MULTIMEDIA APPLICATIONS

Application

In this section we provide an overview of current applications of Multimedia Systems.

Recall that a broad definition of a *Multimedia Application* is an Application which uses a collection of multiple media sources e.g. text, graphics, images, sound/audio, animation and/or video.

Classification

Multimedia applications may be classified in a few ways:

- **Field of Application** — How they are used, *e.g.* Medical Diagnostics, Collaborative Learning etc.
- **Media Employed** — what media they use
- **How they are used** — people-to-people, people-to-systems.

Classification

- People-to-people — where the application is being used to aid communication between humans *e.g.* Collaborative Learning, Video Conferencing. It could be subdivided to categorise:
    - private vs professional applications
    - interpersonal (two-way only) or group oriented applications
    - real-time vs asynchronous applications.
- People-to-systems — basically providing access to (send and receive) multimedia information.

Home Entertainment & Computing


PHILIPS
3D
IC3D


3D

Massively Multi-player Online Gaming

Massively Multi-player On-line Role Playing Games (MMORPGs) have attracted millions of players, playing together massively.

MMOG Implementation

Through their analysis of many games, Ju and Wagner (1997) identified a model of adventure games. The basic components of adventure games within this model included, which as a plan for the games development:

1. Story
2. Development approach
3. Implementation

MMOG Story

(1) Story, which sets forth the basic characteristics of the game by specifying (a) story characteristics, (b) actors and actor characteristics, (c) resources, (d) tasks, and (e) setting. It is through the interaction of these elements that the adventure game takes its' basic form.

MMOG Development

(2) Development approach, which basically refers to how the specific details of the game are created and whether actors and setting are virtual (computer-generated) or real (video). This part of the model does not really affect the content or play of the game.

MMOG Implementation

(3) Implementation, which refers to the visual and technical aspects or interface of the game. Implementation includes the user's input options as well as the output options such as scoring and feedback.

MMOG Challenges

In a computer network, latency refers to the length of time a message takes to move from one designated node to another. Smed, Kaukoranta, and Hakonen (2002) note that the variance in latency measures is known as “jitter,” and suggest that in MMOGs an acceptable latency might range from 0.1 to 1.0 seconds.

In effect, higher latencies might be acceptable as long as there is minimal jitter.

MMOG Challenges

Participant acceptance of latency might vary according to whether the activity is performance-based (i.e., first person shooter games), strategic, or reflective.

If participants are dissatisfied with the latency they are experiencing, they may be less likely to play regularly or truly engage in a multiplayer online game.

MMOG Performance

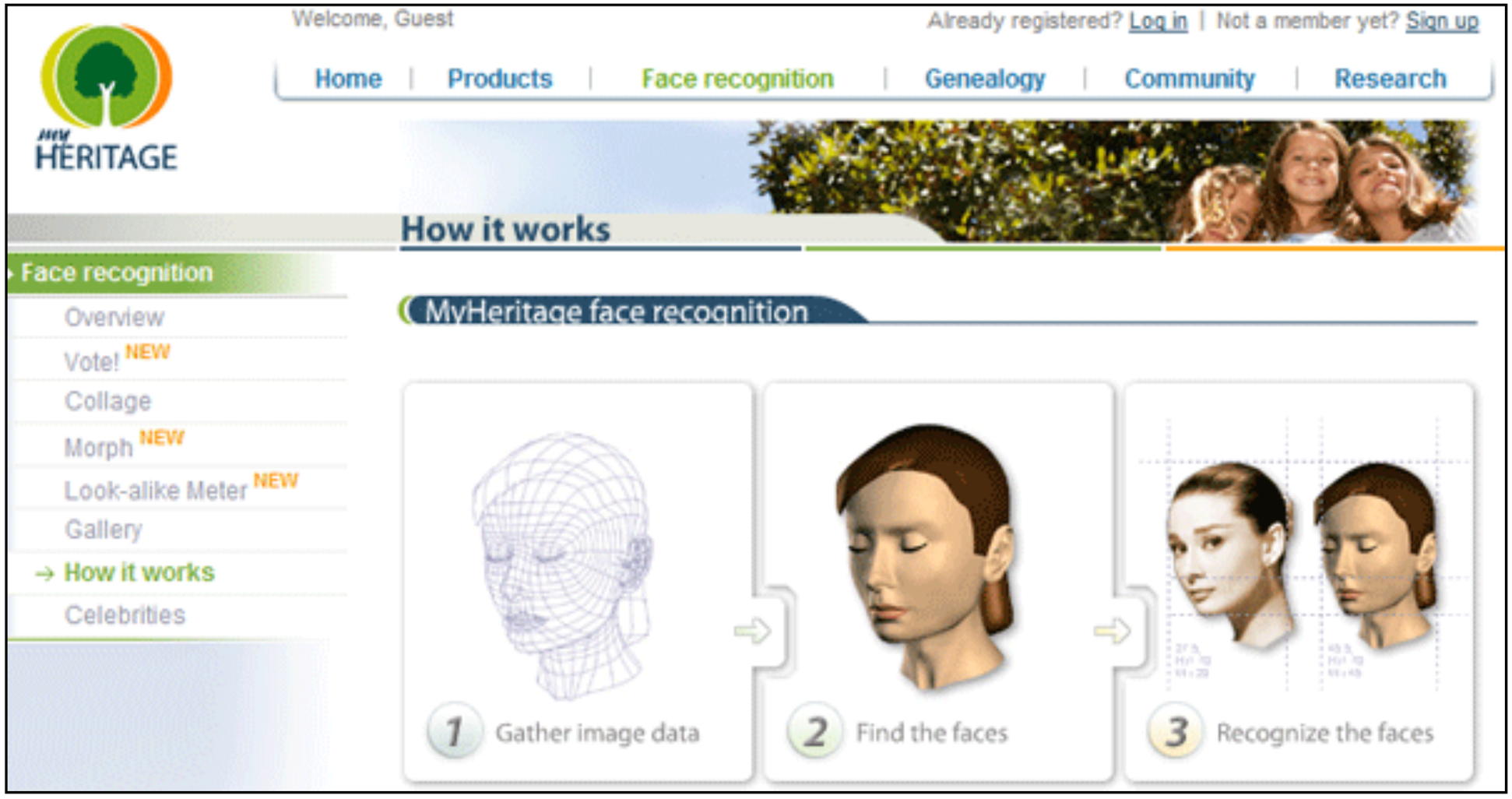
The impact of bandwidth variations on overall game performance as well as player attitudes, persistence, and commitment.

