

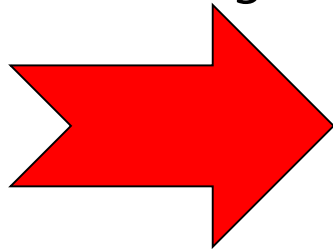
# BIG DATA RESEARCH TRENDS IN THE DIGITAL ECONOMY

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LECTURER

# Big Data

- Definition of Big Data
  - Big data is data sets that are so big and complex that traditional data-processing application software are inadequate to deal with them. Big data challenges include capturing data, data storage, data analysis, search, sharing, transfer, visualization, querying, updating, information privacy and data source.
- 3 Characteristics of Big Data
  - Volume
  - Velocity
  - Variety

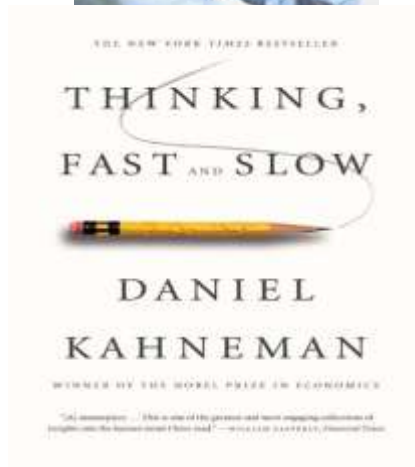


Value

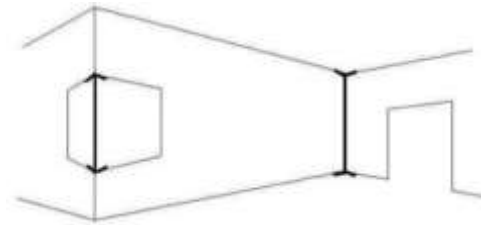
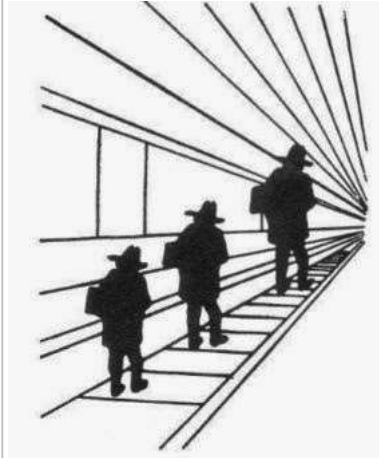
(Data → Information → Decision Making)

# Why Big Data?

Daniel Kahneman



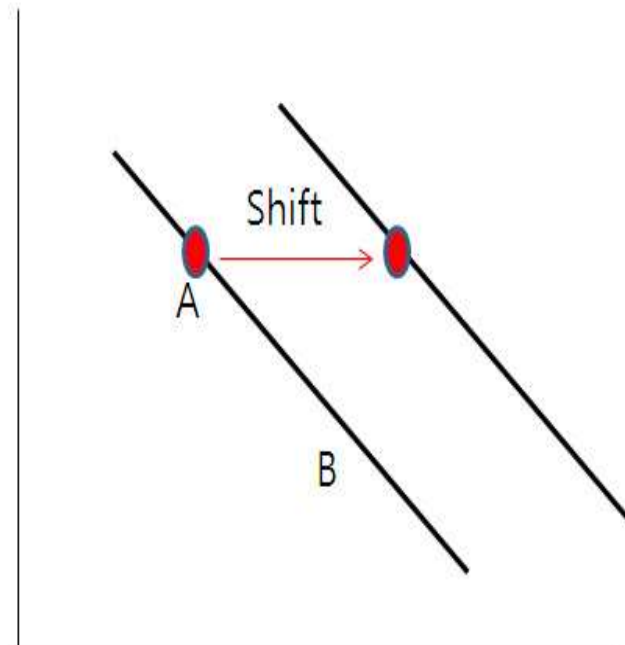
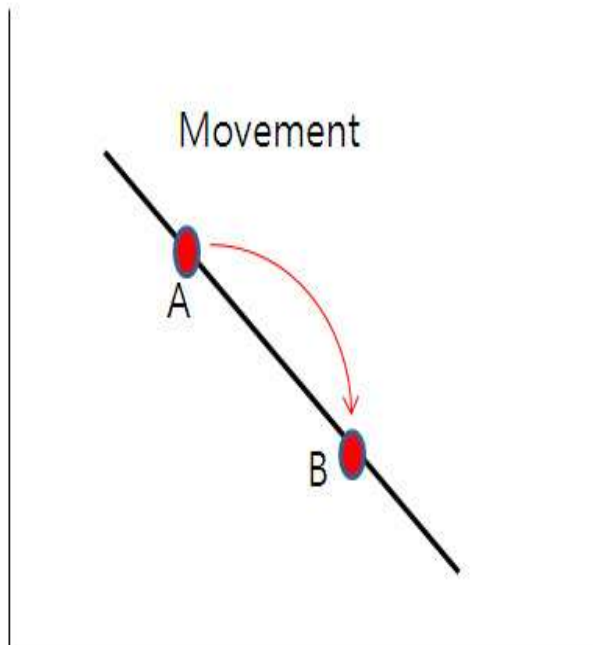
- System 1 : Perception, Intuition --> Automatic --> Fast
- System 2 : Data/Information --> Efforts --> Slow



