

Security

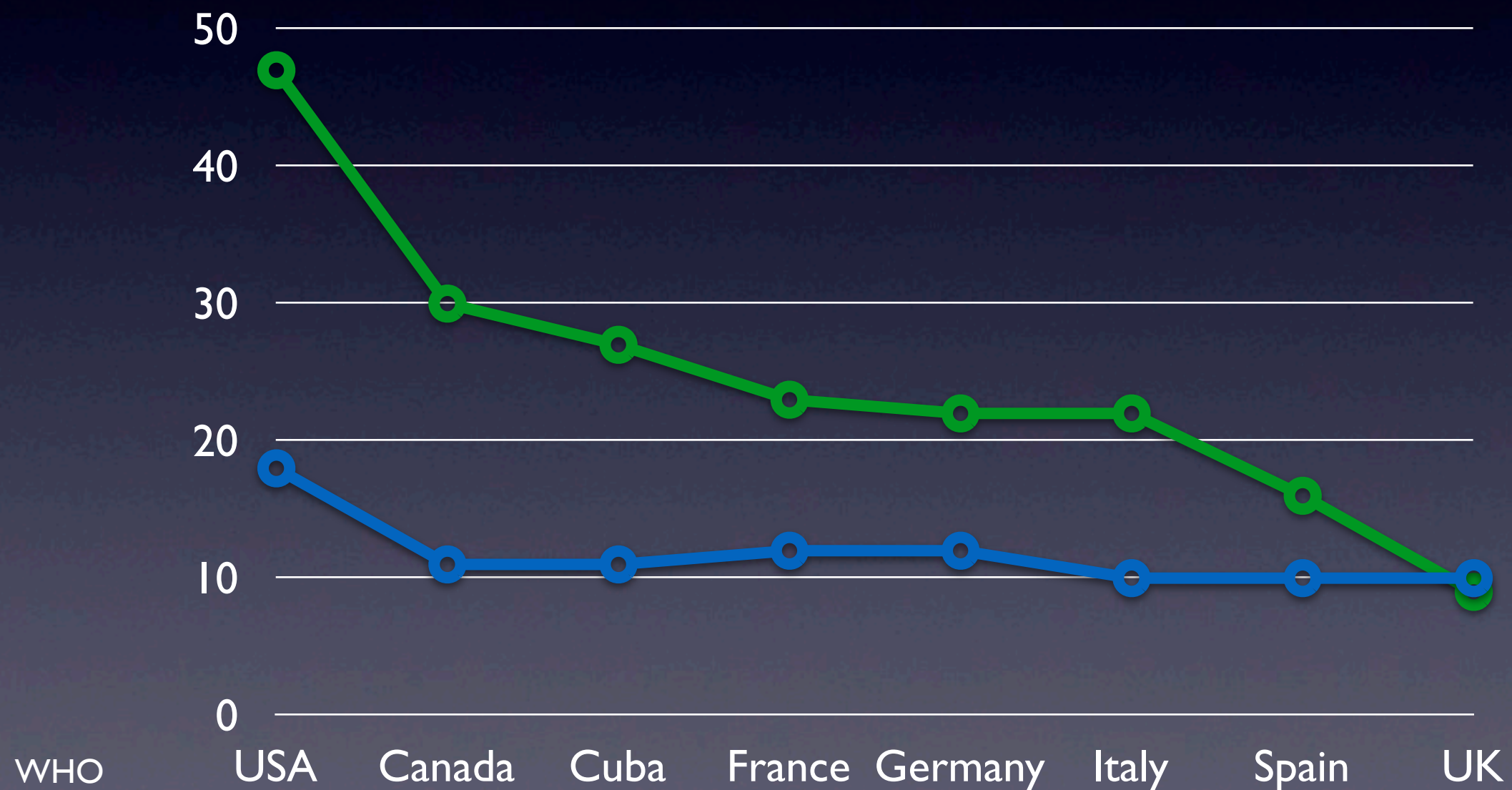
Business

Governance



# Health Spending

- Health spending, % of GDP (2010)
- Private spending, % of health spending (2010)