1. Longer latencies result in lower game satisfaction and game performance.

2. Longer latencies reduce participants' degree of commitment and motivation.

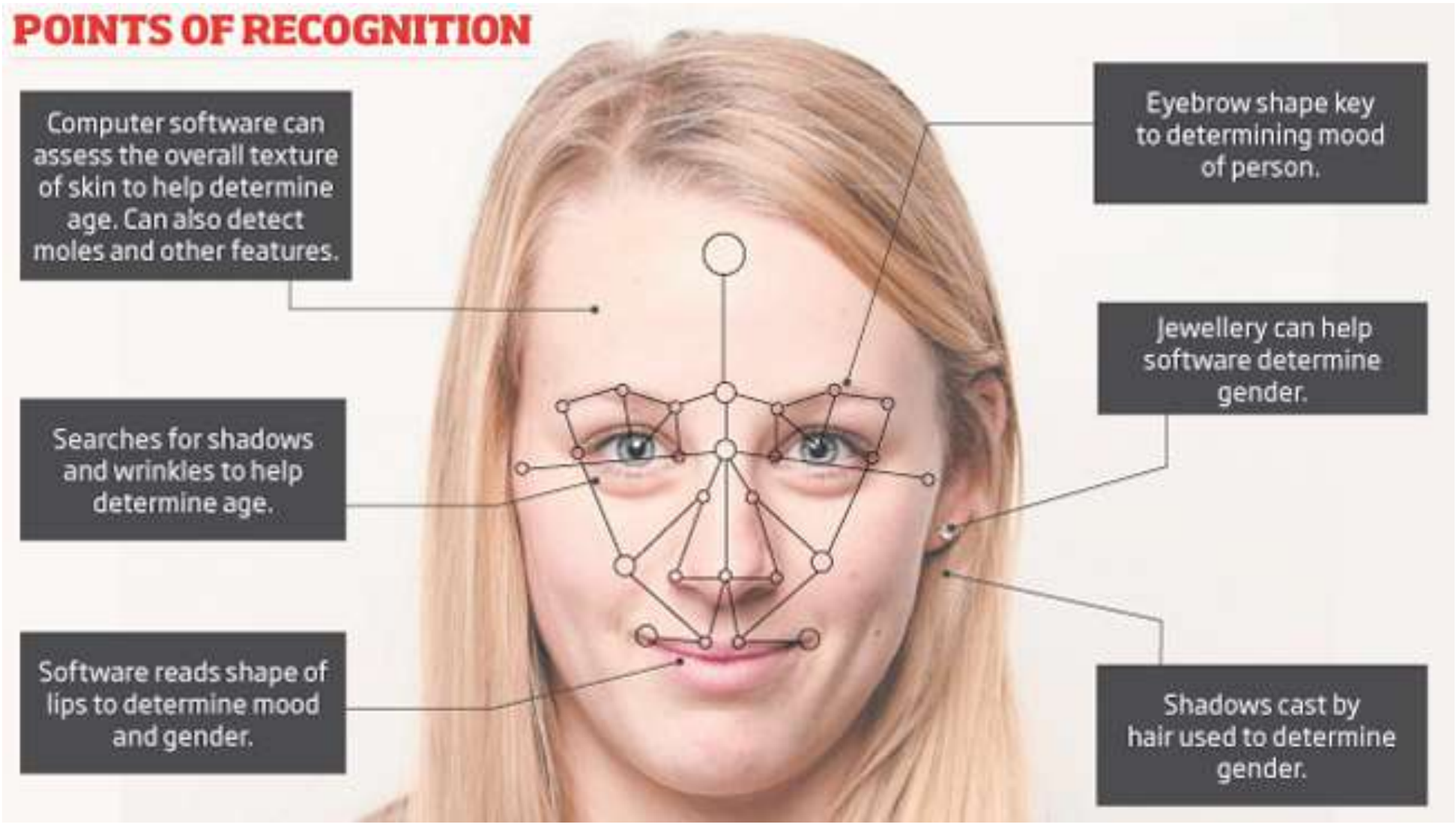
Web and Social Networking

- Facebook
- Google+
- YouTube
- Instagram
- Pinterest
- Tumblr
- Twitter



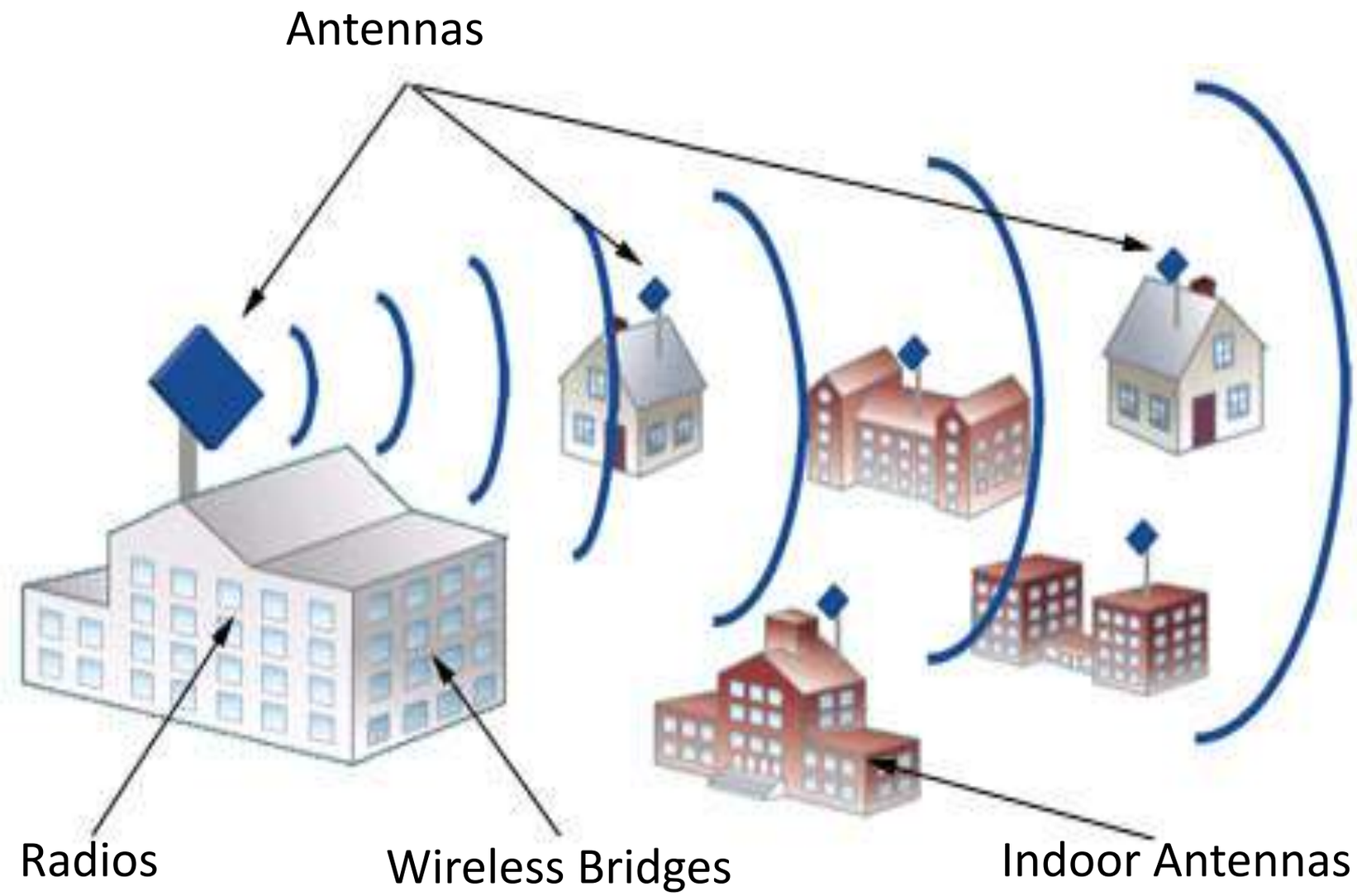
Face Recognition Technology

Face recognition technology compares selected facial features from the image with a facial pattern database.