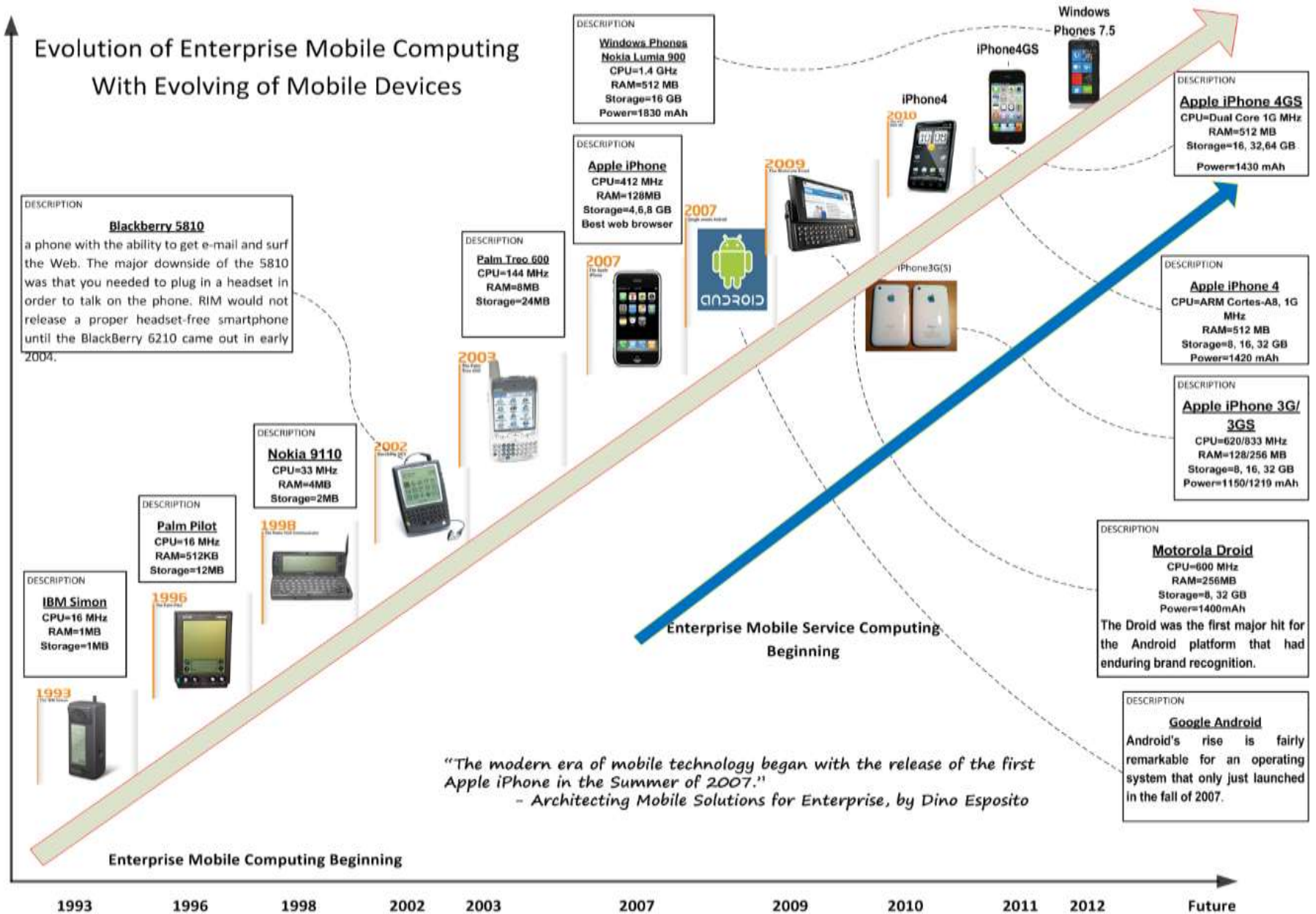
System 2 vs. System 1

Is the big data concept or technology

# Big data → Movement vs. Shift

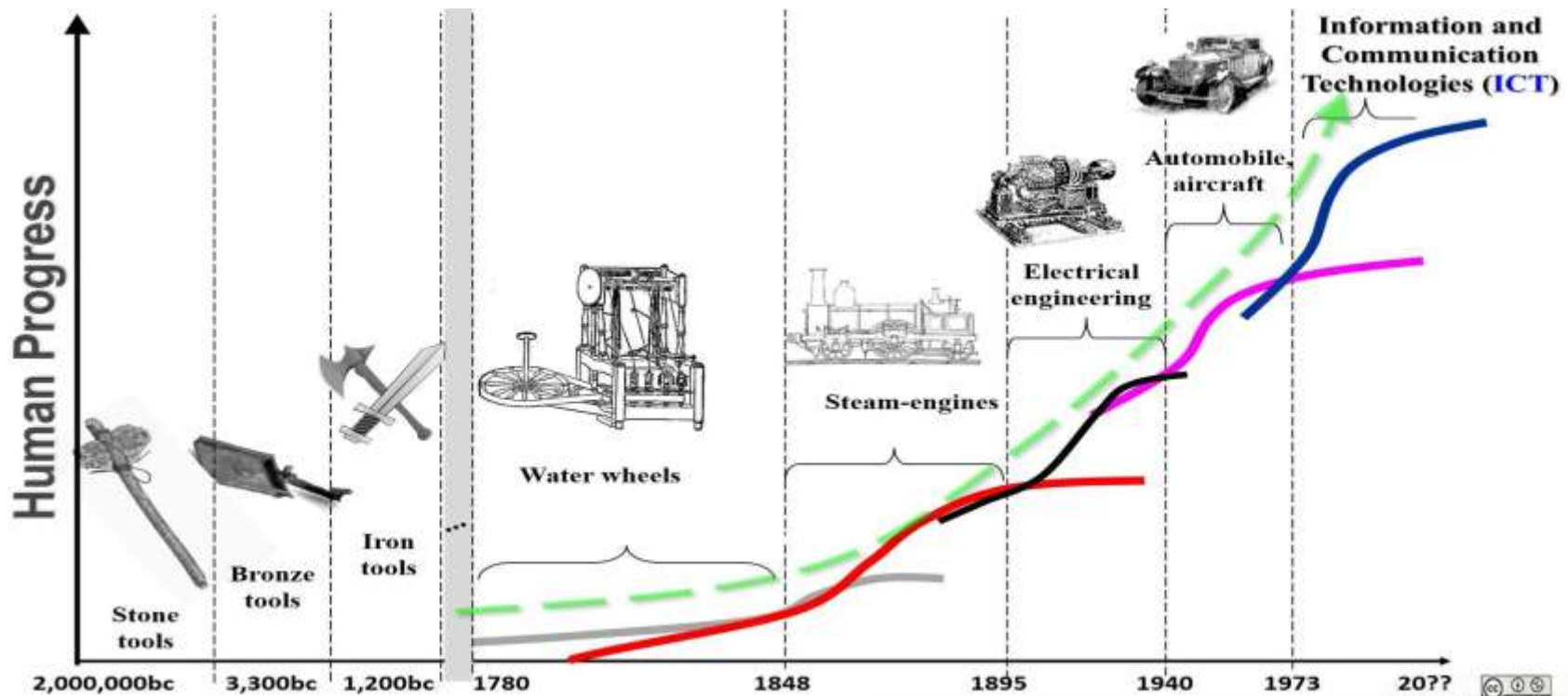
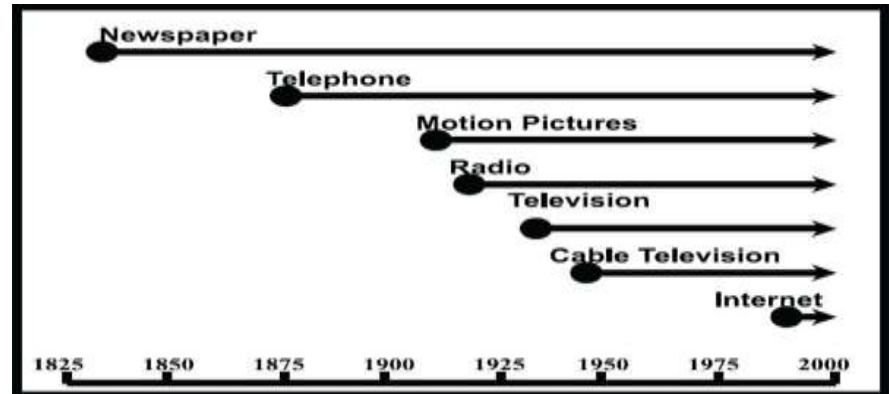


# Which tech was most innovative?



# • When was the hardest time for humans?

Have we been lucky so far?



# History of Excavator



- 1837 William Otis- **Steam**-engine excavator
- 1920's – 32 steam-engine excavator Manufacturers in U.S.
