X-Informatics
Cloud Computing Technology Part III

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http://www.infomall.org/X-InformaticsSpring2013/index.html

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2013

Big Data Ecosystem in One Sentence

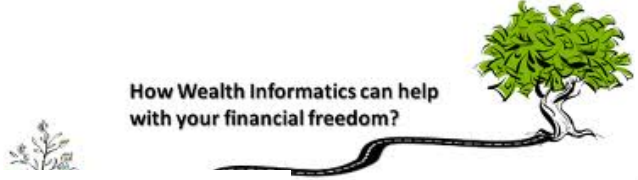
Use Clouds running Data Analytics Collaboratively processing Big Data to solve problems in X-Informatics (or e-X)

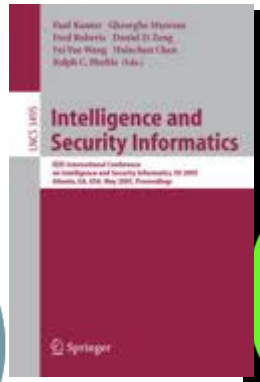
X = Astronomy, Biology, Biomedicine, Business, Chemistry, Climate, Crisis, Earth Science, Energy, Environment, Finance, Health, Intelligence, Lifestyle, Marketing, Medicine, Pathology, Policy, Radar, Security, Sensor, Social, Sustainability, Wealth and Wellness with more fields (physics) defined implicitly

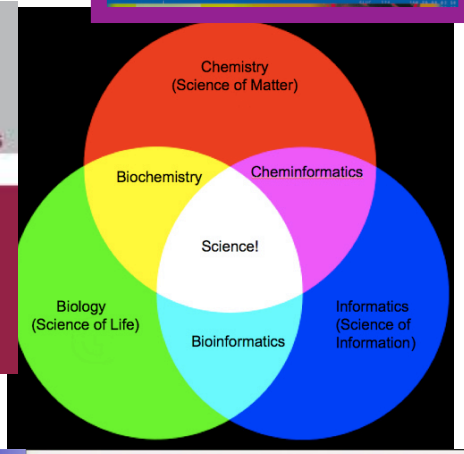
Spans Industry and Science (research)

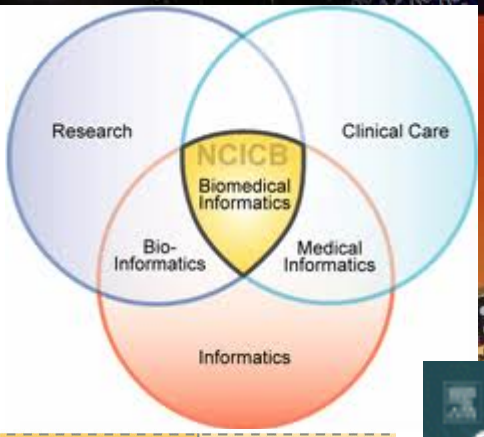
Education: Data Science see recent New York Times articles

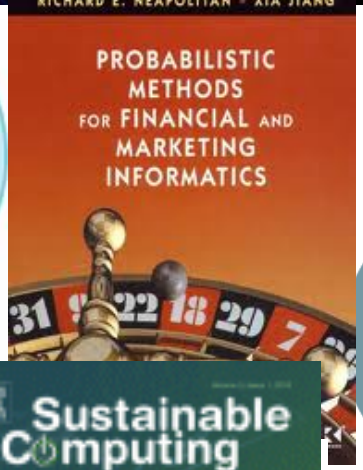
http://datascience101.wordpress.com/2013/04/13/new-york-times-data-science-articles/