Face Recognition

Requires good algorithm



Wireless Communication

Wireless City

Virtual Reality (VR)

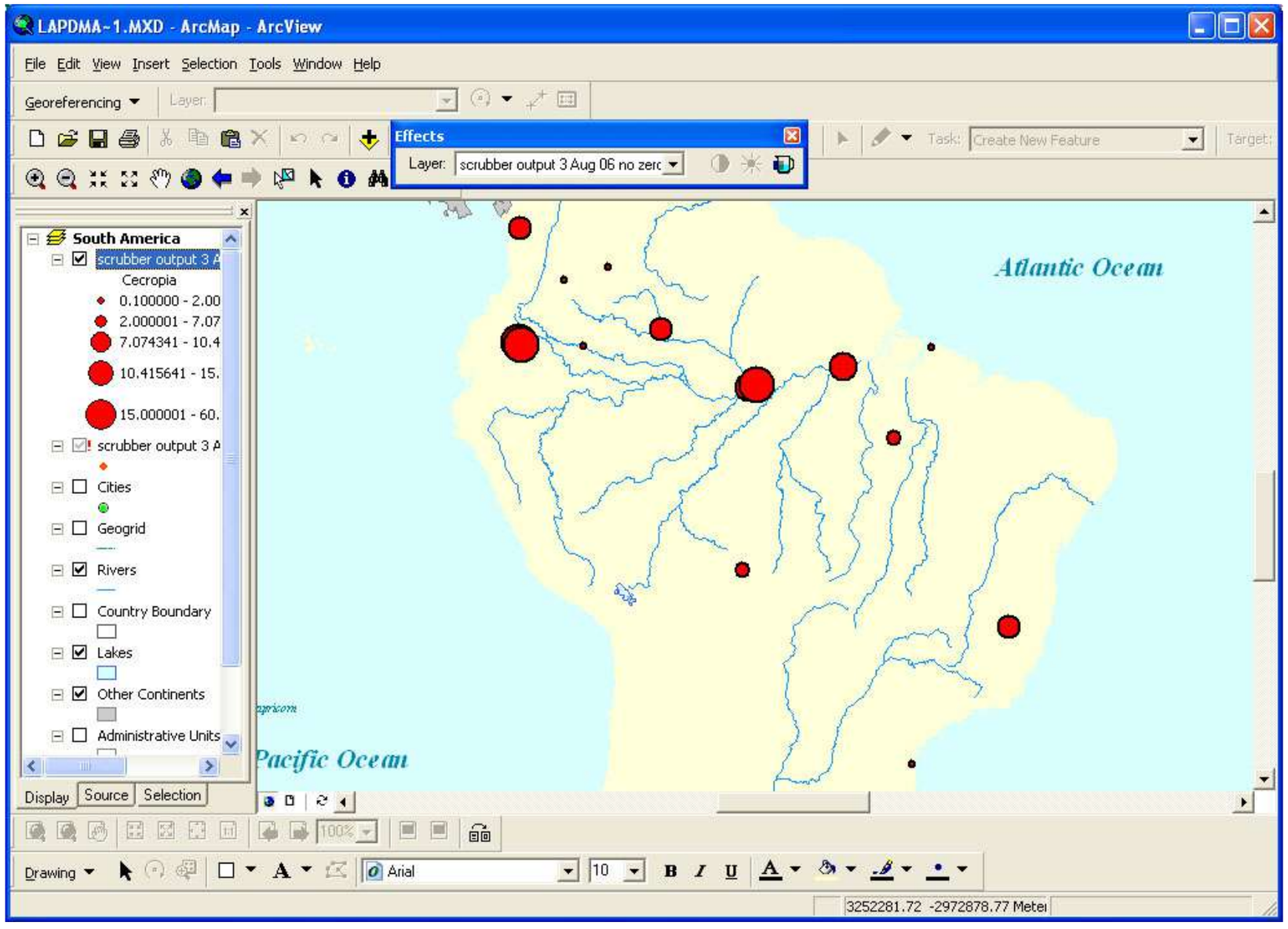
Virtual Reality technology allows interaction with a computer-simulated environment through stereoscopic display such as a head-mounted display (HMD).

Virtual Reality (VR)

- *Virtual Reality* (usually called VR) is a term that refers to a computer generated environment where sight, sound, and sometimes even touch are simulated to create pictures, sounds and objects that actually seem real.

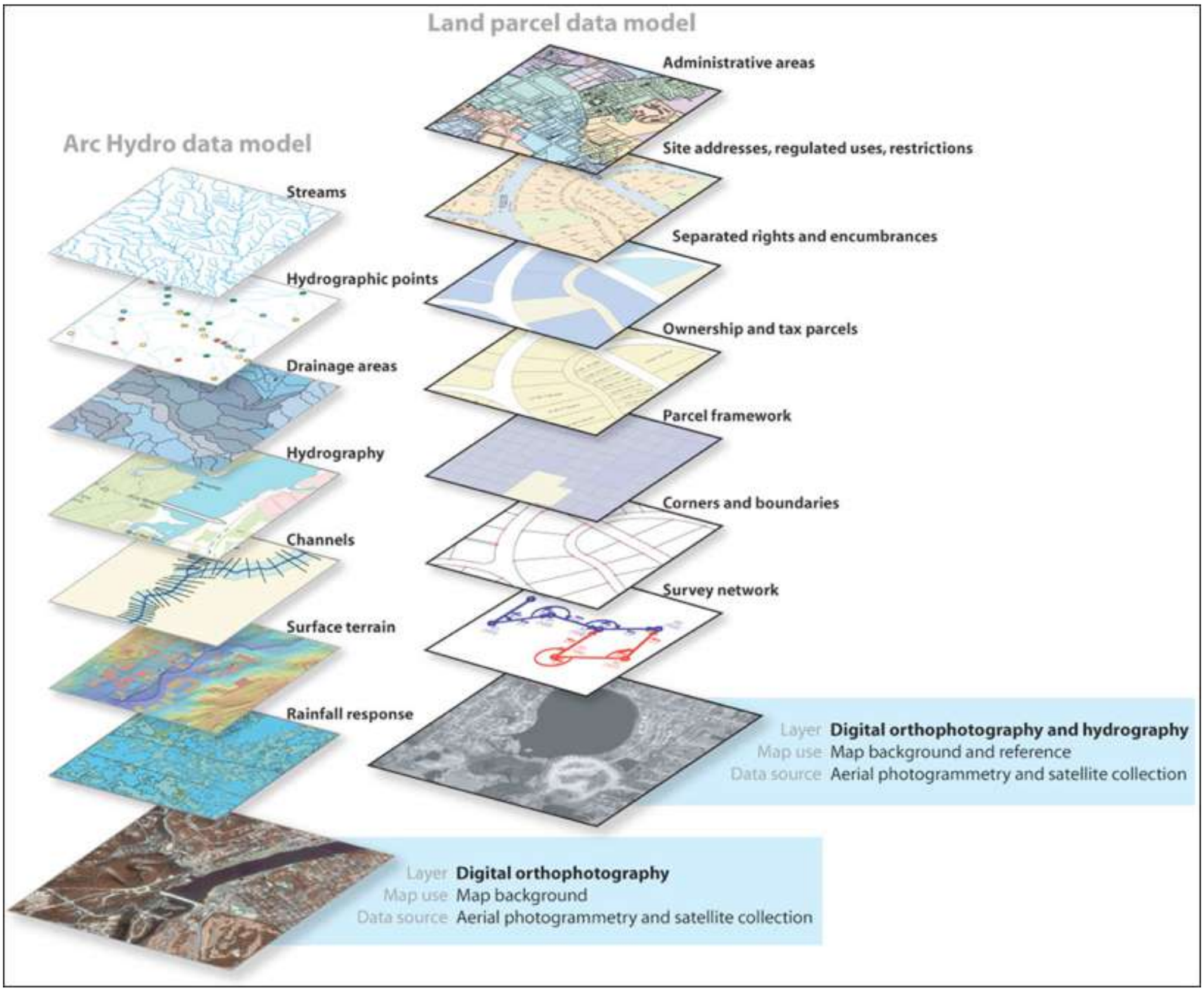
- A participant enters this simulated environment through a head mounted display (HMD) and interacts using a hand held control or a glove. VR systems create full colour 3-D images, track the participants body movements - usually head and hand motions - and change the image instantly as the participant interacts and moves through the virtual world.