- Innovation by Disruptive Technology
- 1970's – On 4 of those (Insley, Koehring, Little Giant, Link Belt) survived in **hydraulic** excavator market
- **New technologies create market, but it takes time.**



John Henry



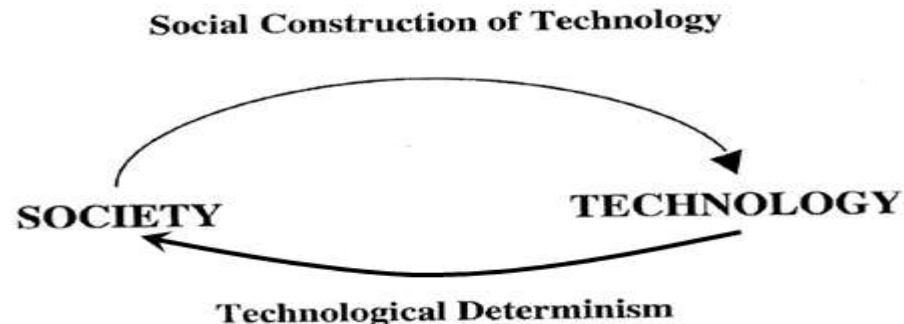
## Technological determinism

Refrigerator and Washing machine were not just instruments.  
They freed women who used to work only at home.