# Wisdom of the Crowd

2007–2008 U.S. Flu Activity - Mid-Atlantic Region

ILI percentage

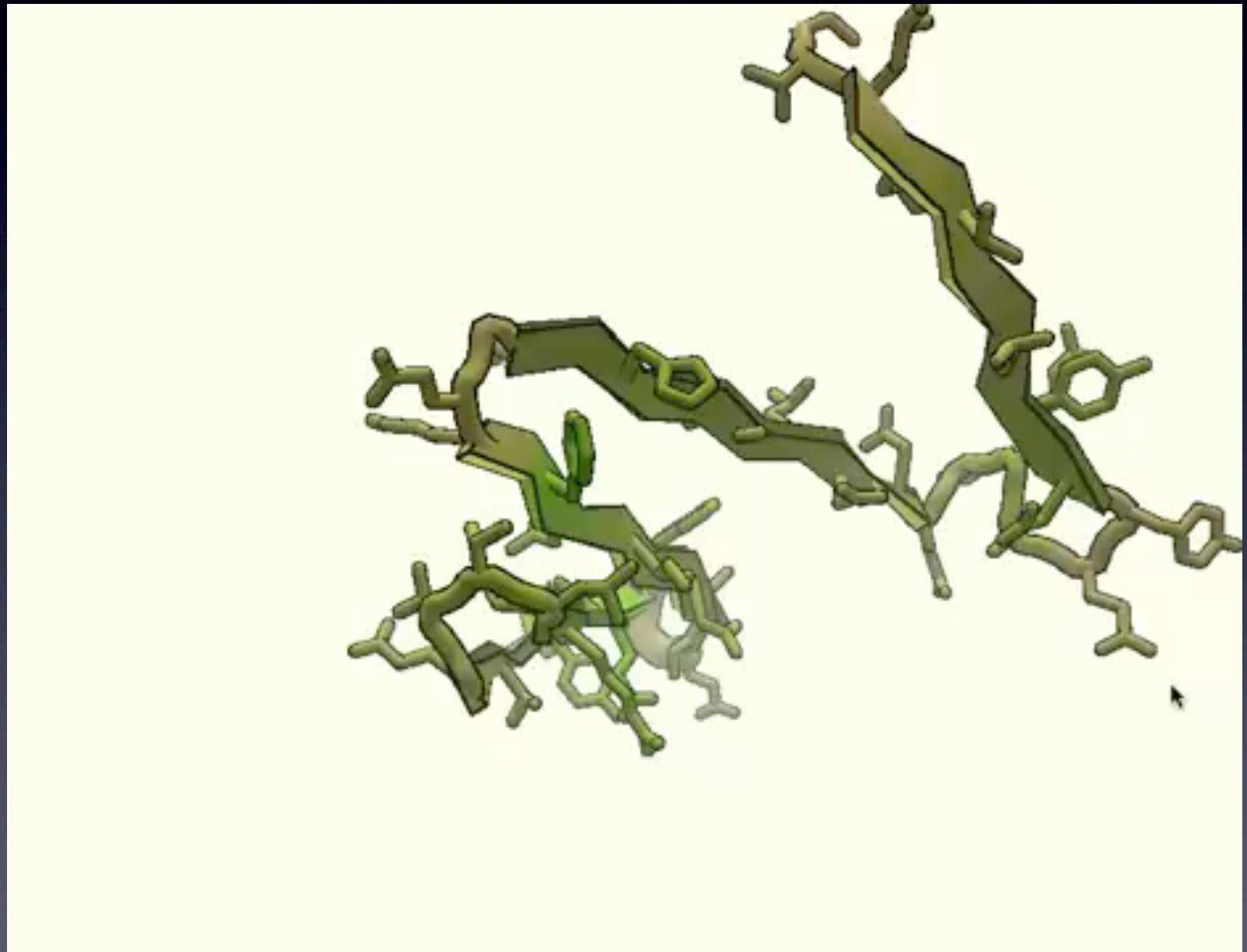


fever sore throat cough cold flu medicine



# Protein-Folding as a Computer Game

- Foldit
- Complex 3-D structure matching
- HIV-like Mason-Pfizer monkey virus
- HIV/AIDS, cancer, Alzheimer's, etc.





# Social/Human Computation

Security Check: Enter both words below, separated by a space. What's This?  
Can't read this? Try another.  
Try an audio captcha

discharge      Carolina

Text in the box:

I have read and agree to the Terms of Use and Privacy Policy

**Sign Up**

Problems signing up? Check out our help pages

Security Check: Enter both words below, separated by a space. What's This?  
Can't read this? Try another.  
Try an audio captcha

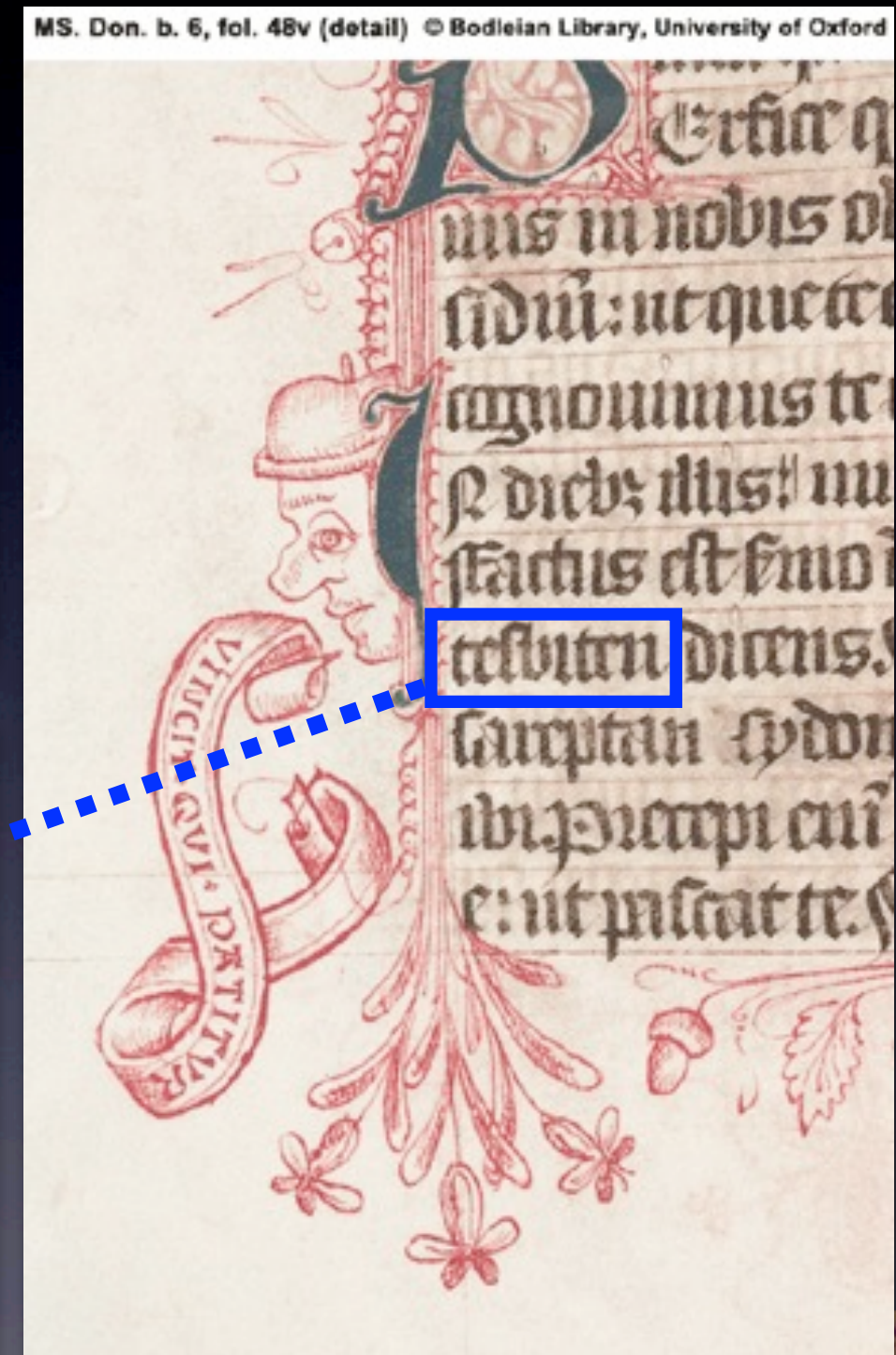
discharge      

Text in the box:

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**Sign Up**

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# Human Computation

The screenshot shows the Google Image Labeler interface. At the top left is the Google logo with 'Image Labeler BETA' and 'Google Image Labeler' text. On the right are links for 'Help' and 'Sign In'. On the left side, there are statistics: 'time left' at 01:17, 'score' at 0, and 'passes' at 0. In the center, there is a text box for labels, a 'label' button, and a 'pass' button. Below the text box is the instruction 'Your partner has suggested 10 labels.' and a photograph of a lake with mountains in the background. Below the photo is a 'zoom out' button. On the right side, there are two sections of suggested labels: 'off-limits' with labels 'sky', 'water', 'blue', 'lake', and 'mountain'; and 'my labels' which is currently empty. Red starburst shapes are overlaid on the interface, highlighting the 'time left', 'score', 'passes', the label input area, the 'off-limits' list, and the 'my labels' section.





I think you'll be  
delightfully surprised  
by the quality of my work  
on this assignment.  
I crowdsourced it.

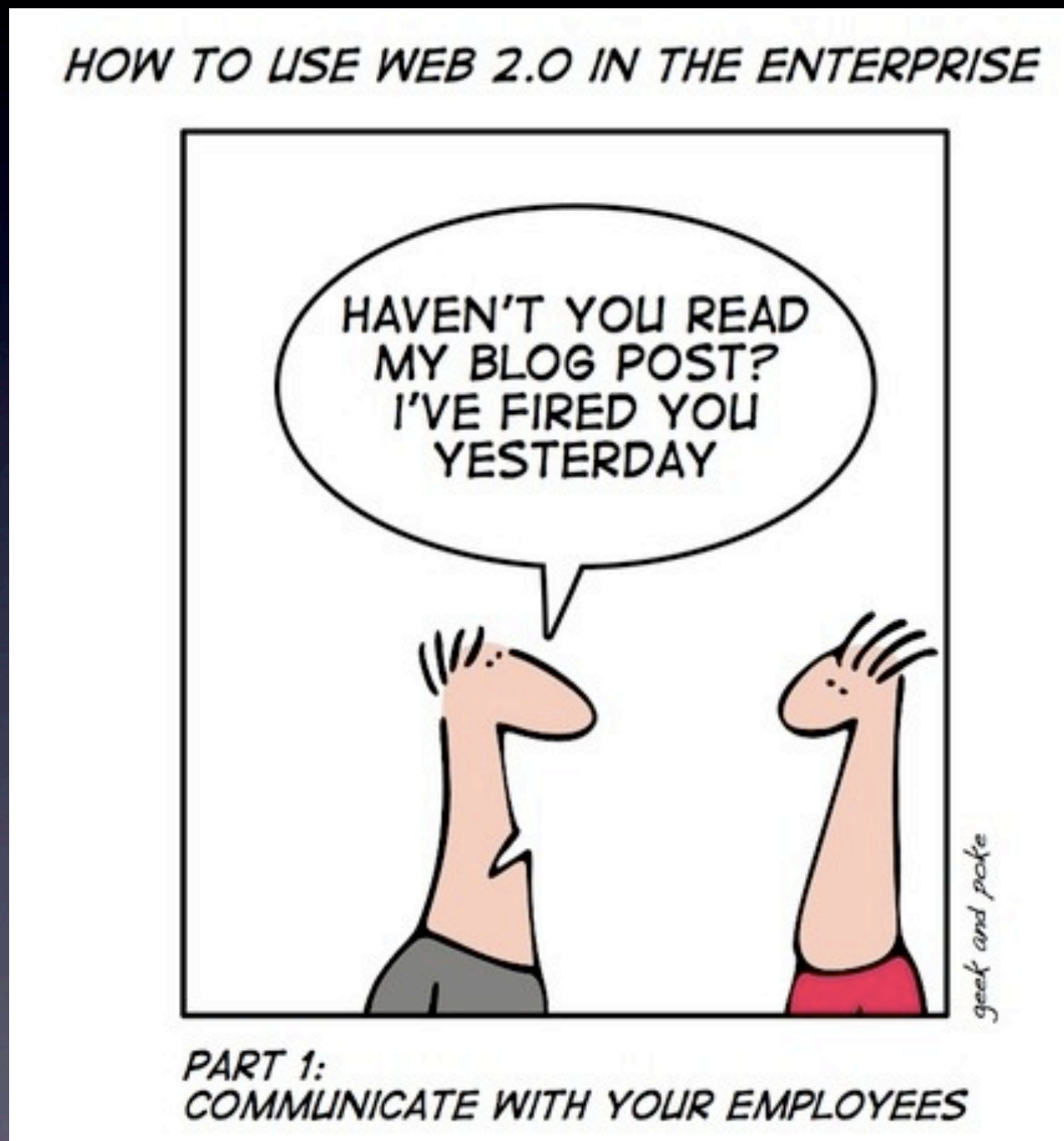


# The e-Era





# How NOT to use Web 2.0...



# Social Commerce Case Study

- [mystarbucksdeals.com](http://mystarbucksdeals.com)
- [facebook.com/starbucks](https://www.facebook.com/starbucks)
- LinkedIn
- Twitter
- YouTube and Flickr