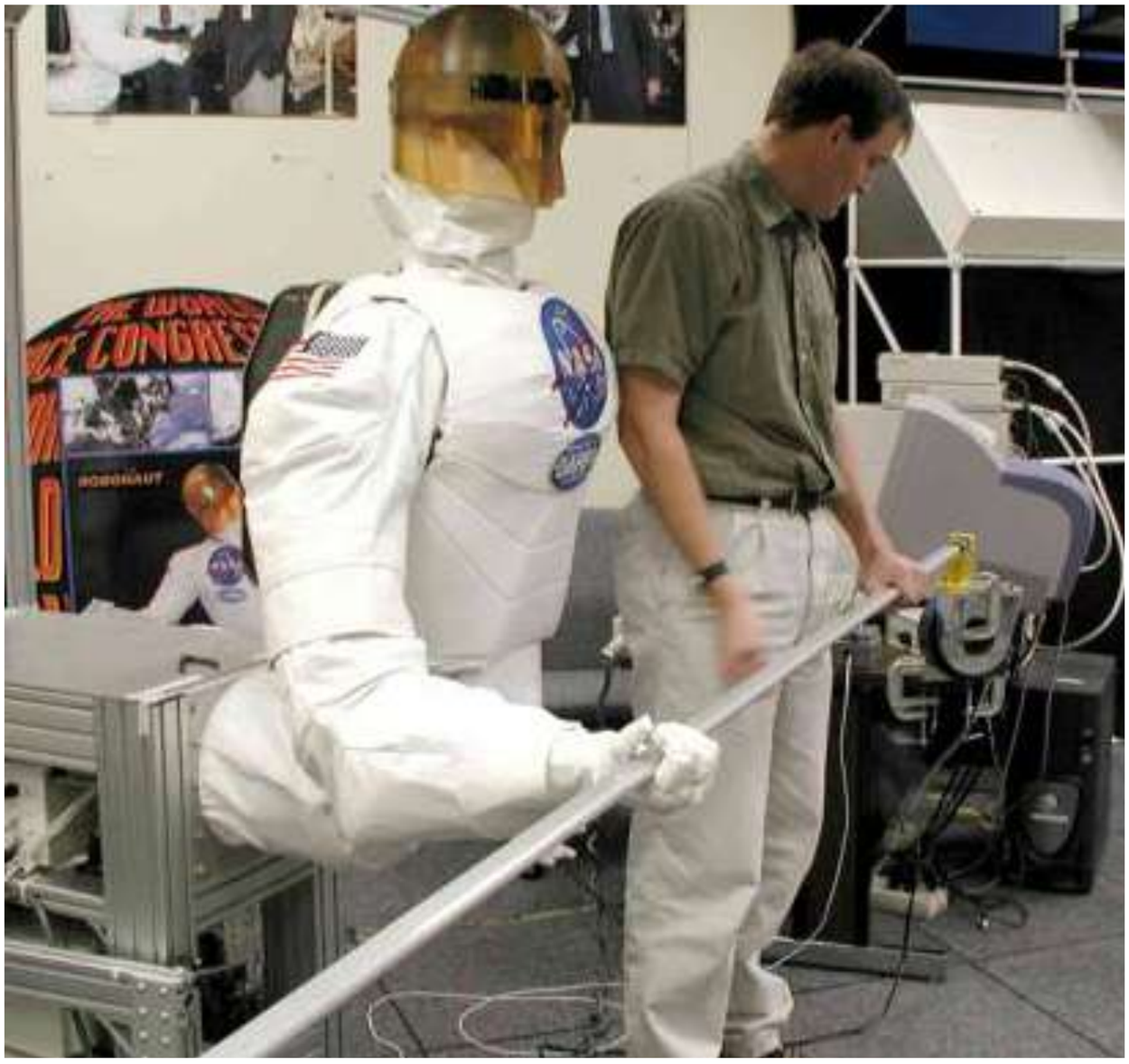
- Experts predict the future of personal and business computing will merge with VR technology. VR will become integrated into our daily lives, from virtual shopping and banking to real-time virtual communication conferencing.



Geographical Information System (GIS)

Geographical Information System (GIS) is a collection of computer hardware, software and geographic data used for capturing, managing, analyzing, and displaying geographic information.