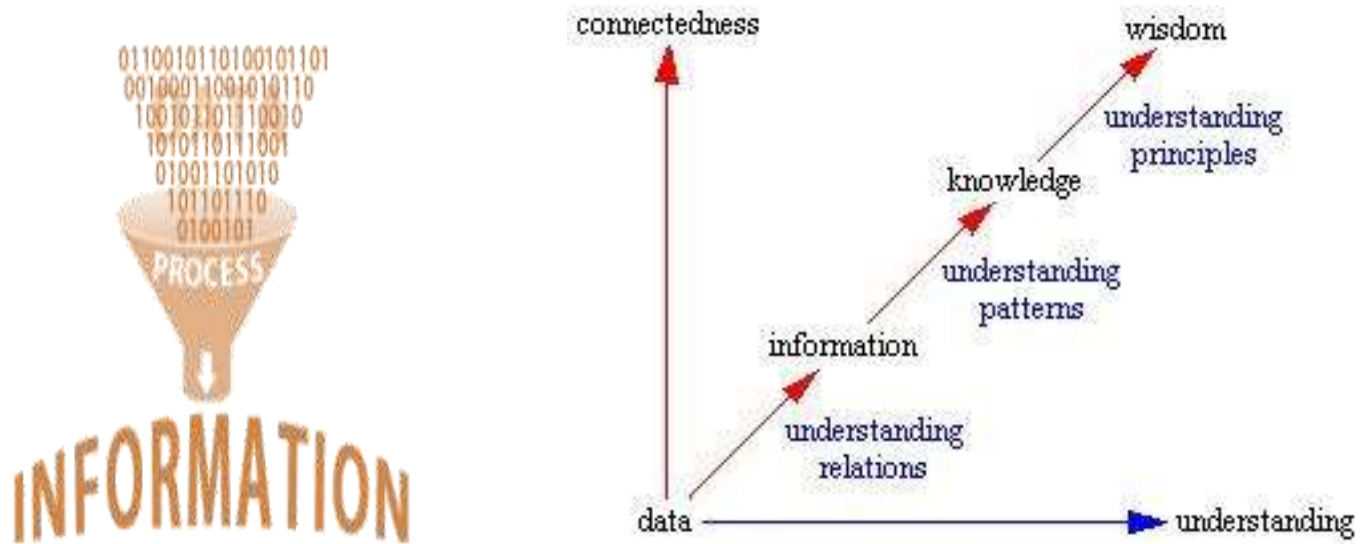


## Instrumentalism : Technology is just technology!

Instrument(technology) serves only when it is used for certain purposes.  
Instrument(technology) does not have its own purposes rather tool to achieve goals.



Data have always been important even in prehistoric ages!!

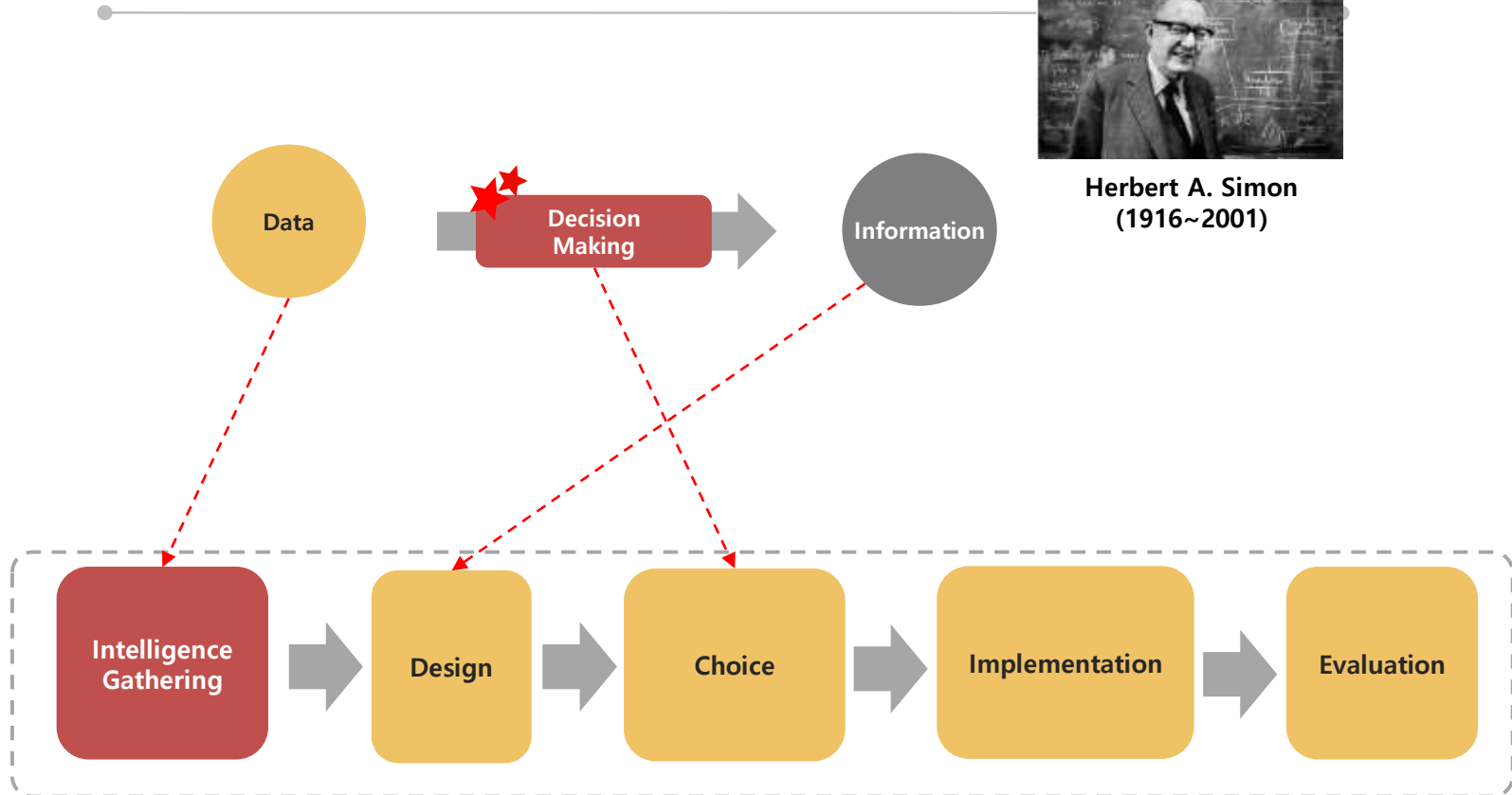


Humans eat food while groups eat data.

