

# Applications: What makes Big Data valuable

# After this video you will be able to..

- Describe examples from fields where big data has enabled better models which allows for higher precision recommendations or solutions to make the world a better place

# What Makes Big Data Valuable?

Big Data



Better Models



Higher Precision

# What Makes Big Data Valuable?

Big Data



Personalized  
marketing data



Happy  
customers!



Awesome!  
Just what I was  
looking for!



# What Makes Big Data Valuable?

I like blue plates!



I like gold plates!

# Personalized Marketing



"Your recent Amazon purchases, Tweet score and location history makes you 23.5% welcome here."

# Recommendation Engines

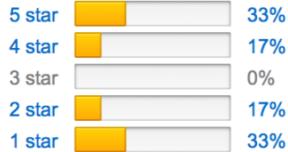


# Sentiment Analysis

## Customer Reviews

★★★★★ 6

3.0 out of 5 stars ▾



[See all 6 customer reviews ▾](#)



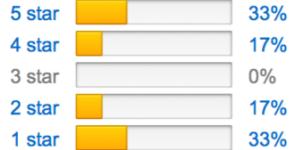
I love my new  
blue plates!  
Let me write  
a review.

# Sentiment Analysis

## Customer Reviews

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Ruined after first wash.

Although I had washed my existing set in my dishwasher (set to air dry) many times without issue, two of the 4 new plates were ruined upon the initial wash. Apparently these are actually clear glass plates with some sort of blue coating, which peeled off during the washing process, leaving me with two partial clear/partial blue plates with visible peeling. I suppose I can try and scrub off the remainder of the blue coating and have usable clear plates, however - if I wanted clear plates that is what I would have purchased. Heed the warning to be very careful when washing these.



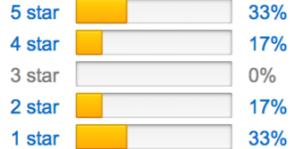
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Inspired by Your Shopping Trends



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I love my new blue plates!  
Let me write a review.



Wonderful. Exactly what I wanted.



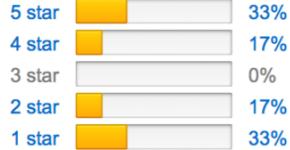
Great

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## Natural Language Processing

# Mobile Advertising

# Mobile Advertising



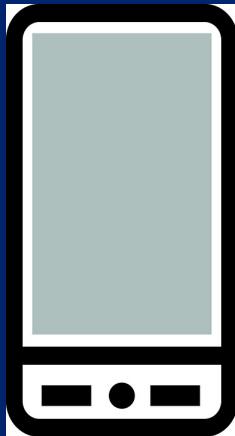
# Mobile Advertising



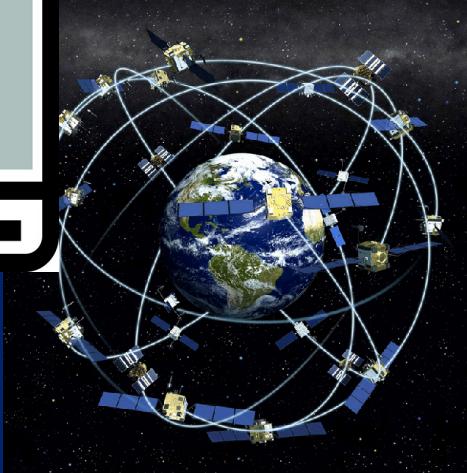
# Mobile Advertising



**Customer profile**  
**Recent purchases**



**Geolocation data**

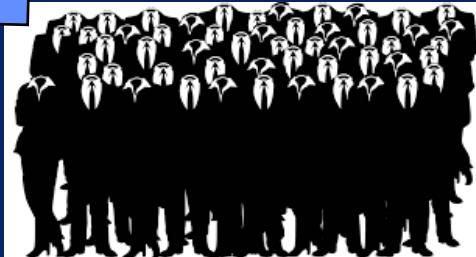


# Consumer Growth to Guide Product Growth

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**Collective Consumer  
Behavior**



# Consumer Growth to Guide Product Growth

## Flight Schedule

Depart	Arrive	Flight #	Routing	Travel Time	Business Select \$276	Anytime \$254
6:20 AM	8:00 AM	2453	Nonstop	1h 40m	Sold Out	\$254
7:45 AM	9:15 AM					\$254
10:10 AM	11:40 AM	1538	Nonstop	1h 30m	Sold Out	\$254
12:25 PM	1:55 PM	476	Nonstop	1h 30m	\$276	\$254
2:05 PM	3:35 PM	340	Nonstop	1h 30m	\$276	\$254

We like morning flights!

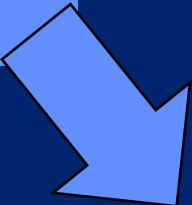
# Biomedical Applications

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2 billion human genomes  
sequenced by 2025

# Biomedical Applications

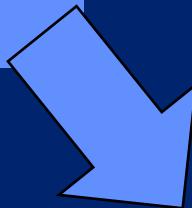
2 billion human genomes  
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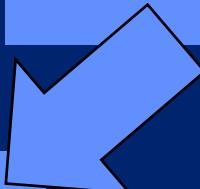
Up to 40 exabytes  
in storage!