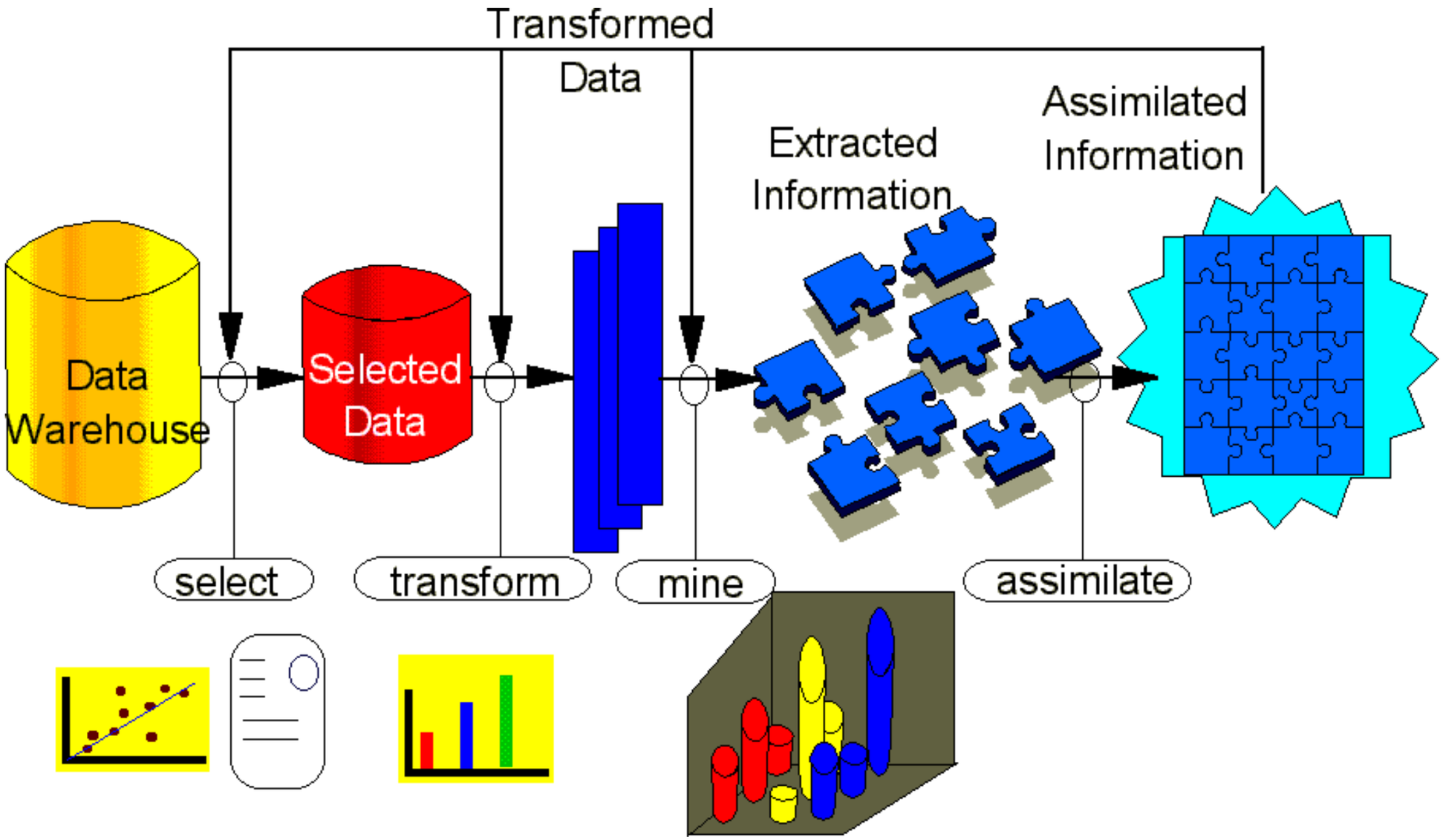

Land parcel data model
Administrative areas
Site addresses, regulated uses, restrictions
Separated rights and encumbrances
Ownership and tax parcels
Parcel framework
Corners and boundaries
Survey network
Layer Digital orthophotography and hydrography
Map use Map background and reference
Data source Aerial photogrammetry and satellite collection
Arc Hydro data model
Streams
Hydrographic points
Drainage areas
Hydrography
Channels
Surface terrain
Rainfall response
Layer Digital orthophotography
Map use Map background
Data source Aerial photogrammetry and satellite collection



Human Robot Interaction

Human-robot interaction (HRI) is a study of interactions between people (users) and robots

Hiroshi Ishiguro

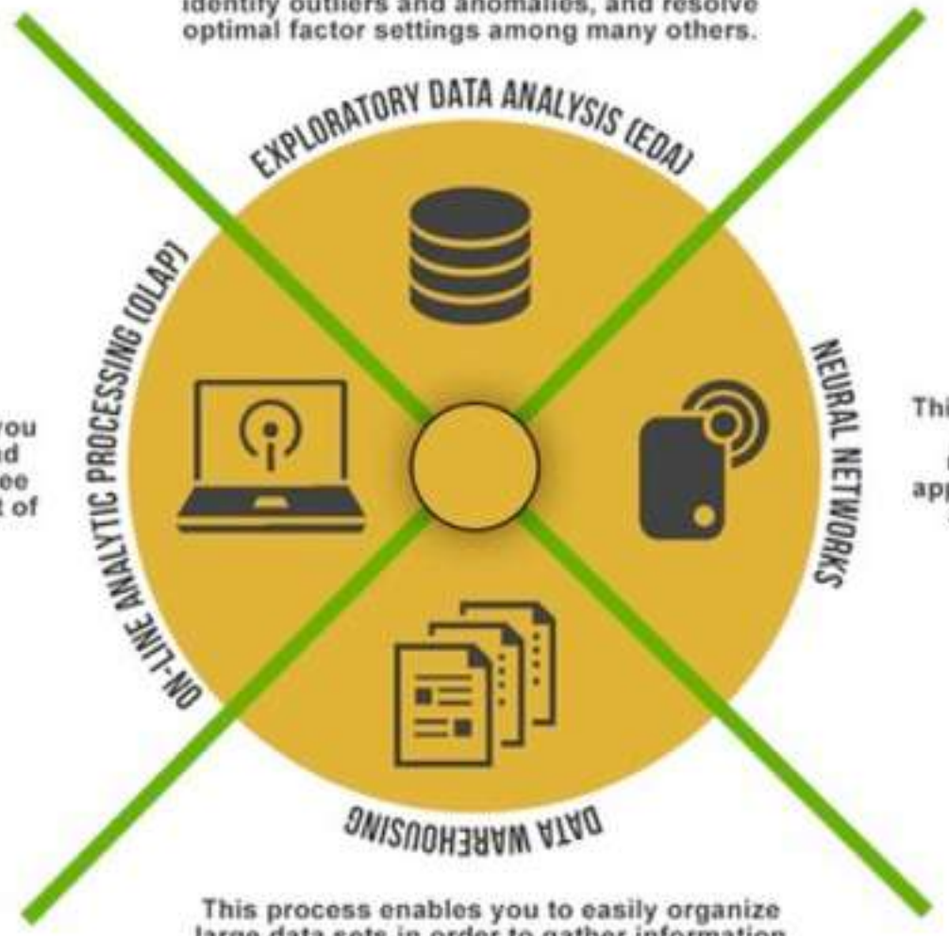


Data Mining and Knowledge Discovery

Data mining is a process of extracting actionable information from large databases for decision making purpose.

BEST DATA MINING TECHNIQUES

EDA is one of data mining approaches that employs numerous techniques in order to see underlying structure, extract significant variables, test fundamental assumptions, identify outliers and anomalies, and resolve optimal factor settings among many others.