# Enterprise 2.0

- **Procter & Gamble**  
Sells cosmetics on Facebook
- **Disney**  
Could purchase tickets on Facebook
- **Mountain Dew**  
Uses social media for Dewmocracy contests
- **Pepsi**  
Live notification via geolocation product recommendations
- **Levis**  
Friend recommendation on products
- **Wendy's**  
Gift checks on social challenges



# e/Social-Commerce

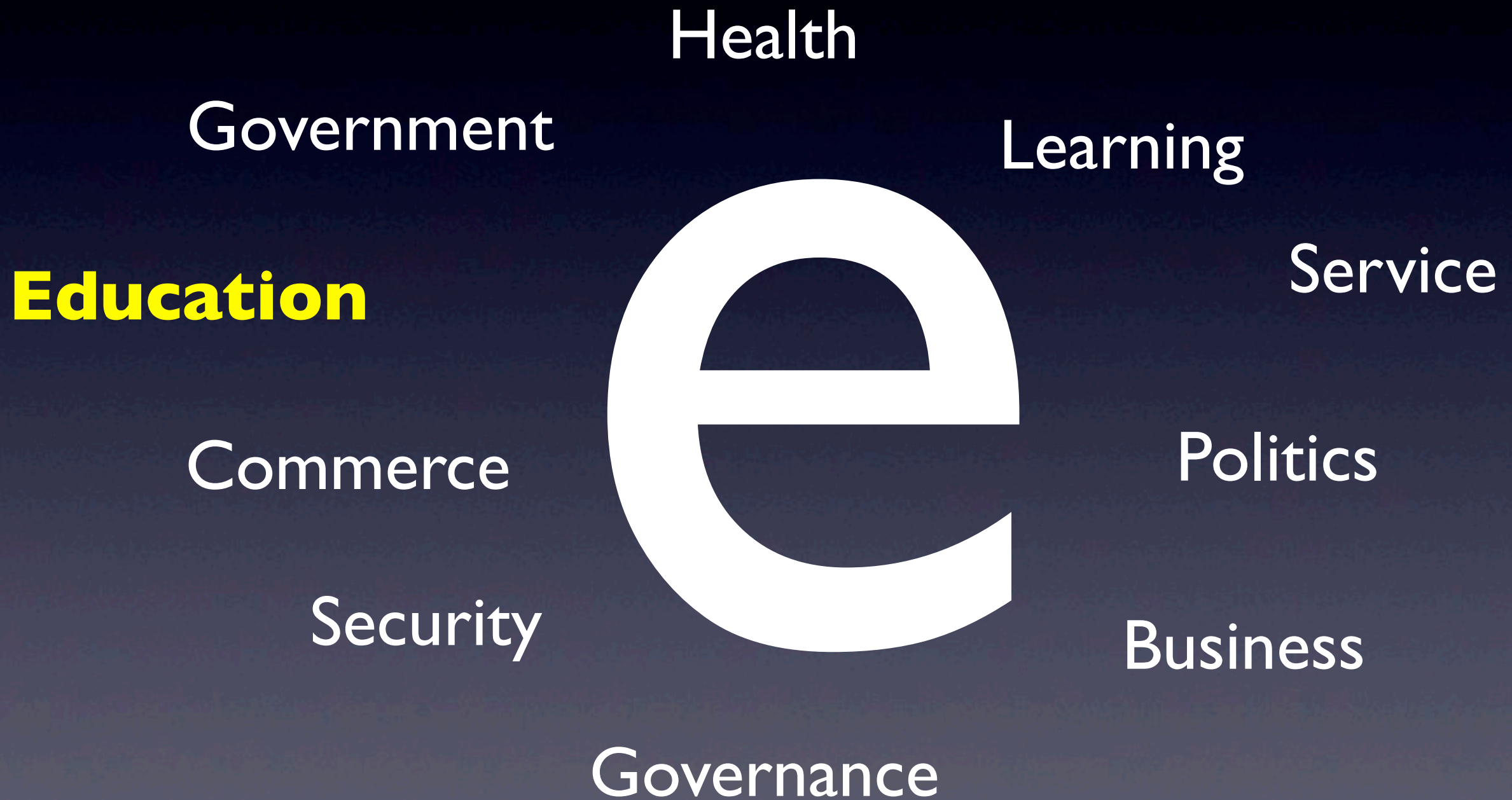
<b>Property</b>	<b>E-Commerce</b>	<b>Social Commerce</b>
Major Objective	Transactions	Social interactions
Major Activity	Publishing	Engagement
Content	Company generated	User generated
Problem Solving	Company experts	Crowdsourcing
Collaboration	Traditional, unified	Web 2.0 tools
Product Information	Product descriptions on websites	Peer product reviews
Marketplace	e-tailers and direct from manufacturers' stores	Social networks (f-commerce)
Targeting	Mass marketing, segmentation	Behavioral targeting
CRM	Seller/manufacturer support	Social support by peers and by vendors and employees
Online Marketing Strategy	Web selling	Multi-channel, Direct at social networks
Integration	System integration	Mashups and system integration
Data Management	Reports and Analytics	Analytics

[socialtimes.com/social-commerce-infographic-2\\_b84120](http://socialtimes.com/social-commerce-infographic-2_b84120)





# The e-Era



# Social Media in Education

- Media sharing
- Media manipulation
- Conversational arenas
- Online games and virtual worlds
- Social networking
- Blogging
- Social bookmarking
- Recommender systems
- Collaborative editing
- Wikis
- Syndication





# Constructivism and Social Computing

- Constructivist Learning Theory--George Hein, 1991
- Social Computing for Constructivism
- Issues and challenges



# Constructivist's Learning Principles

1. Learning is an **active process**--Active Learner
2. Learners **learn to learn** as they learn--learning provides context for other learning
3. The action of constructing meaning is **mental**--engaging the mind
4. Learning involves **language**: the language we use influences learning
5. Learning is a **social** activity





# Constructivist's Learning Principles

6. Learning is **contextual**--a corollary of the idea that learning is active and social
7. One **needs knowledge** to learn--the more we know, the more we can learn
8. It takes **time** to learn--learning is not instantaneous
9. **Motivation** is a key component in learning--it is essential for learning!