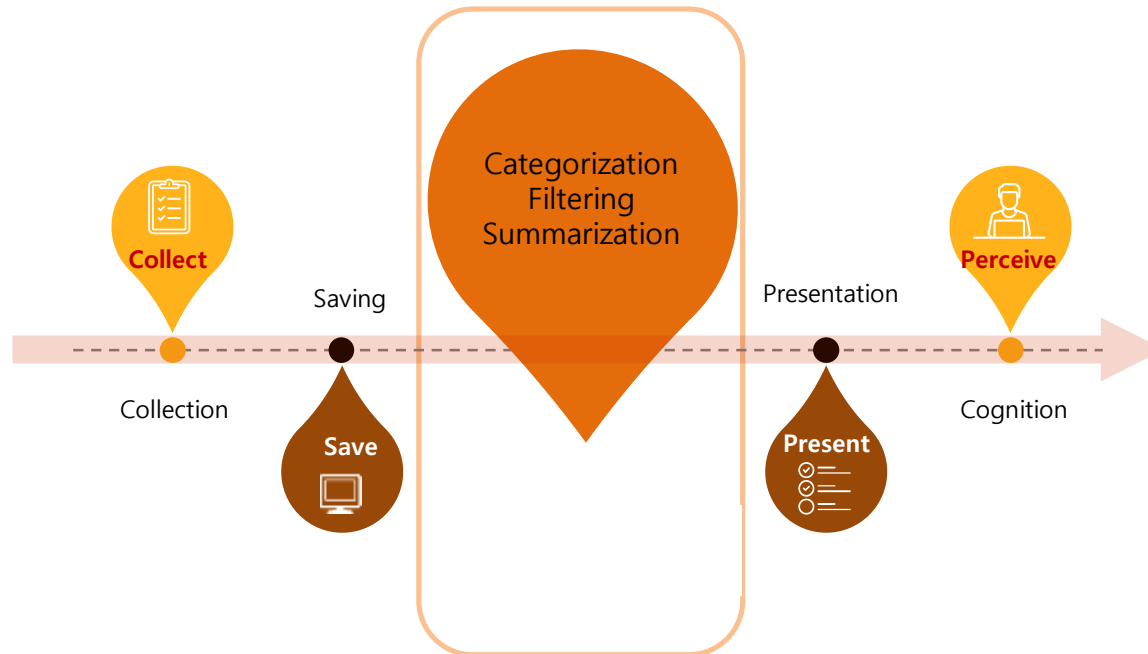
Only companies who can collect data and obtain information to make better decisions will survive.



Herbert A. Simon  
(1916~2001)

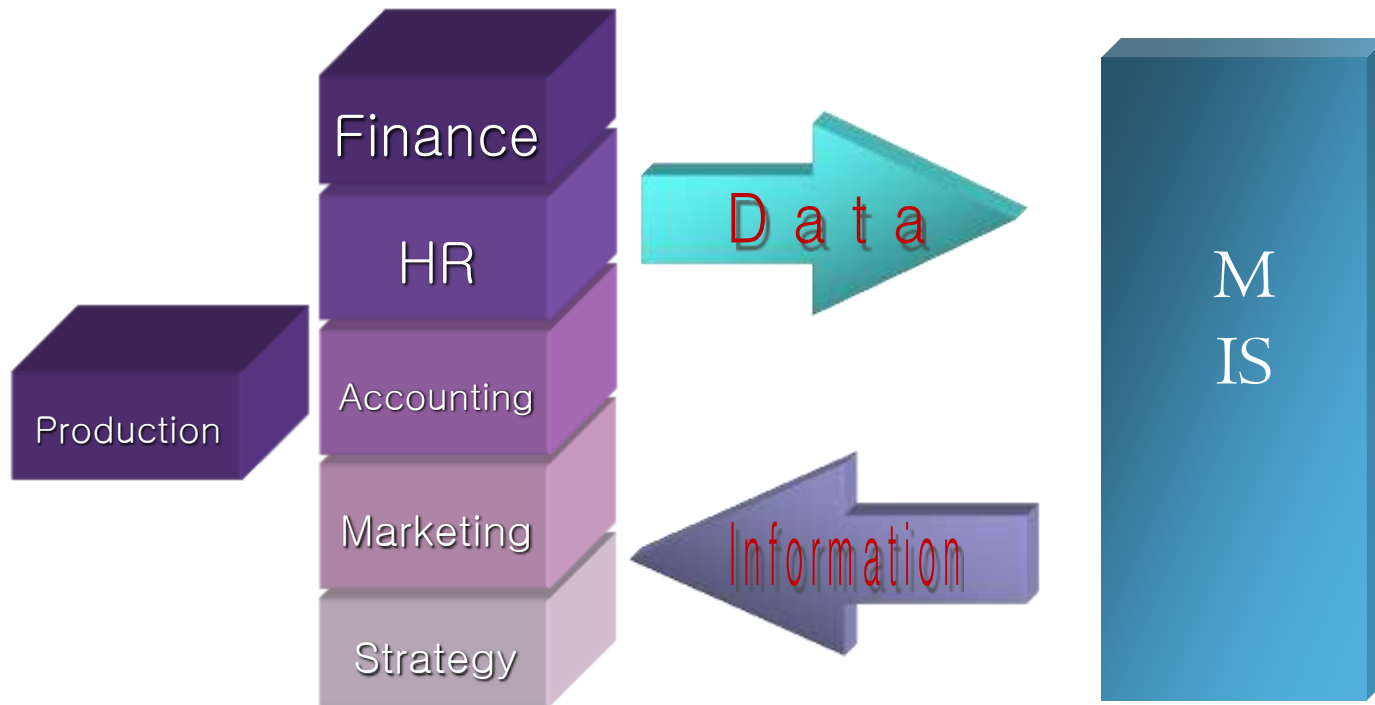


## Three Methods to Obtain Information from Data



**Successful organizations collect, analyze, and use data.**

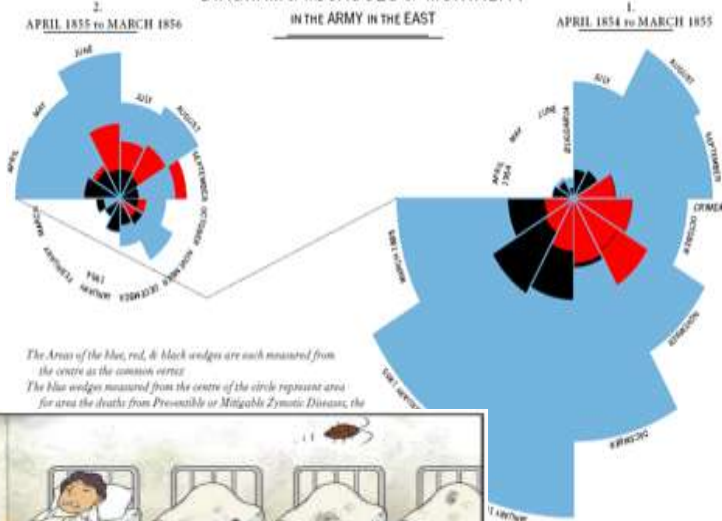
**All companies make data and they create information by processing the data!**