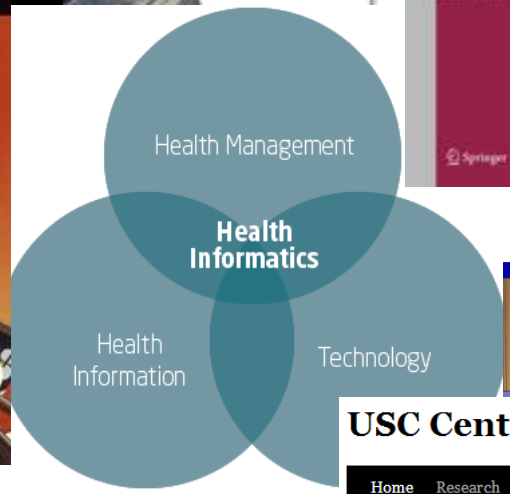


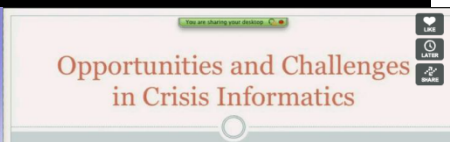


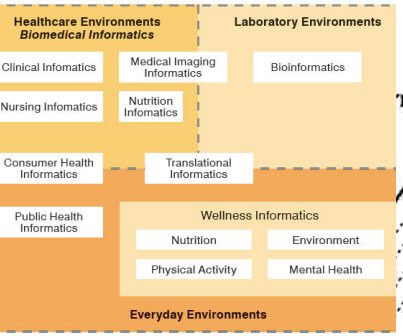


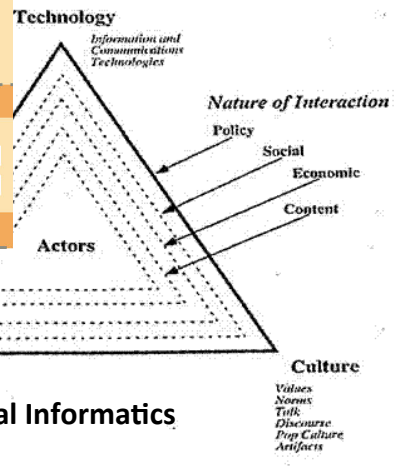








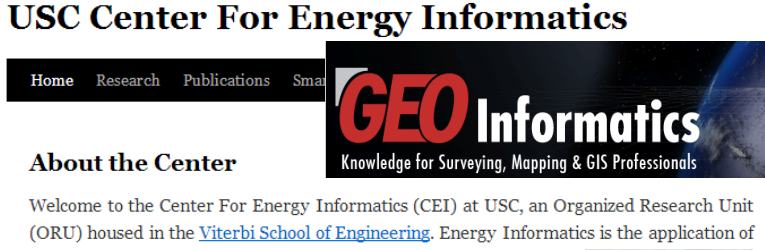


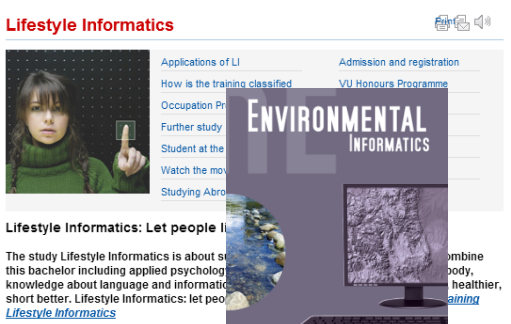


Noelia Penelope Greer (Ed.)