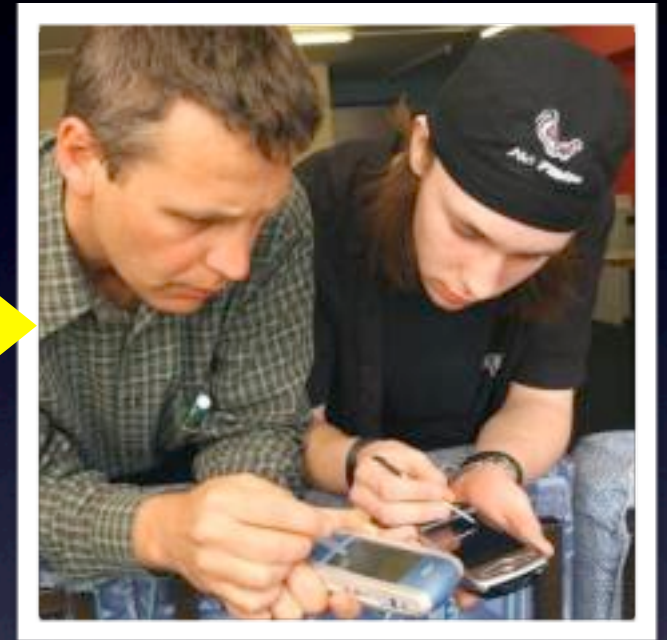
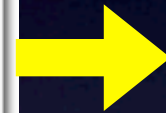


Traditional Classroom	Constructivist Classroom
Curriculum begins with the parts of the whole. Emphasizes <b>basic skills</b> .	Curriculum emphasizes <b>big concepts</b> , beginning with the whole and expanding to include the parts.
Strict adherence to <b>fixed curriculum</b> is highly valued.	Pursuit of student <b>questions and interests</b> is valued.
Materials are primarily <b>textbooks</b> and workbooks.	Materials include primary sources of material and <b>manipulative</b> materials.
Learning is based on <b>repetition</b> .	Learning is <b>interactive</b> , building on what the student already knows.
Teachers <b>disseminate</b> information to students; students are recipients of knowledge.	Teachers have a <b>dialogue</b> with students, helping students construct their own knowledge.
Teacher's role is directive, rooted in <b>authority</b> .	Teacher's role is interactive, rooted in <b>negotiation</b> .
Assessment is through <b>testing</b> , correct answers.	Assessment includes student works, observations, and points of view, as well as tests. <b>Process is as important</b> as product.
Knowledge is seen as <b>inert</b> .	Knowledge is seen as <b>dynamic</b> , ever changing with our experiences.
Students work primarily <b>alone</b> .	Students work primarily in <b>groups</b> .





# Evolution of Education

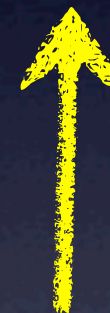
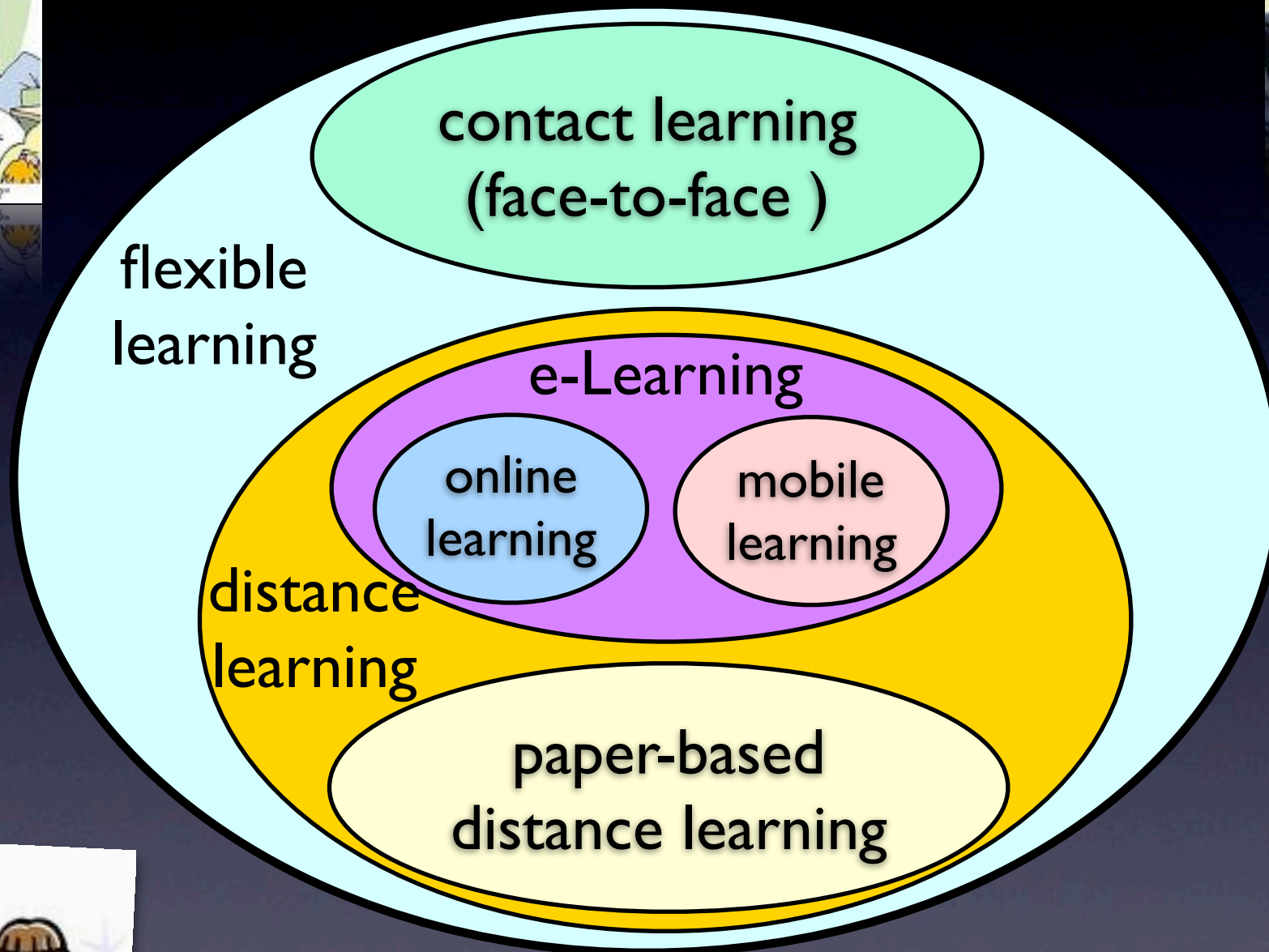


