

# History Lessons



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# Technological disruption over the long run



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# **Inventing Ideas**

Genesis of the Knowledge Economy

# Empirical research on technological innovation

## Panel datasets of 100,000+ observations 1750-1940

- Patents in Britain, France and the United States, linked to inventor characteristics and prizes
- Prizes (US): Franklin Institute, American Institute of NY, Massachusetts Charitable Mechanic Society, Ohio Mechanics Inst., San Francisco Mechanics Inst., Chicago Mech. Institute, etc.
- “Great Inventors,” patents and prizes in UK and US
- Prizes (France): Society for Encouragement of National Industry
- Prizes (England): Royal Society of Arts

# Markets v. Administered systems

## **Administered Systems**

Arrangements where economic decisions about values, rewards and the allocation of resources are made by administrators or panels

- Monopsonistic
- Nonmarket-oriented
- Lack feedback mechanisms/transparency

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## So Long, Supply and Demand

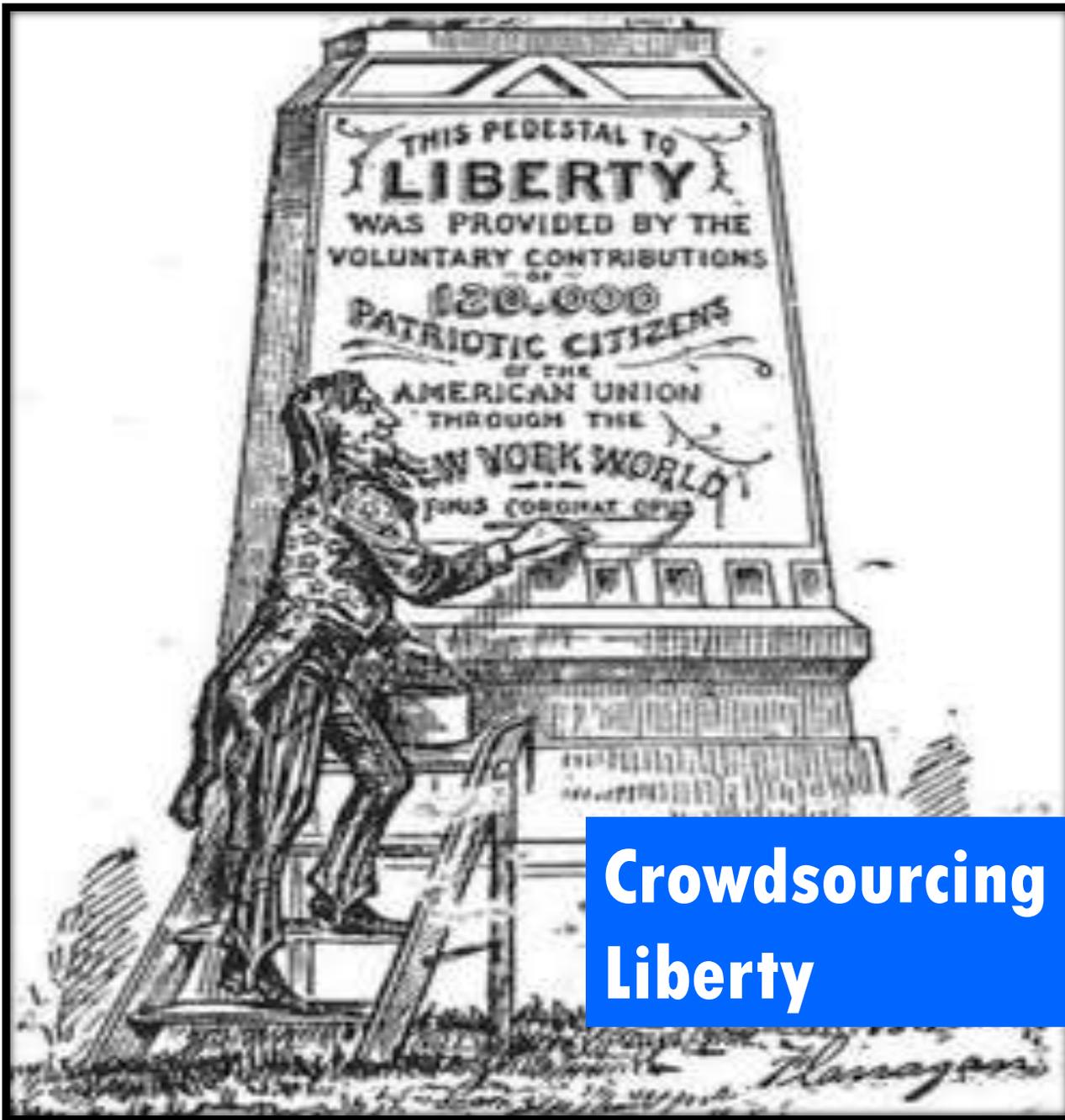
There's a new economy out there -- and it looks nothing like the old one