Business Informatics

Information technology, Management,

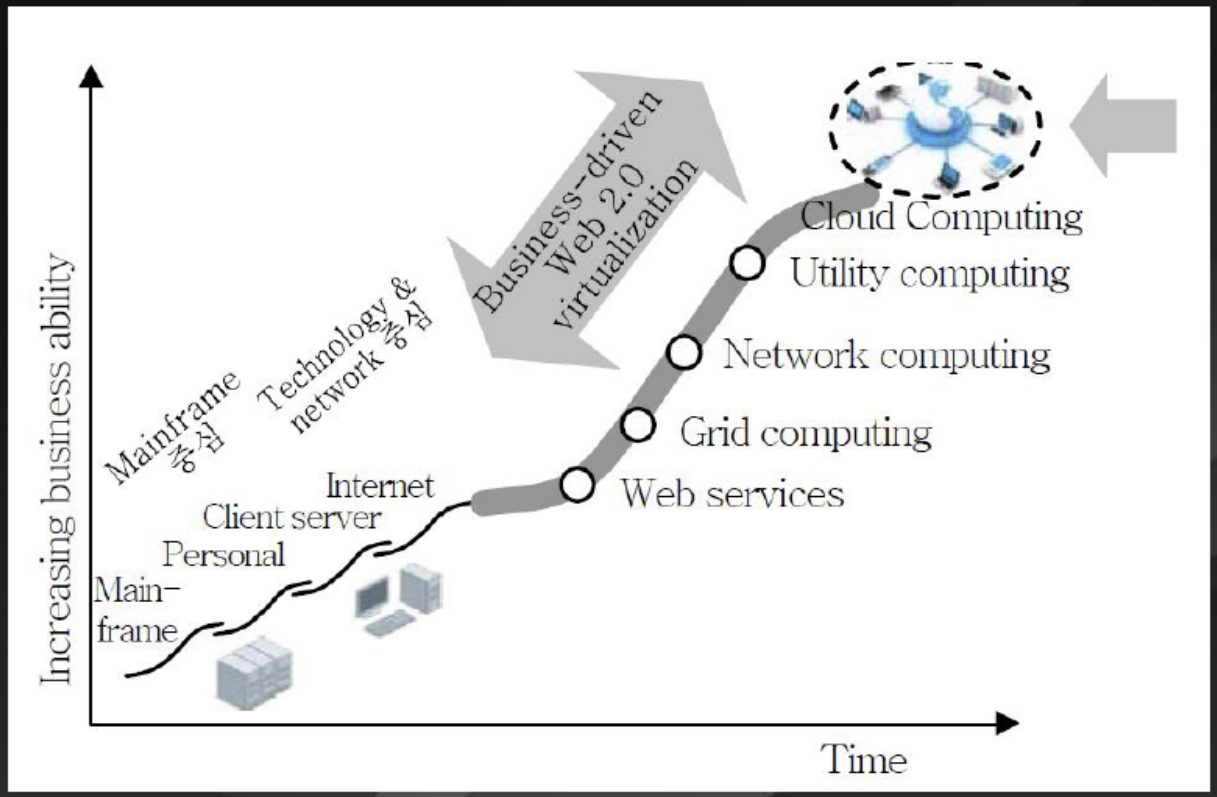




Cloud (Data Center) Architectures

Evolution of Computing Environments

Cloud Computing is NOT a brand-new revolution



Stolen from Trends in Technology of Cloud Computing, ETRI 2009.08

But why now? then not?

http://www.slideshare.net/woorung/trend-and-future-of-cloud-computing

coord

Amazon making money

- It took Amazon Web Services (AWS) eight years to hit $650 million in revenue, according to Citigroup in 2010.
- Just three years later, Macquarie Capital analyst Ben Schachter estimates that AWS will top $3.8 billion in 2013 revenue, up from $2.1 billion in 2012 (estimated), valuing the AWS business at $19 billion.
- It's a lot of money, and it underlines Amazon's increasingly dominant role in cloud computing, and the rising risks associated with enterprises putting all their eggs in the AWS basket.

Over time, the cloud will replace company-owned data centers

- That is what **Adam Selipsky of Amazon feels**. He says it may not happen overnight, it may take 5, 10 or even 20 years, but it will happen over time.
- According to Amazon, clouds enable 7 transformation of how applications are designed, built and used.
  - Cloud makes distributed architectures easy
  - Cloud enables users to embrace the security advantages of shared systems
  - Cloud enables enterprises to move from scaling by architecture to scaling by command
  - Cloud puts a supercomputer into the hands of every developer
  - Cloud enables users to experiment often and fail quickly
  - Cloud enables big data without big servers
  - Cloud enables a mobile ecosystem for a mobile-first world
- http://www.eweek.com/c/a/Cloud-Computing/AWS-Innovation-Means-Cloud-Domination-307831/

High Scale and Sharing are Key

- **Scale** is required to achieve cloud promise
  - Economies of scale
  - Elasticity
  - Increased utilization
- To afford the scale, cloud providers must **share** resources among many customers
- **Uniform** systems are needed allow resource fungibility
- **Virtualization** is necessary but not sufficient

http://research.microsoft.com/en-us/um/redmond/events/cloudfutures2012/tuesday/Keynote_OpportunitiesAndChallenges_Yousef_Khalidi.pdf