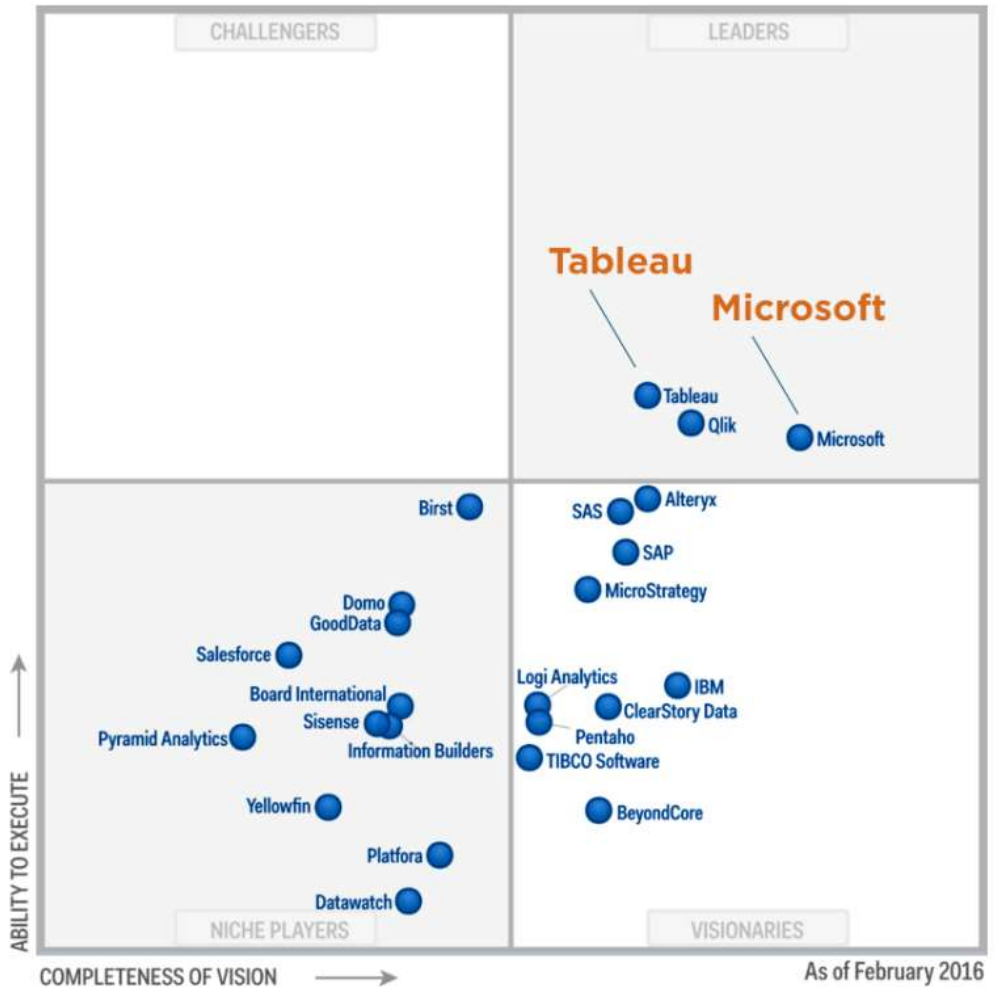
# Data Visualization

Wounded soldiers' death rate dropped from 42% to 2%

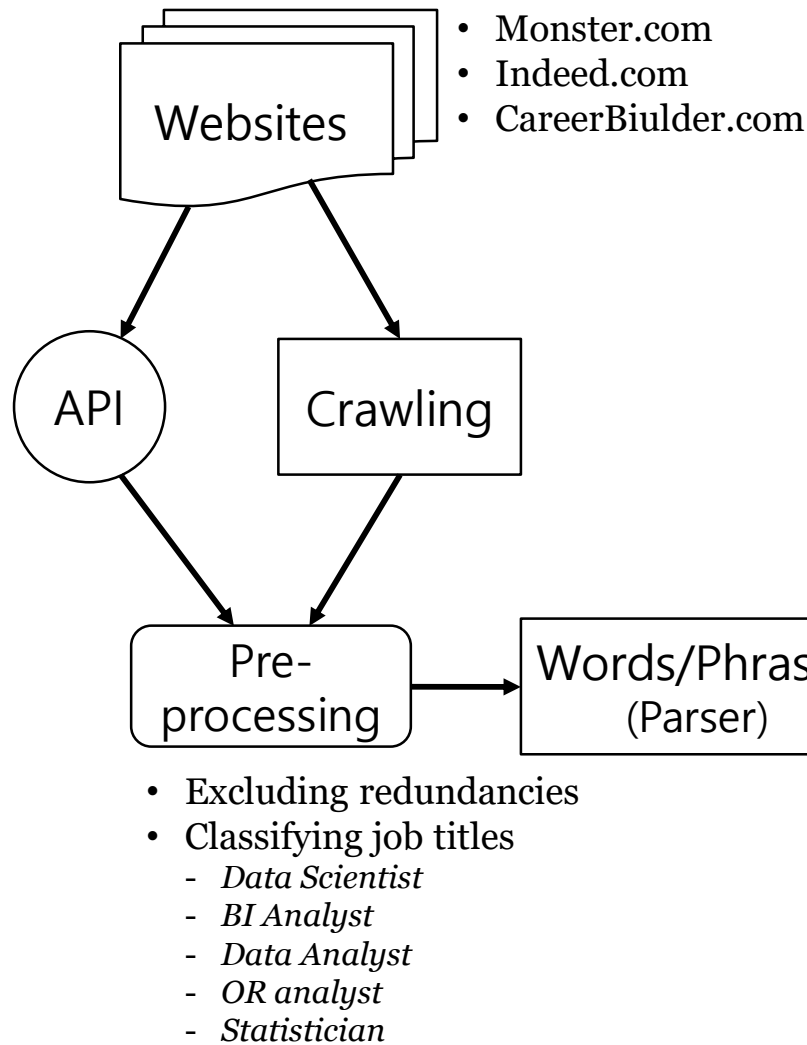
DIAGRAM OF THE CAUSES OF MORTALITY  
IN THE ARMY IN THE EAST



Nightingale

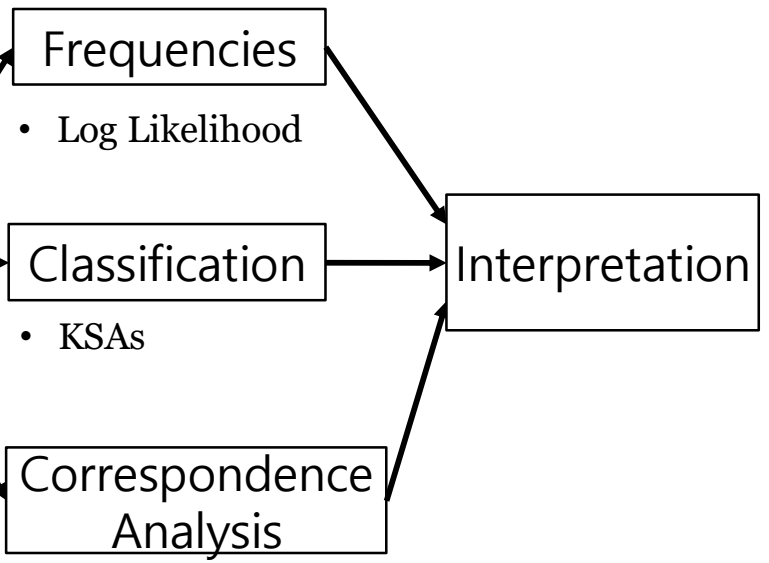


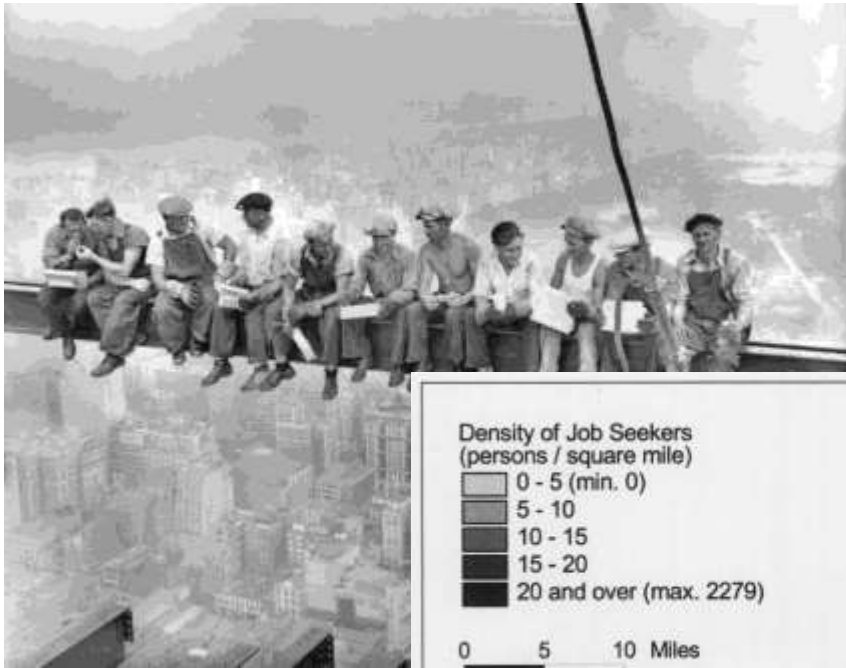
# Job postings as a source of big data



- Monster.com
- Indeed.com
- CareerBiulder.com

Job site	Collected	Filtered	Data Scientist	Companies
Indeed.com	15,044	10,431	1,053	636
Monster.com	4,641	2,336	123	58
CareerBuilder.com	12,424	6,169	64	42
Total	32,109	18,936	1,240	736





