The Beauty and Joy of Computing

Jonathan McKinsey

Lecture #11
Social Implications II

The Maker Movement

https://www.youtube.com/watch?v=Wuza5WXiMkc
https://www.youtube.com/watch?v=f_zp42fQ-dQ
http://time.com/104210/maker-faire-maker-movement/

Computing Enables Innovation

Computing Enables Innovation I

- **Machine learning and data mining** have enabled innovation in **medicine, business, and science.**

- Computing enables innovation by providing the ability to **access and share information.**

- **Open and curated scientific databases** have benefited scientific researchers.

IBM Watson (Image by Clockready, *Wikipedia*)
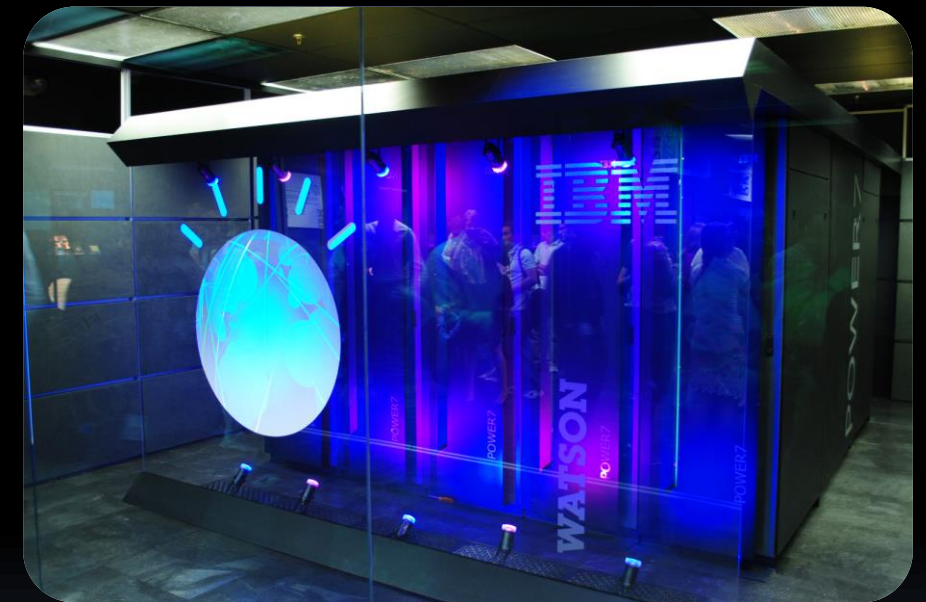
Computing Enables Innovation II

- **Moore's law** has encouraged **industries** that use computers to effectively **plan future research and development** based on anticipated **increases in computing power.**

- Advances in computing as an enabling technology have generated and **increased the creativity** in other fields.

Moore's Law (Image by Loadmaster, *Wikipedia*)
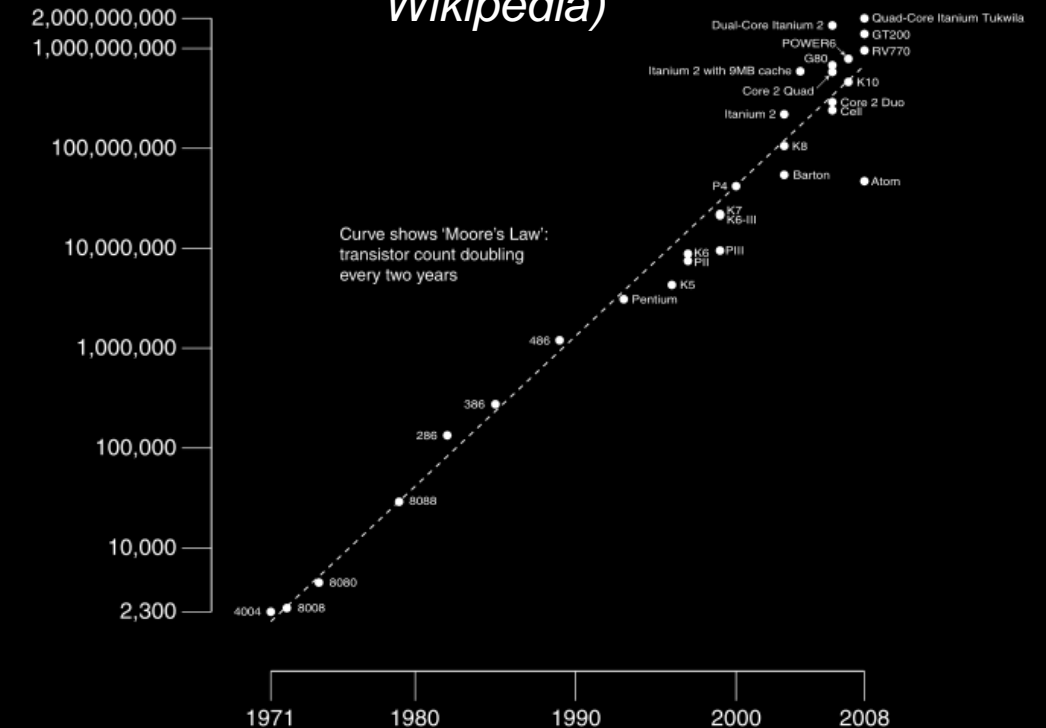
Pixar Studios (Image by Coolcaesar, *Wikipedia*)

