INTRODUCTION TO BUSINESS INTELLIGENCE

BIA 3713

WEEK 2

Leadership

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Agenda

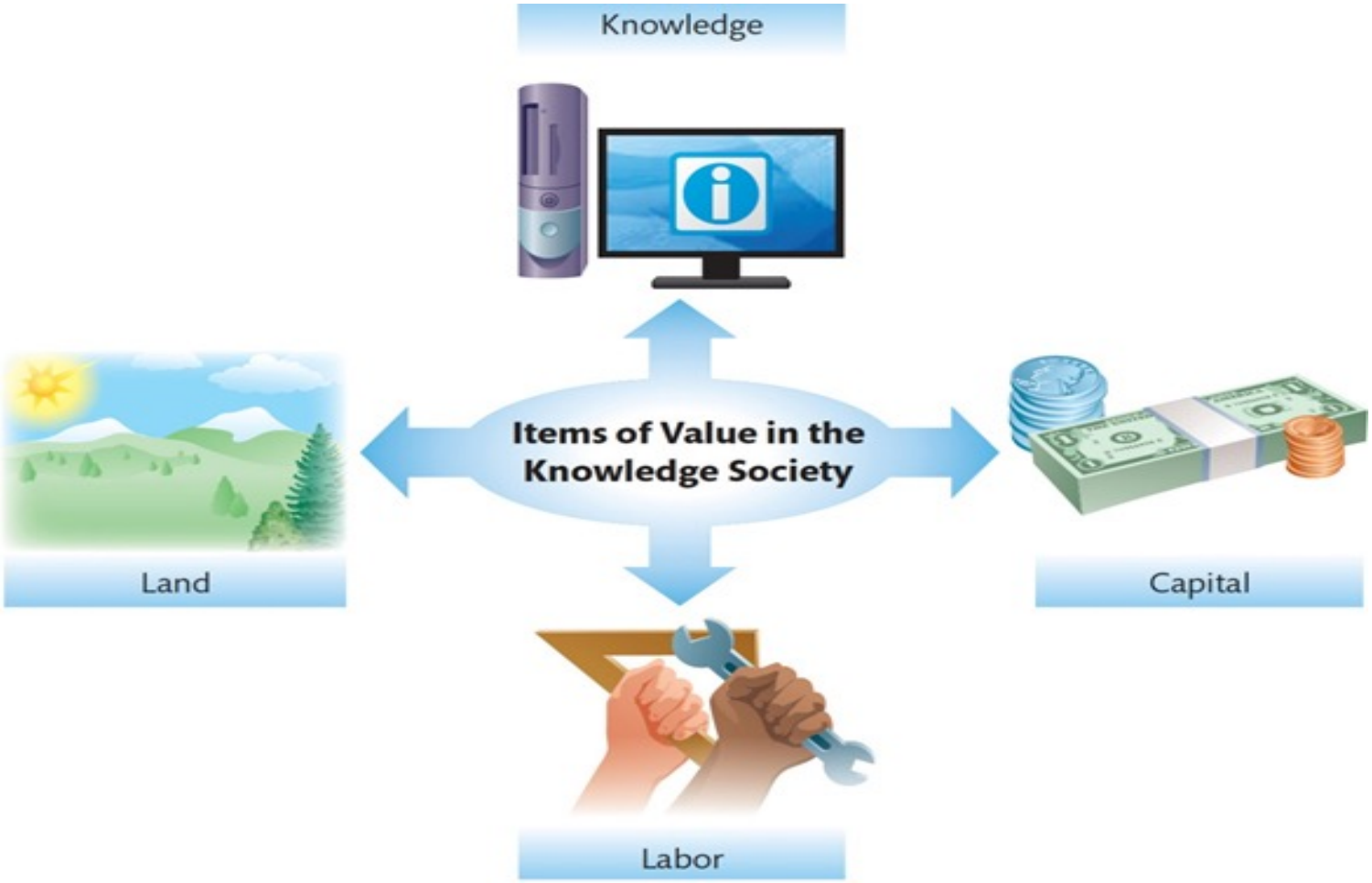
- Introduction
- Overview of Digital World and Mega Trends
- Analytics Problem Solving Skills
- COVID-19 Data and Analytics
- Key Resources
- Readings: Discussion
- Summary and Conclusions

The Emergence of Digital World

- The proliferation of mobile devices such as smart phones, tablets, and iPads are all around us
- Changes in technology enables new ways of working and socializing
- Boundaries between work and leisure time are blurring

Source: William Perugini/Shutterstock.