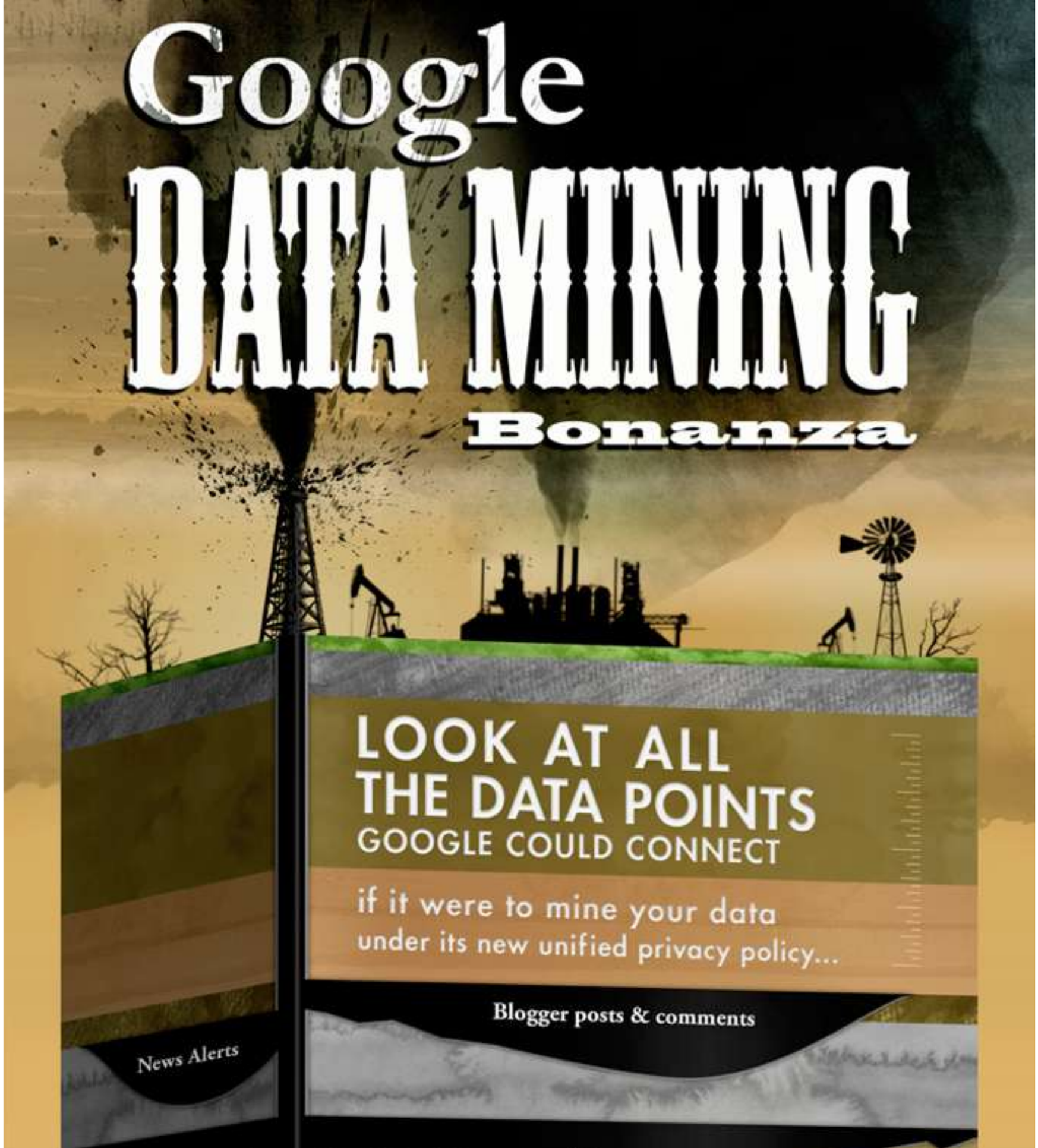


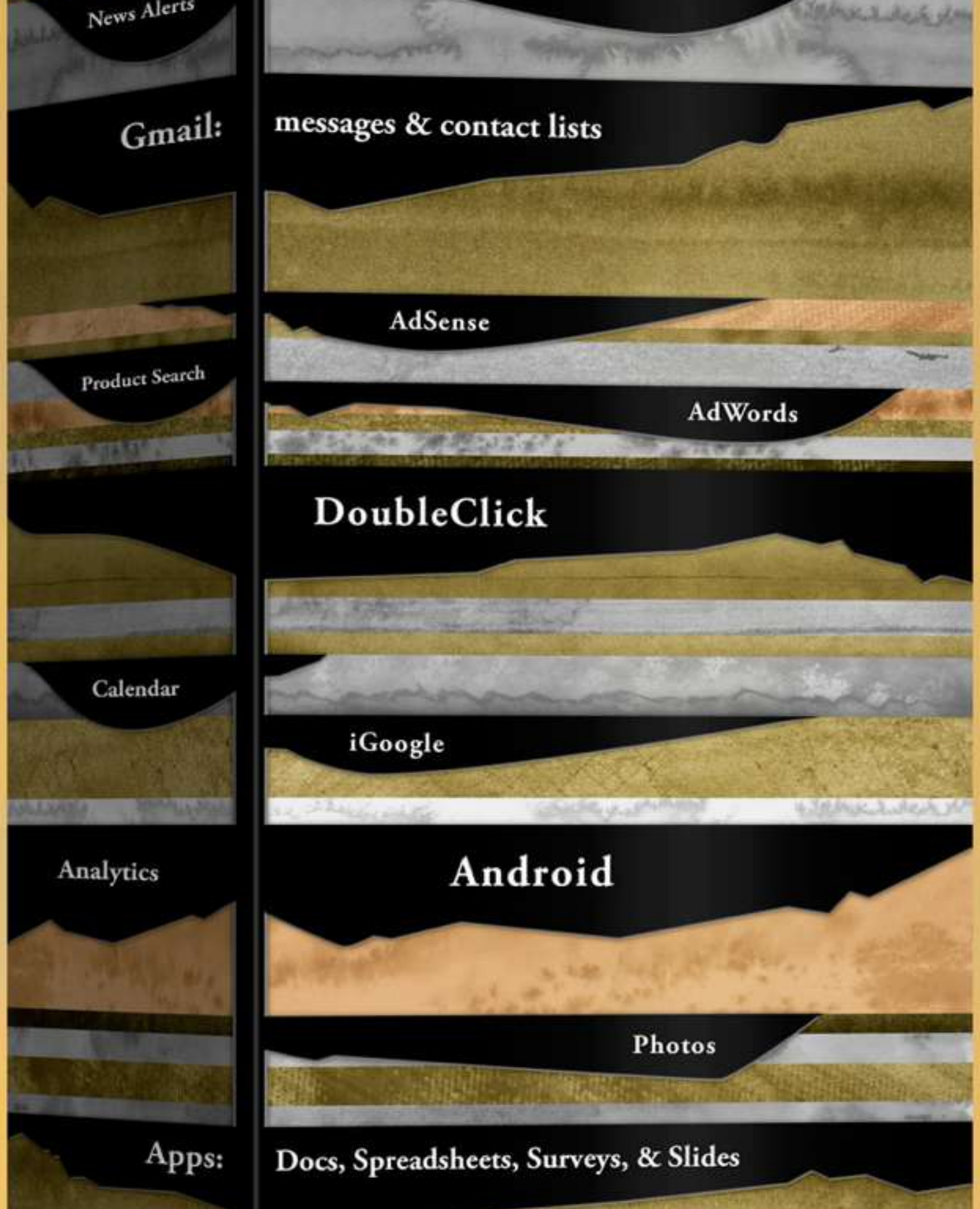
This is a computer processing that gives you the ability to easily and carefully extract and see data from various point of view.

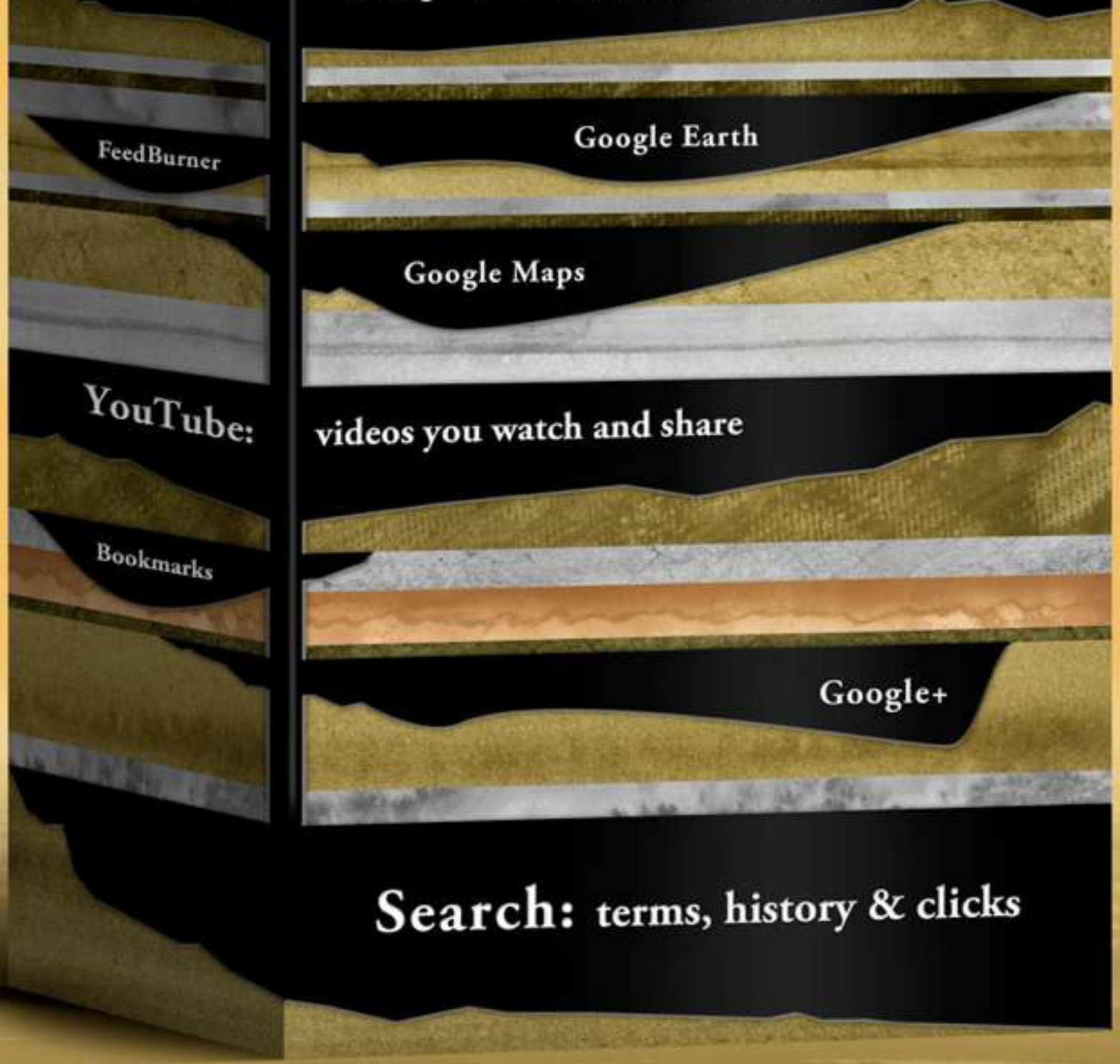
This is successfully and widely utilized in numerous learning application - supervised and unsupervised.