Economic, Social, Cultural Contexts

Economic, Social, Cultural Contexts I

- **Computing innovations influence and are influenced by the economic, social, and cultural contexts in which they are designed and used!**

Laptop (Image by Petr Kratochvil, *publicdomainpictures.net)*

Economic, Social, Cultural Contexts II

- **Mobile, wireless, and networked** computing have an **impact on innovation** throughout the world.

- **Networks and infrastructure** are supported by both **commercial and governmental** initiatives.
  - **E.g. Google Fiber**

- The innovation and impact of **social media and online access varies** in **different countries** and in **different socioeconomic** groups.
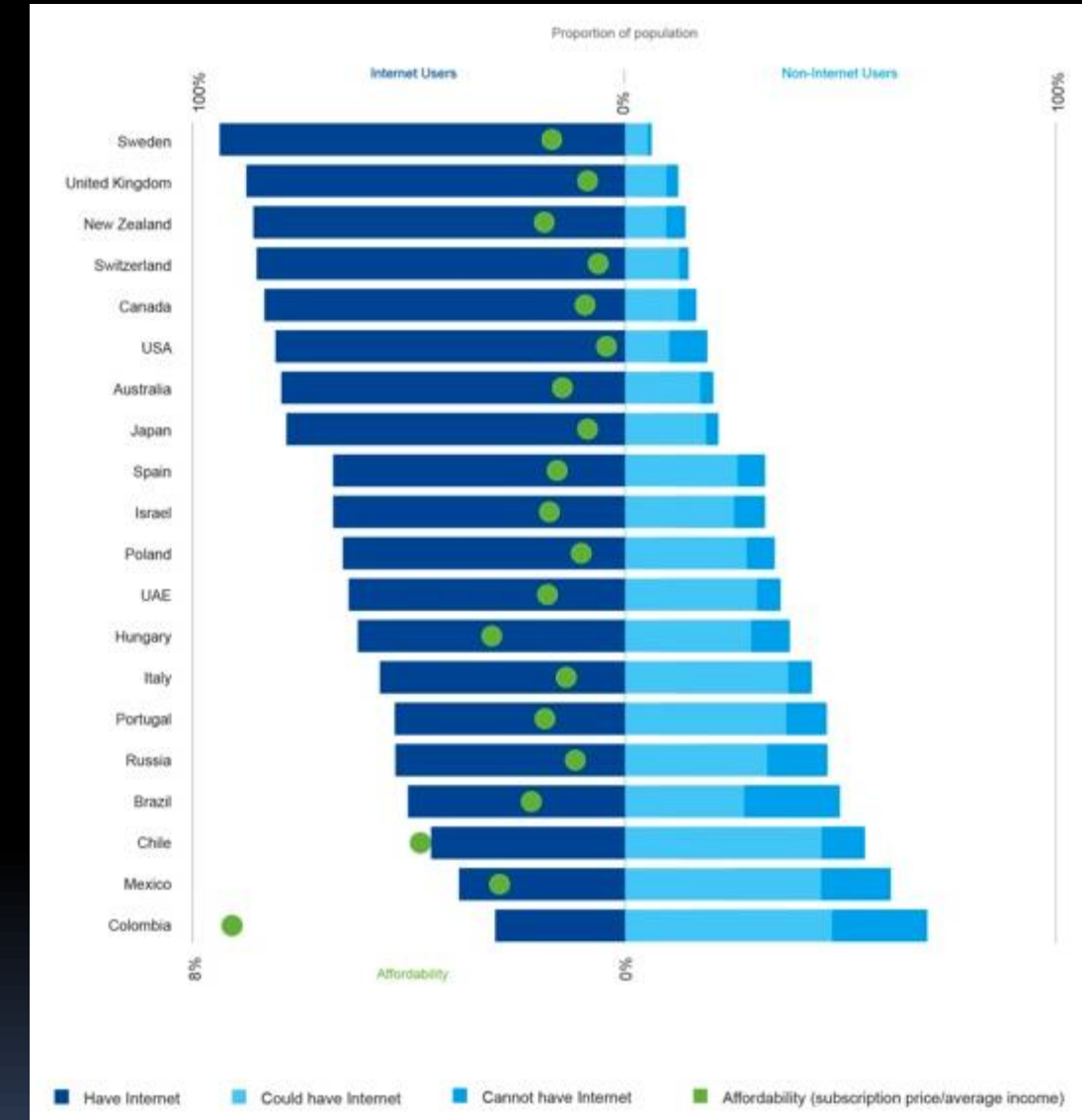
Arab Spring (Image by Soerfm, *Wikipedia*)