distance learning  
d-Learning

electronic learning  
e-Learning

mobile learning  
m-Learning

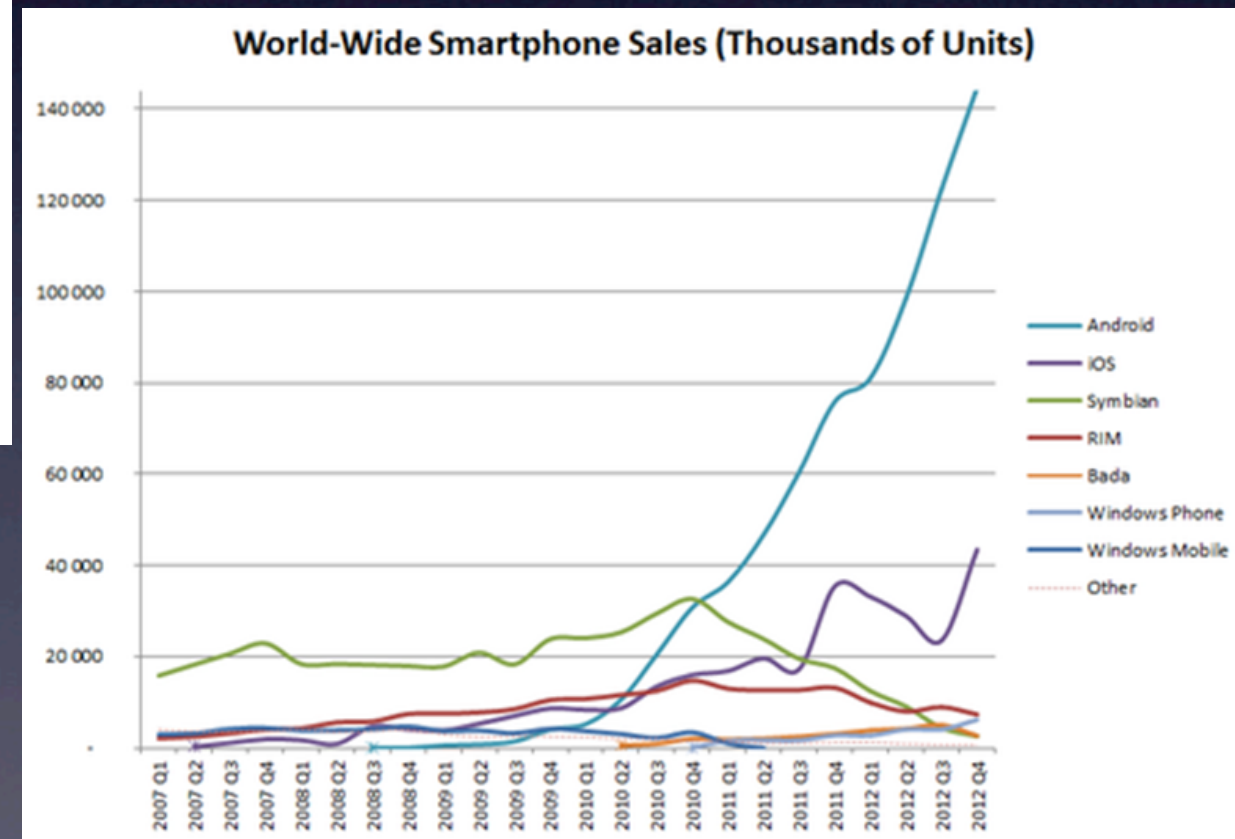
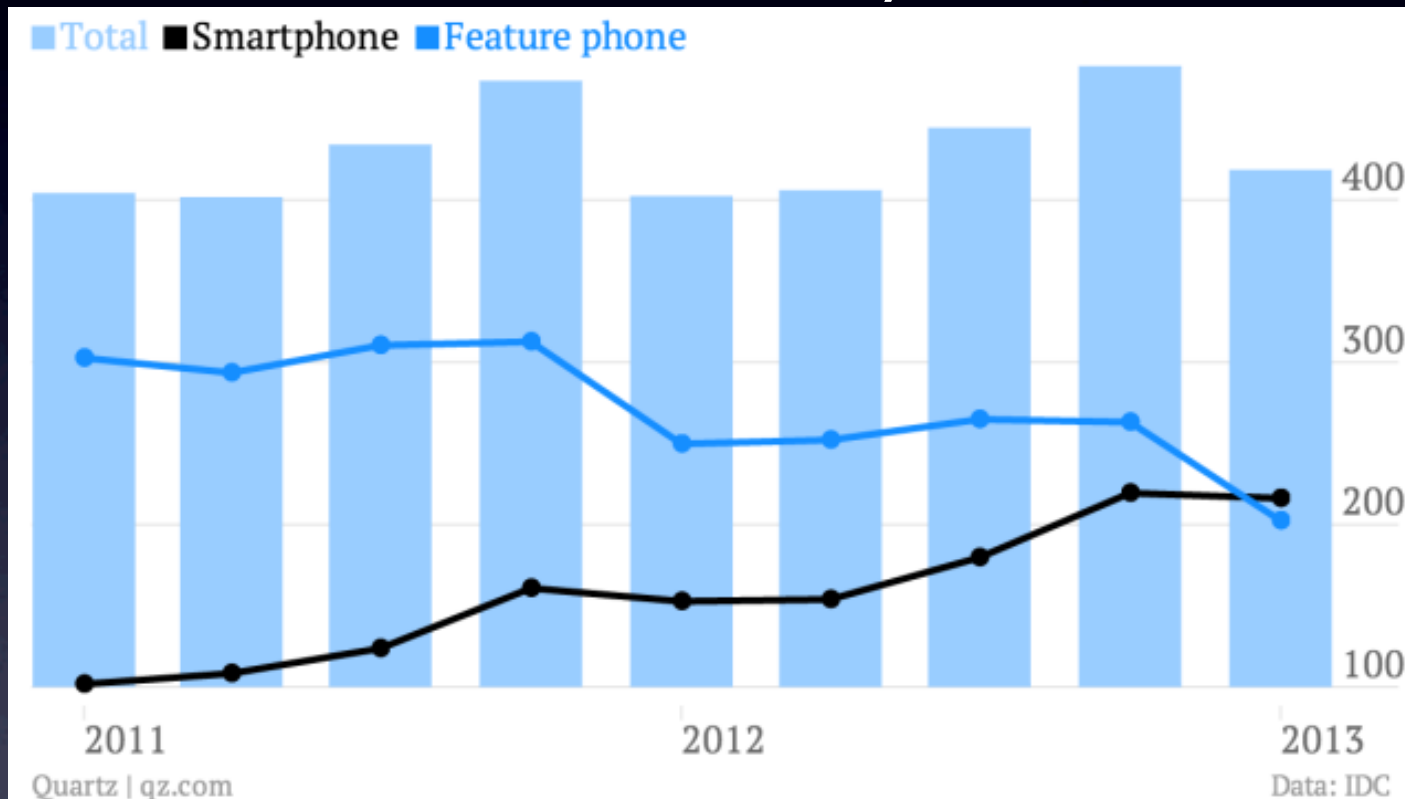