This process enables you to easily organize large data sets in order to gather information that is mostly used for analytical purpose.

- EDA VS. HYPOTHESIS TESTING
- COMPUTATIONAL EDA TECHNIQUES
- GRAPHICAL (DATA VISUALIZATION) EDA TECHNIQUES
- VERIFICATION OF RESULTS OF EDA


Google
DATA MINING
Bonanza
LOOK AT ALL
THE DATA POINTS
GOOGLE COULD CONNECT
if it were to mine your data
under its new unified privacy policy...
Blogger posts & comments
News Alerts


News Alerts
Gmail:
messages & contact lists
AdSense
Product Search
AdWords
DoubleClick
Calendar
iGoogle
Analytics
Android
Photos
Apps:
Docs, Spreadsheets, Surveys, & Slides



When you sign into Google and use its many services
a wide range of data can be collected and correlated, a fact that was highlighted by the company's consolidation of more than 60 different privacy policies into one.
Have you reviewed your privacy settings in Google recently?

For more on privacy settings in Google and other services visit **blog.eset.com**

THE WORLD OF DATA

NUMBER OF EMAILS SENT EVERY SECOND

2.9
MILLION

DATA CONSUMED BY HOUSEHOLDS EACH DAY

375
MEGABYTES

VIDEO UPLOADED TO YOUTUBE EVERY MINUTE

20
HOURS

DATA PER DAY PROCESSED BY GOOGLE

24
PETABYTES

TWEETS PER DAY

50
MILLION

TOTAL MINUTES SPENT ON FACEBOOK EACH MONTH