Where are the jobs?  
**Num. of Job postings  
on the map**

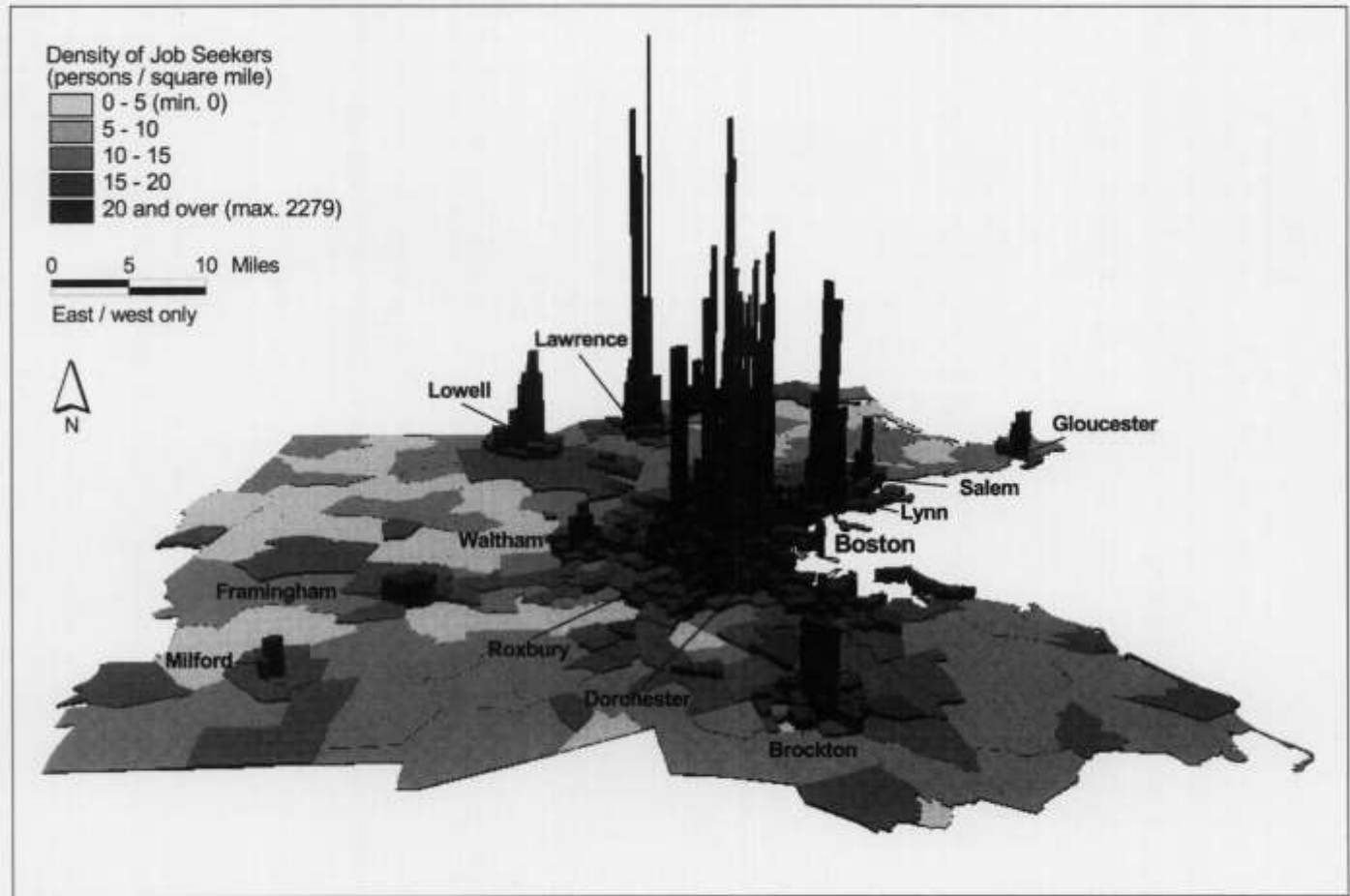
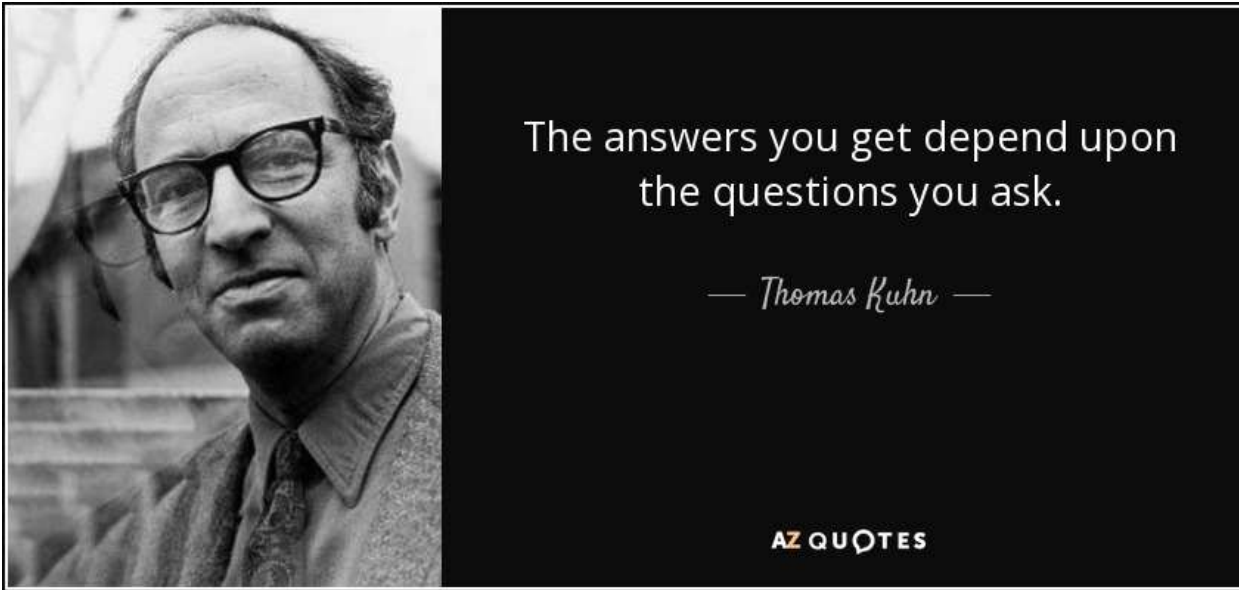


FIGURE 4. Perspective view showing density of less-educated job seekers.



### Thomas Kuhn

The key to improving any theory is to surface anomalies  
- events or phenomena that the theory cannot explain.