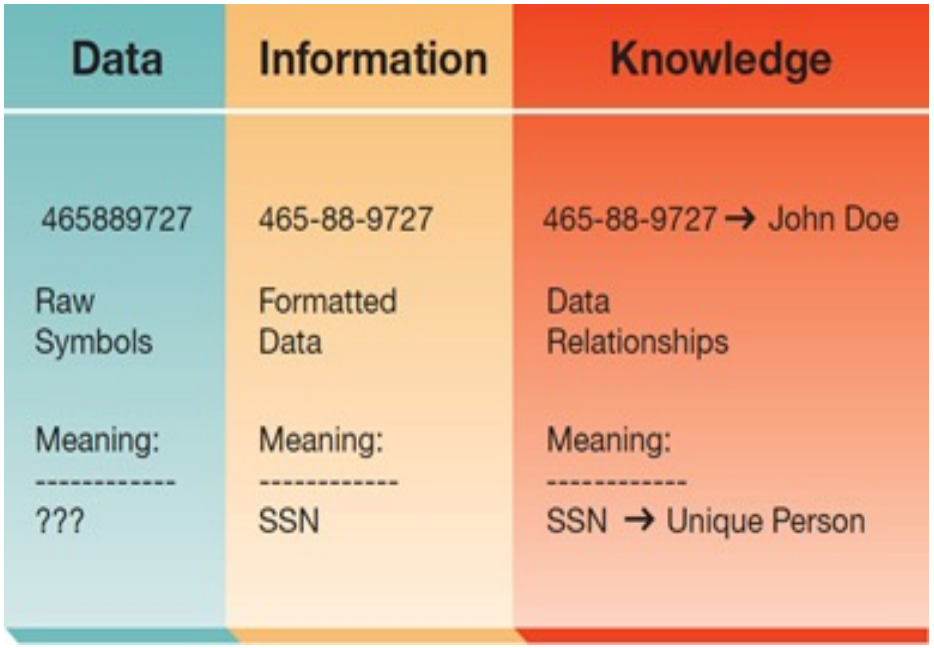
Information is a Valuable Resource



Megatrends That Shape The Digital Future

Data: The Root and Purpose of Information Systems

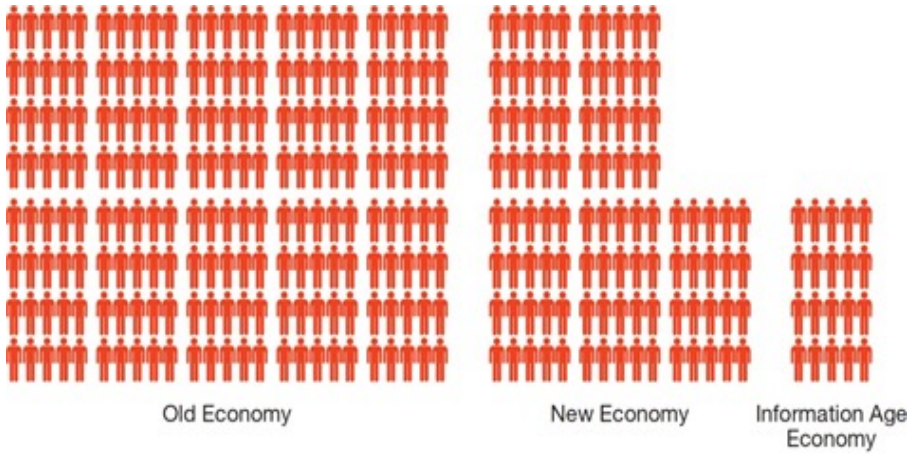
- Alone, raw data are not very useful
- When processed, data transforms into information
- When information is understood and used for decisions, it becomes knowledge



Big Data

- IDC estimates that in 2018, 33 zettabytes of data were generated and consumed
- What would that amount equal? It is 33 trillion gigabytes (IDC, 2018)
- Forecasted to grow to 175 zettabytes by 2025

- Increasing amounts of data increases the ability to detect meaningful relationships and other insights which can contribute to business success



Big Data

- Big Data:
  - High Volume (Lots of it)
  - High Velocity (Accrues quickly)
  - High Variety (Different kinds)

- New technologies and techniques required to capture, store, and analyze big data

Cloud Computing

- Use the Internet as the platform for applications and data

- Applications that use to be installed on individual computers are increasingly kept in the cloud
  - e.g., Gmail, Google Docs, Google Calendar

- Can enable advanced analytics of massive amounts of Big Data

Mobile Devices

- Many believe that we're living in a post-PC era
- In the developing world mobile devices often leapfrog traditional PC's
- Implications:
  - Consumerization of IT
  - Bring Your Own Device (BYO D) to work is a major concern
  - Security concerns

Social Media

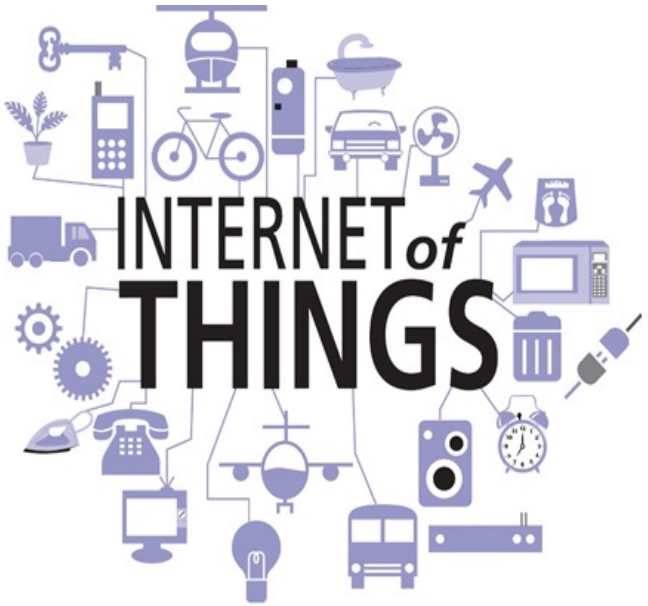
- Over 4.6 billion (and growing) Facebook users share status updates or pictures with friends and family