The best way to solve the Digital Divide is...

a) Free iPads for all kids

b) More computers in libraries

c) Free wifi for communities

d) One Laptop Per Child

e) Something else!

http://www.latimes.com/local/lanow/la-me-ln-ipad-curriculum-refund-20150415-story.html

http://one.laptop.org

http://www.businessinsider.com/9-cities-with-the-best-free-wifi-2014-2

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Where do you get your music?

a) <u>I bought everything</u>, as a download or ripped from CD

b) <u>I bought most</u> of my music but there are a few exceptions

c) <u>I bought a little</u> of my music, but most of it I didn't buy

d) It's <u>all</u> from BitTorrent/ friends/ etc

Intellectual Property

Intellectual Property via Copyright

- **Brian Harvey:**

  - "We're going to make a **bargain with creators**. We're going to give you a **limited time monopoly to profit** from your idea in **return for sharing** your idea with us. …

  - Congress keeps extending the duration of copyright"

- **US Constitution, Article I, Section 8:**

  - "The Congress shall have power… to promote the Progress of Science and useful Arts, by securing **for limited Times** to Authors and Inventions the exclusive Right to their respective Writings and Discoveries."

Logo for opposition to Copyright Term Extension Act
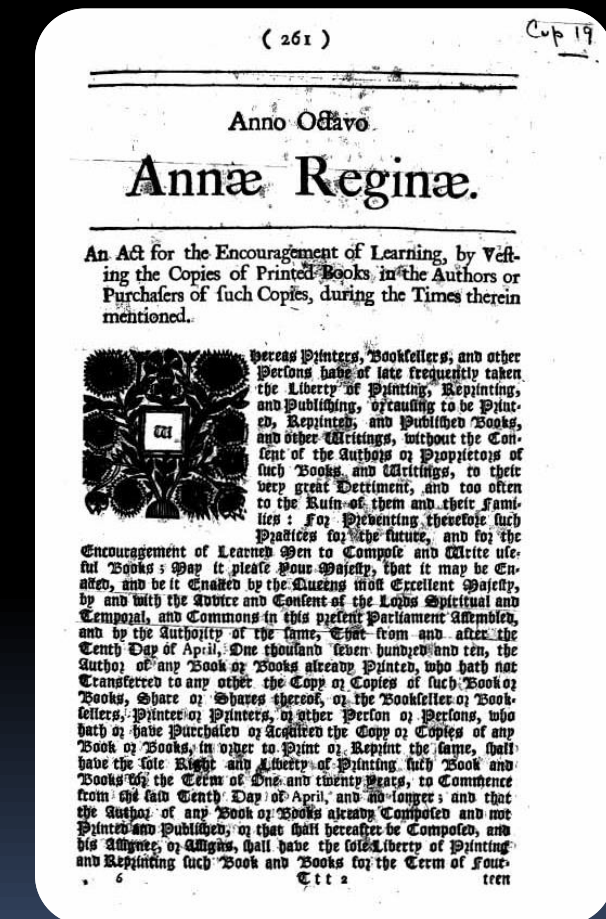(CTEA), or "Mickey Mouse Protection Act"

Economic, Social, Cultural Contexts I

- **Widespread access** to **digitized information raises questions about intellectual property.**

- Creation of **digital** audio, video, and textual **content by combining existing content has been impacted by copyright concerns.**

- **The Digital Millennium Copyright Act (DMCA) has been a benefit and a challenge** in making copyrighted digital material widely available.

The Statute of Anne, the origin of modern Copyright law, from 1710 (Public Domain)

(261)

Anno Octavo

Annæ Reginæ.

An Act for the Encouragement of Learning, by Vesting the Copies of Printed Books in the Authors or Purchasers of such Copies, during the Times therein mentioned.

Economic, Social, Cultural Contexts II

- **Legal and Ethical concerns are raised by**
  - **Innovations enabled by computing**
  - **Authenticated and anonymous access to digital information**
  - **Commercial and governmental censorship of digital information**
  - **Open source and licensing of software and content**
  - **Commercial access to music and movie downloads and streaming**
  - **Access to digital content via peer-to-peer networks**

Creative Commons

- A GREAT way to share / remix / reuse content
  - **Legal!**
  - **Set of licenses**
  - **Website for sharing CC content**
- **Open access and Creative Commons** have enabled broad access to digital information.

	BY = Attribution	Share Alike	No Derivatives	Non Commercial
	CC BY			
	CC BY SA	x		
	CC BY ND		x	
	CC BY NC			x
	CC BY NC SA	x		x
	CC BY NC ND		x	x

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