*By Thomas Petzinger Jr.*

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# “Disruption” is the norm

- The telegraph was “destined to effect a revolution... gigantic and sublime” in business and society. First lines laid out in 1844 and led to what an observer called **an era of “methodless enthusiasm.”**
- Telephone patented by Bell in 1876; according to one journalist: **“unquestionably the greatest industrial and commercial achievement of the American people.”**
- Electricity: **“the dream of an intoxicated god.”**
- **Indoor plumbing?**



**Crowdsourcing  
Liberty**

Patented  
Feb 18, 1879

A. BARTHOLDI.  
Statue.

No. 11,023.

Patented Feb. 18, 1879.



LIBERTY ENLIGHTENING THE WORLD.

*C. T. Dick  
J. B. Carpenter.*

*Auguste Bartholdi  
By J. P. Rollin  
adv.*

# Economic history lessons

- **Education**
- **Firms and Markets**
- **Innovation Policy**

## Pennsylvania: Frame of Government, 1683

- “erect and order all public schools, and encourage and reward the authors of useful sciences and laudable inventions”

# Incrementally great inventions

- Technical v. economic value

Thomas Jefferson: “a smaller [invention], applicable to our daily concerns, is infinitely more valuable than the greatest which can be used only for great objects. For these interest the few alone, the former the many.”

## High School Graduates/ College Dropouts

Bill Gates (Microsoft), Paul Allen (Microsoft), Larry Ellison (Oracle), Steve Jobs (Apple), Mark Zuckerberg (Facebook), David Karp (Tumblr), Peter Cashmore (Mashable), Michael Lazaridis (Research in Motion), Jack Dorsey and Evan Williams (Twitter), Shawn Fanning (Napster), Sean Parker (Napster), Michael Dell (Dell Computers), Travis Kalanick (Uber), Jan Koum (WhatsApp), Daniel Elk (Spotify).

# Economic history lessons

- Education & Labour
- **Firms and Markets**
- Innovation Policy

## United States: open-access markets in ideas

- Coasian/Smithian endogenous growth
- property rights and low TC; responsive to market demand
- Decentralized incentives for new ideas
- First modern patent system in world
- Filter for technical value NOT economic value
- *Shift to firms only when TC increased*

## Democratic disruption

- “Ask yourselves, what would be the result of one hundred thousand minds ... urged on by the daily motives of interest, to acquire new skill, or invent new improvements?”

---Joseph Story, 1829

"We are talking about the democratization of science: What happens when you open your company to thousands and thousands of minds, each of them with a totally different set of life experiences?"

--Alpheus Bingham, CEO of InnoCentive, 2006

# Economic history lessons

- **Education & Labour**
- **Firms and Markets**
- **Innovation Policy**

# Telephone: civil litigation relative to usage



# The Legal System and Disruptive Innovations

“the great inventions that embodied the power of steam and electricity, the railroad and the steamship, the telegraph and the telephone, have built up new customs and new law.”

-- Benjamin N. Cardozo, *The Nature of the Judicial Process* (1921)

# Conclusion

DESIGN.

A. BARTHOLDI.  
Statue.

No. 11,023.

Patented Feb. 18, 1879.



Copyright by Direct to France and General Beaumont, Aug., 1878.

LIBERTY ENLIGHTENING THE WORLD.

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By J. H. Holloway  
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# Economic History Lessons





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# LAW & TECHNOLOGY

## Technological change

- Creates uncertainty
- Changes costs of transacting
- Tends to increase spillovers and conflicting rights

## Law (if effective)

- Defines rights and reduces uncertainty
- Lowers transactions costs
- Internalizes external effects and resolves conflicts
- Helps allocate resources & risk to highest-valued use

1933

I WANT TO BE  
REGULATED!



## Knowledge Elites in Europe

- **Henry Maine:** “All that has made England famous, and all that has made England wealthy, has been the work of minorities.”
- **Mokyr and Voth (2009):** "the Industrial Revolution was carried not by the skills of the average or modal worker, but by the ingenuity and technical ability of a minority."
- **Squicciarini and Voigtländer (2015):** Worker skills are not relevant to growth, but the presence of knowledge elites drives growth in the industrial era.