- Companies harness the power of the crowd by using social media to get people to participate in innovation and other activities

- Organizations use social media to encourage employee collaboration

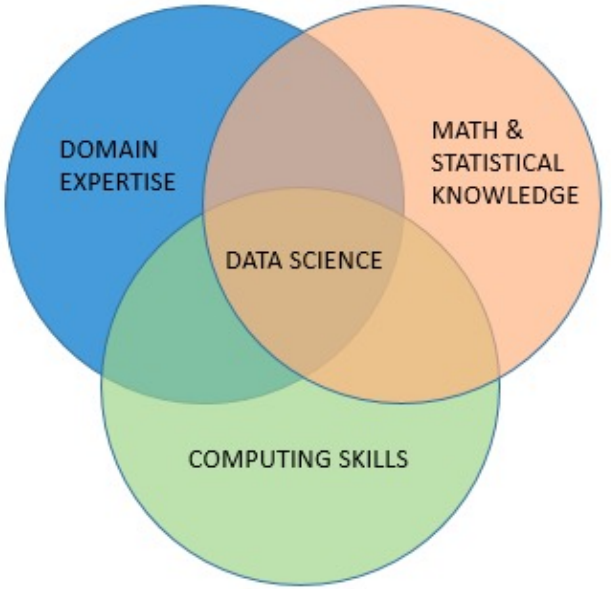
Internet of Things

- A broad range of physical objects that can automatically share data over the Internet
- The Industrial Internet of Things (IOT) enables the convergence of IT and operations technology to enable mass-produced customized products
- The Internet of **everything**?



Analytics Problem Solving Skills

- Combining concepts or knowledge:
  - Quantitative Skills (Statistics, Math, Operations Research etc.
  - Computer Science Skills (Algorithm Development, Programing, Database etc.)
  - Business/Domain Expertise



COVID-19 Data and Analytics

Kaggle

- Currently hosting multiple data science challenges
- Focusing on helping the medical community to better understand COVID-19
- Nearly 5 million users are participating

COVID-19 Data and Analytics

Kaggle Competitions: Descriptive Analytics

- To summarize COVID-19 literature using NLP
  - Roughly 28,000 papers have been published since the start of the outbreak
  - Makes it easy to catch up on recent trends
  - Provides summary on trends in the COVID-19 literature including
    - Most popular research areas
    - Number of new publications per week
    - Most proliferate authors, etc.

COVID-19 Data and Analytics

Kaggle Competitions: Predictive Analytics

- To predict COVID-19 infections and fatalities for various regions
  - Helps in planning for hospitalizations and ICUs needed to respond to the crisis.

- To predict increased number of infections
  - Due to a spread of the disease
  - Due to a lack/increase of our testing capabilities.

Key COVID-19 Apps

Microsoft AI for Health

- App for tracking **COVID-19 (using Descriptive Analytics)**
  - https://www.microsoft.com/en-us/ai/ai-for-health-covid-data

Take

- Brazilian leader in chatbots
- Developed a bot to connect potential patients to medical teams to avoid overloading Brazilian hospitals

DarwinAI

- Proposed an AI solution that can detect COVID-19 from chest x-ray images

Key COVID-19 Apps

NYU COVID-19 Mobile App

- Currently being used in New York City to aid clinicians with COVID-19 diagnosis.
- Created a model to assign a severity score based off the biomarkers.
- A higher score means higher chance of mortality from COVID-19.

BenevolentAI

- Created an algorithm that proposes new compounds to fight COVID-19.
- Currently working with the US government to run trials and see the effects of some of the proposed solutions.

Key COVID-19 Apps

Amazon 'Distance Assistant'

- To help site leaders identify high traffic areas and implement additional measures to improve social distancing
  - Solution applies artificial intelligence and machine learning to the camera footage in buildings.

- Promote social distancing behavior in real-time
  - Using AI and augmented reality to create a magic-mirror-like tool that helps associates see their physical distancing from other

Interesting Resources

- Kaggle
  - https://www.kaggle.com/
- Towards Data Science
  - https://towardsdatascience.com/
- KDnuggets
  - https://www.kdnuggets.com/
- Analytics Vidya
  - https://www.analyticsvidhya.com/
- LinkedIn Customize Job Alert

Discussion

Seven Use Cases for Data Science

Disney Uses Big Data, IoT And Machine Learning To Boost Customer Experience

Analytics Terms Business People Need to Know

Data Scientist: The Sexiest Job of the 21st Century

Summary and Questions