# Biomedical Applications

2 billion human genomes  
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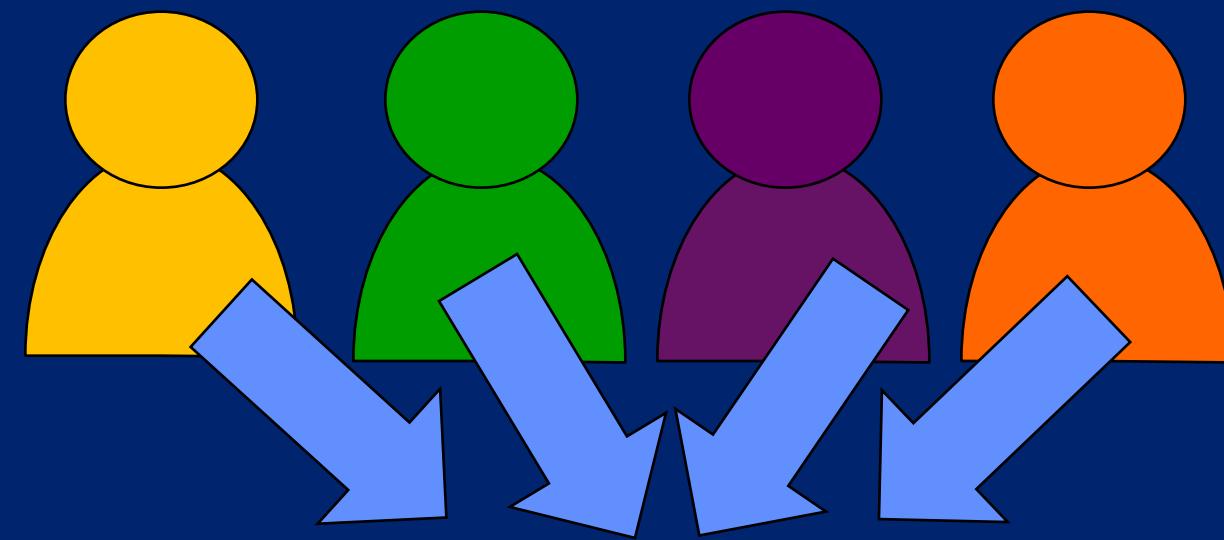


Up to 40 exabytes  
in storage!



Up to 10,000 trillion CPU  
hours for processing!

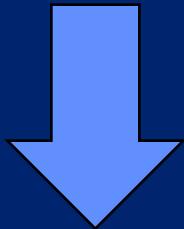
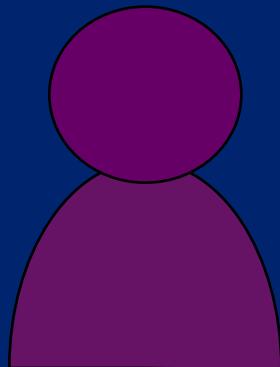
# Personalized Cancer Treatment



Common treatment

# Personalized Cancer Treatment

Perform large scale  
analysis of patient genes  
and tumor growth



Customized  
treatment

# The Biomedical Big Data Challenge



How to integrate sources  
to gain further insight

# Big Data-Driven Cities

# Smart Cities

- Use city wide sensor data to
    - Lower energy costs, pollution
    - Improve services, traffic, safety, ...



# How are other applications using Big Data?

Figure 4

**Industries are using big data to transform business models  
and improve performance in many areas**

Illustrative

Retail	Manufacturing		
<ul style="list-style-type: none"><li>Customer relationship management</li><li>Store location and layout</li></ul>	<ul style="list-style-type: none"><li>Fraud detection and prevention</li><li>Supply chain optimization</li><li>Dynamic pricing</li></ul>	<ul style="list-style-type: none"><li>Product research</li><li>Engineering analytics</li><li>Predictive maintenance</li></ul>	<ul style="list-style-type: none"><li>Process and quality analysis</li><li>Distribution optimization</li></ul>
Financial services	Media and telecommunications		
<ul style="list-style-type: none"><li>Algorithmic trading</li><li>Risk analysis</li></ul>	<ul style="list-style-type: none"><li>Fraud detection</li><li>Portfolio analysis</li></ul>	<ul style="list-style-type: none"><li>Network optimization</li><li>Customer scoring</li></ul>	<ul style="list-style-type: none"><li>Churn prevention</li><li>Fraud prevention</li></ul>
Advertising and public relations	Energy		
<ul style="list-style-type: none"><li>Demand signaling</li><li>Targeted advertising</li></ul>	<ul style="list-style-type: none"><li>Sentiment analysis</li><li>Customer acquisition</li></ul>	<ul style="list-style-type: none"><li>Smart grid</li><li>Exploration</li></ul>	<ul style="list-style-type: none"><li>Operational modeling</li><li>Power-line sensors</li></ul>
Government	Healthcare and life sciences		
<ul style="list-style-type: none"><li>Market governance</li><li>Weapon systems and counterterrorism</li></ul>	<ul style="list-style-type: none"><li>Econometrics</li><li>Health informatics</li></ul>	<ul style="list-style-type: none"><li>Pharmacogenomics</li><li>Bioinformatics</li></ul>	<ul style="list-style-type: none"><li>Pharmaceutical research</li><li>Clinical outcomes research</li></ul>

Source: A.T. Kearney analysis

# Smart and personalized business!

Big Data



Better Models



Higher Precision

Personalized Marketing  
Personalized Medicine  
Smart Cities  
< and more! >