# Mobile Devices

## Mobile Phones Sales by Quarter



# Mobile Learning

## Why is Mobile Learning on the Rise?


-  The spread of personal devices in enterprise
-  Improved mobile technologies
-  Growing mobile workforce

### Did you Know?

More tablets will be sold than PCs by **2015**

More than **33%** of all YouTube videos are now watched on a mobile device

More people will access the Internet via mobile phones than PCs by **2013**



People now have an expectation of instant access to knowledge



Part of mobile learning is the distribution of **'Just-in-Time Training'**

What is **'Just-in-Time Training'**?  
Training rolled-out, or launched, immediately prior to its use.

“It's about delivering learning flexibility – at the learner's pace and in their space”



**Banking & Finance**

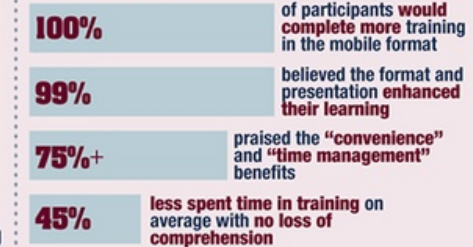
**12%** higher completion rate among mobile learners at the 45-day milestone



**Public Sector**

Learners have declared mobile learning to be as effective as eLearning and classroom training

### In a Recent Survey of Mobile Learners



## Mobile Learning Applications



On-demand Training



Just-in-Time Training



Performance Support

## New Technologies in Mobile Learning

Advanced voice recognition



3D imaging projection



Geo-sensors



Advanced gesture technology



Augmented reality





# The m-Learning Paradigm

New Learning Paradigms		Mobile Technologies
Individual/Learner centered	↔	Personalized Services
Collaborative learning	↔	Networked/Wireless
Situated learning	↔	Mobile awareness
Contextual learning	↔	Context awareness
Ubiquitous learning	↔	Ubiquitous
Life long	↔	Durable



# Crowdsourcing Education

- Wikipedia
- MOOC, Coursera, edX, etc.
  
- Teacher-centered vs. Student-centered
- Flipped Classroom
- Big Data in Education





# Economist Intelligent Unit 2008

**In what ways do new technologies pose the greatest challenges and risks to colleges and universities? Select up to three.**  
(% of respondents)

Potential increase in student plagiarism

51



Don't know



Other, please specify

Wisdom of the Crowd in the Era of Social Computing, Irwin King, CCFADL36 : 普适计算时代的人机交互, May 25, 2013, Beijing, China



# VeriGuide

- **Similarity text** detection system
- Developed at **CUHK**
- Promote and uphold academic **honesty, integrity, and quality**
- Support **English, Traditional and Simplified Chinese**
- Handle **.doc, .txt, .pdf, .html**, etc. file formats
- Generate detailed **originality report** including **readability**
- Use for **homework assignments, grants, conference and journal papers**, etc.

The screenshot shows the VeriGuide website in Chinese. At the top, there is a navigation bar with links for Home, Services, News, Partners, Support, and About, along with registration and login options. Below the navigation bar is a large banner image of a university campus. The main content area is divided into several sections:

- 原创性 (Originality):** Describes the similarity detection functionality and includes a '了解更多' (Learn More) button.
- 可读性 (Readability):** Describes the readability analysis tool and includes a '了解更多' (Learn More) button.
- 存取性 (Accessibility):** Describes the database for students and educators and includes a '了解更多' (Learn More) button.
- 什么是抄袭检测? (What is plagiarism detection?):** Explains the concept of plagiarism detection and VeriGuide's role.
- 合作伙伴: 香港学校网络 (Partners: Hong Kong School Net):** Features the Hong Kong School Net logo and a link to learn more about the partnership.
- 新用户? (New users?):** Encourages registration for those who want to check for plagiarism.
- 最新动向 (Latest News):** Announces VeriGuide's award at the 2012 Hong Kong Awards for Industries and its participation in the ICT Expo 2010.
- 特色 (Features):** Lists key features such as preventing plagiarism, providing online services, supporting various file formats, and generating detailed reports.
- 香港树仁大学: 学生的教育工具 (Hong Kong Shuen Tin University: Student Education Tool):** Includes a photo of Ms. Andrea Hope and a testimonial about the tool's implementation at the university.





# ADL36

VeriGuide™

SHARE English | 繁體中文 | 简体中文

Services News Partners Support About Register Login

**Originality**  
VeriGuide aims to promote academic integrity with VeriGuide's similarity detection capabilities.  
[Learn more](#)

**Readability**  
VeriGuide assists educators to assess students' writing ability over time with our readability features.  
[Learn more](#)

**Accessibility**  
VeriGuide serves to support and maintain assignment database for students and educators.  
[Learn more](#)

**What is Plagiarism Detection?**

**Partnership with Hong Kong School Net**

**New Users?**  
Want to detect whether the document is plagiarized or not? [Register now!](#)



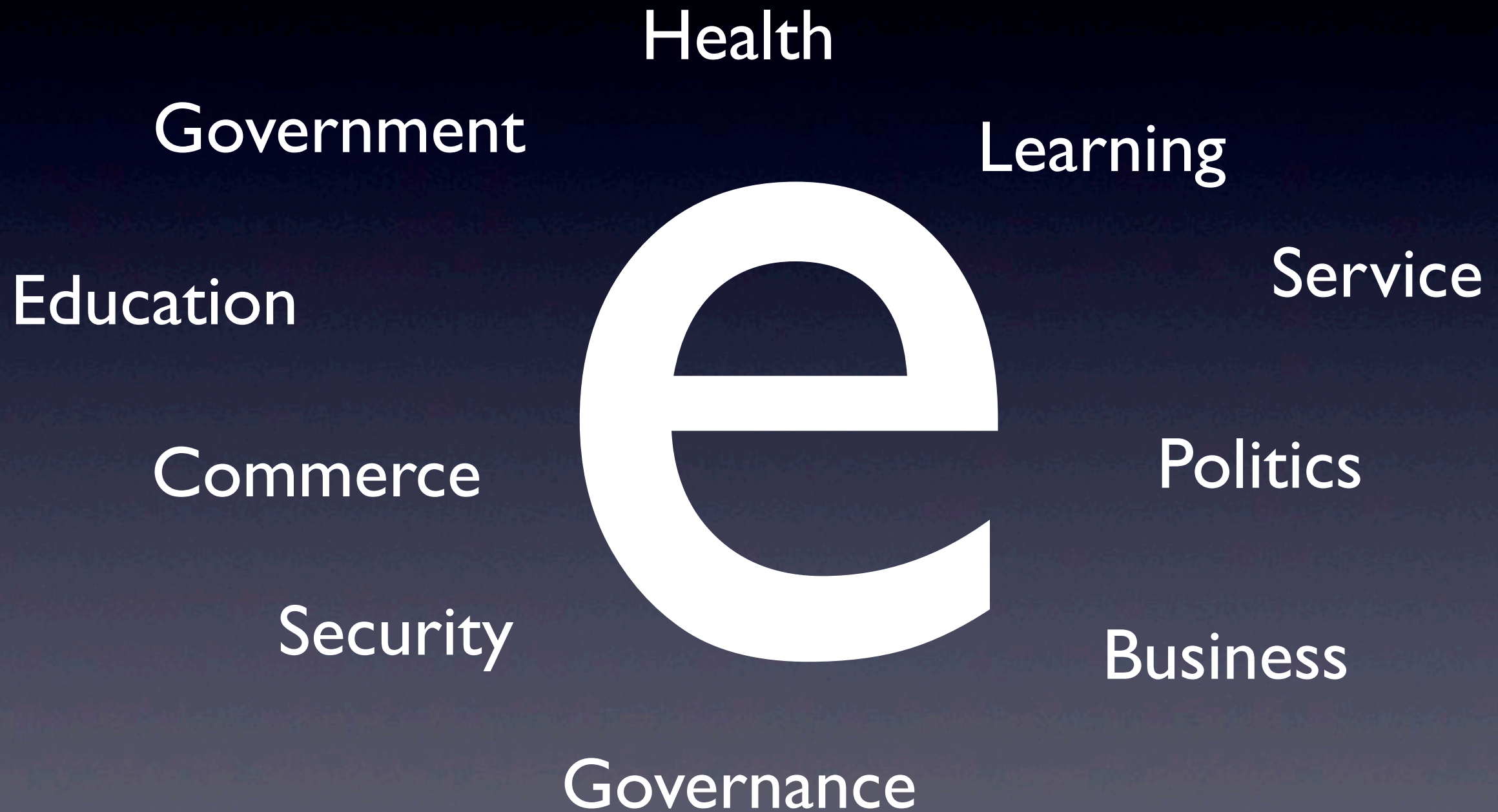
# Final Remarks

- Diversity of Participation
- Independence of Opinion
- Distributed Organization
  
- The grass is indeed **greener**...
- The stories are rather **interesting**...
- Social computing is an **exciting** and **challenging** area for further investigation and exploration...





# The e-Era



# The s-Era





# Q & A