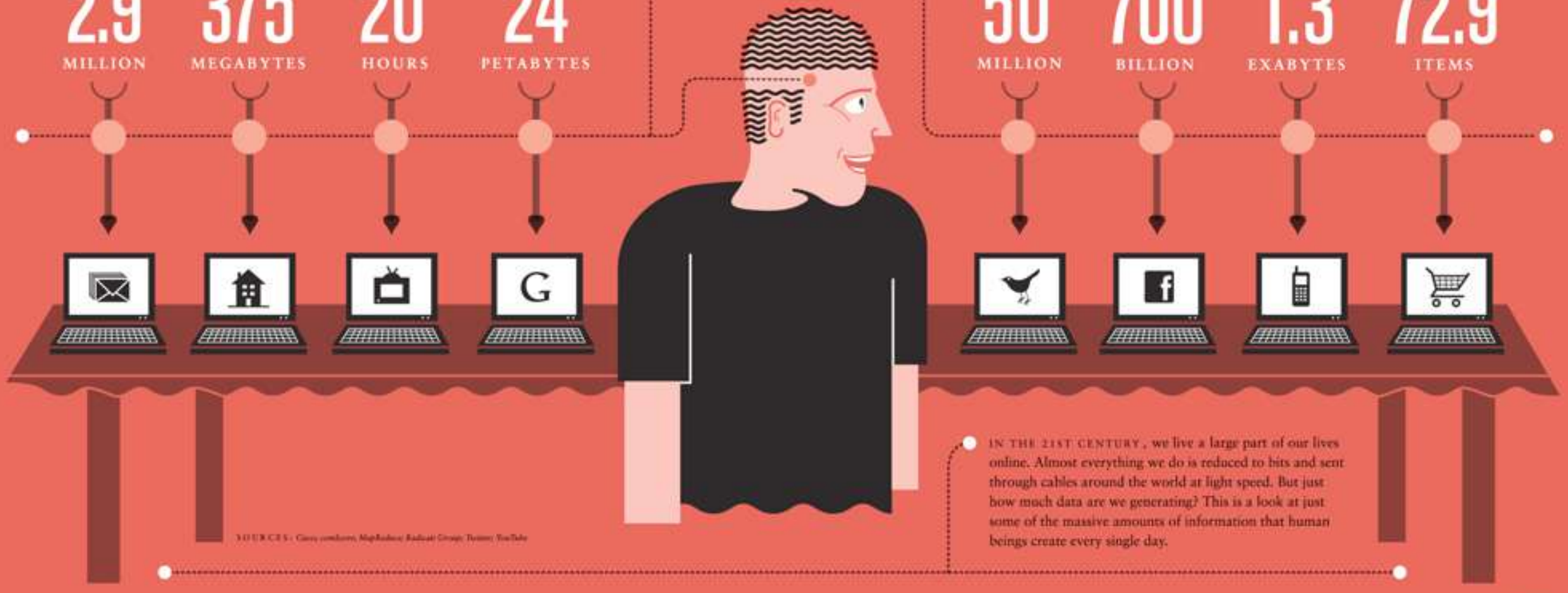
700
BILLION

DATA SENT AND RECEIVED BY MOBILE INTERNET USERS

1.3
EXABYTES

PRODUCTS ORDERED ON AMAZON PER SECOND

72.9
ITEMS



SOURCES: Cisco; comScore; MapReduce; Radicati Group; Twitter; YouTube

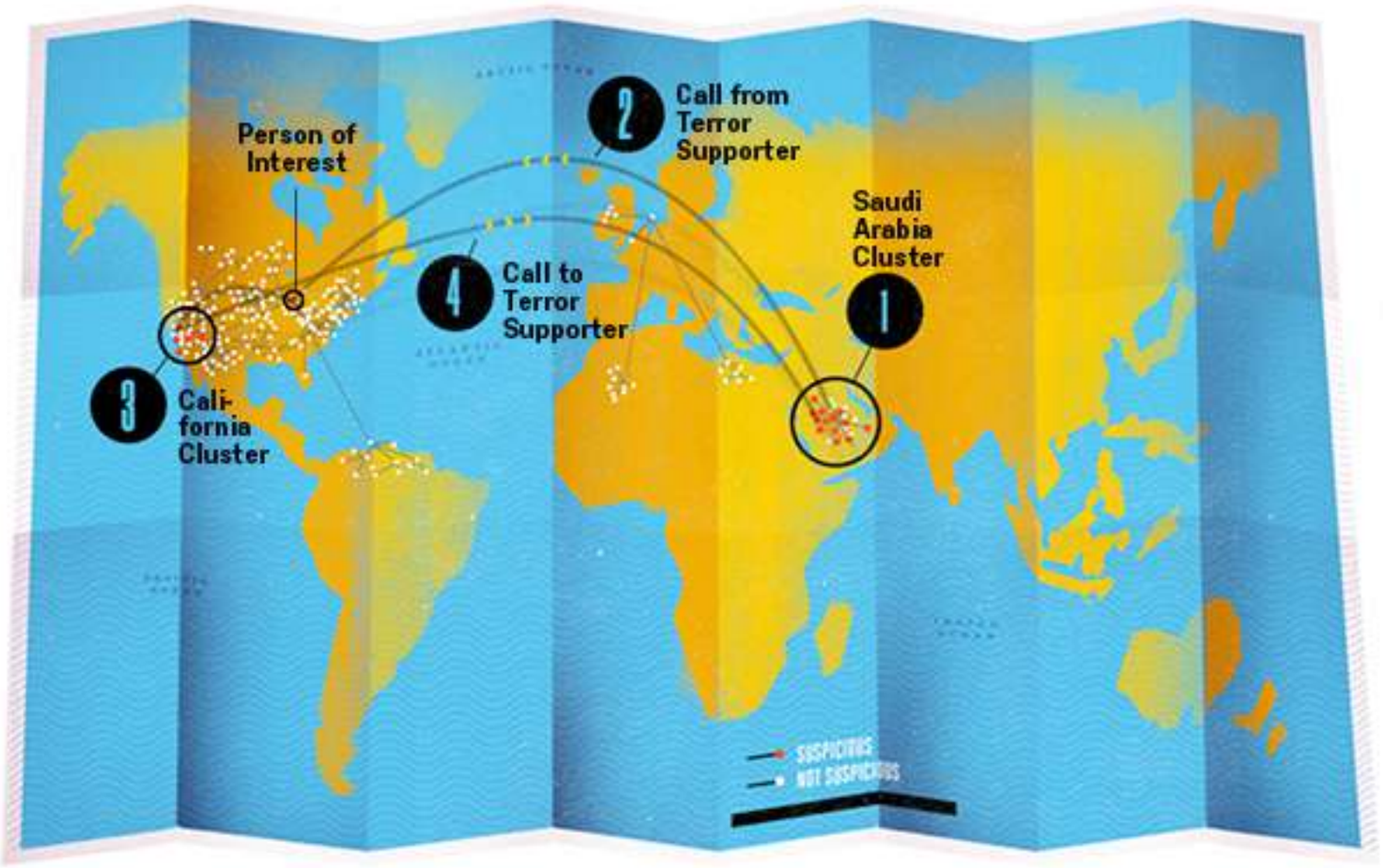
IN THE 21ST CENTURY, we live a large part of our lives online. Almost everything we do is reduced to bits and sent through cables around the world at light speed. But just how much data are we generating? This is a look at just some of the massive amounts of information that human beings create every single day.

A COLLABORATION BETWEEN GOOD AND OLIVER MUNDAY

IN PARTNERSHIP WITH IBM

CONNECTING THE DOTS: PHONE-METADATA TRACKING

The NSA collects metadata from phone records, enabling it to identify terrorists without examining the calls' contents. Amid millions of calls, patterns can emerge, as our hypothetical scenario below demonstrates.



1

The phone records of a known terrorist supporter in Saudi Arabia form a cluster of possible accomplices.

2

A call from the known terrorist supporter is made to a person of interest in the United States, a U.S. citizen.

3

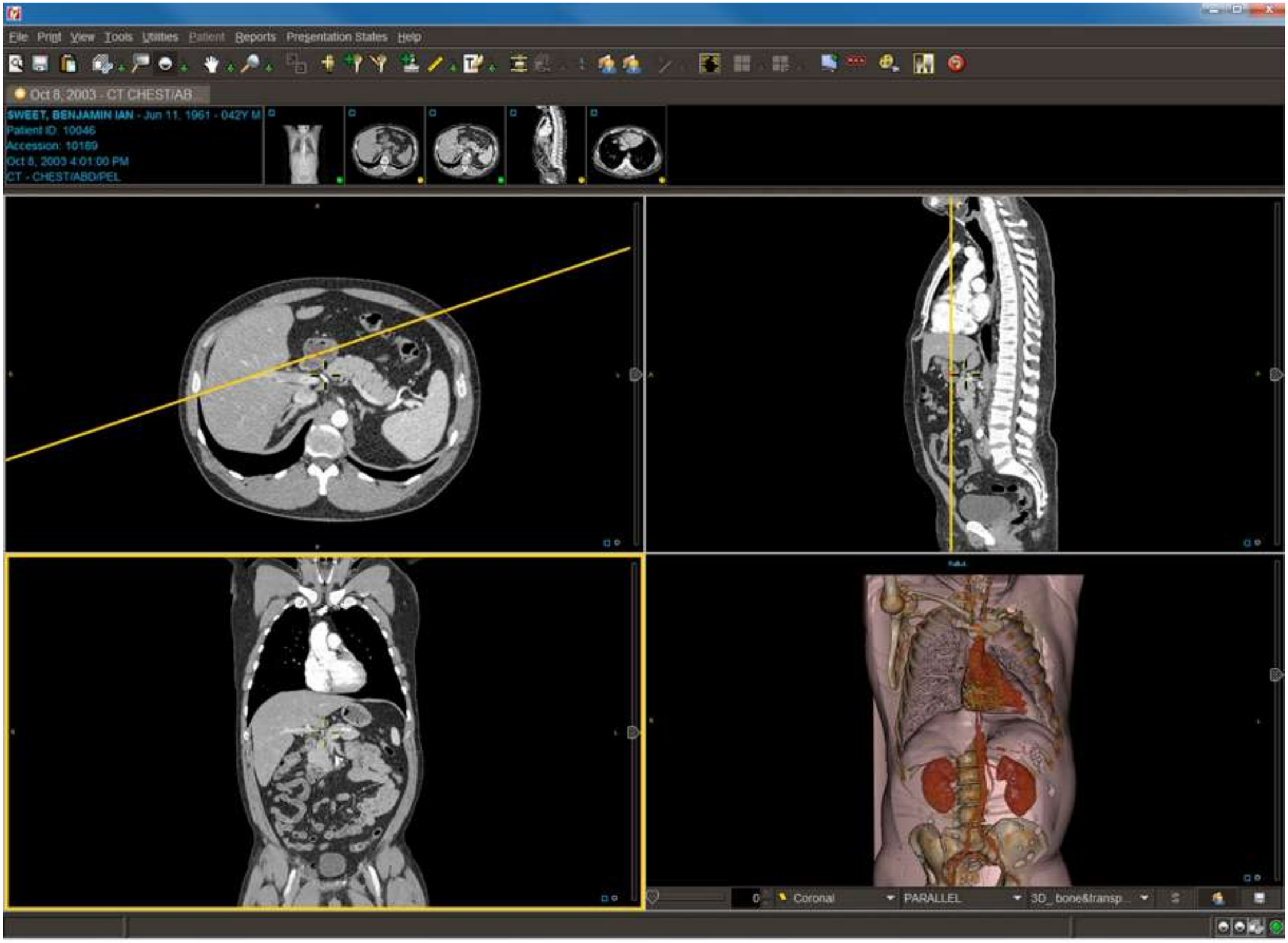
The phone metadata from the person of interest in the United States forms a cluster of associates in California.

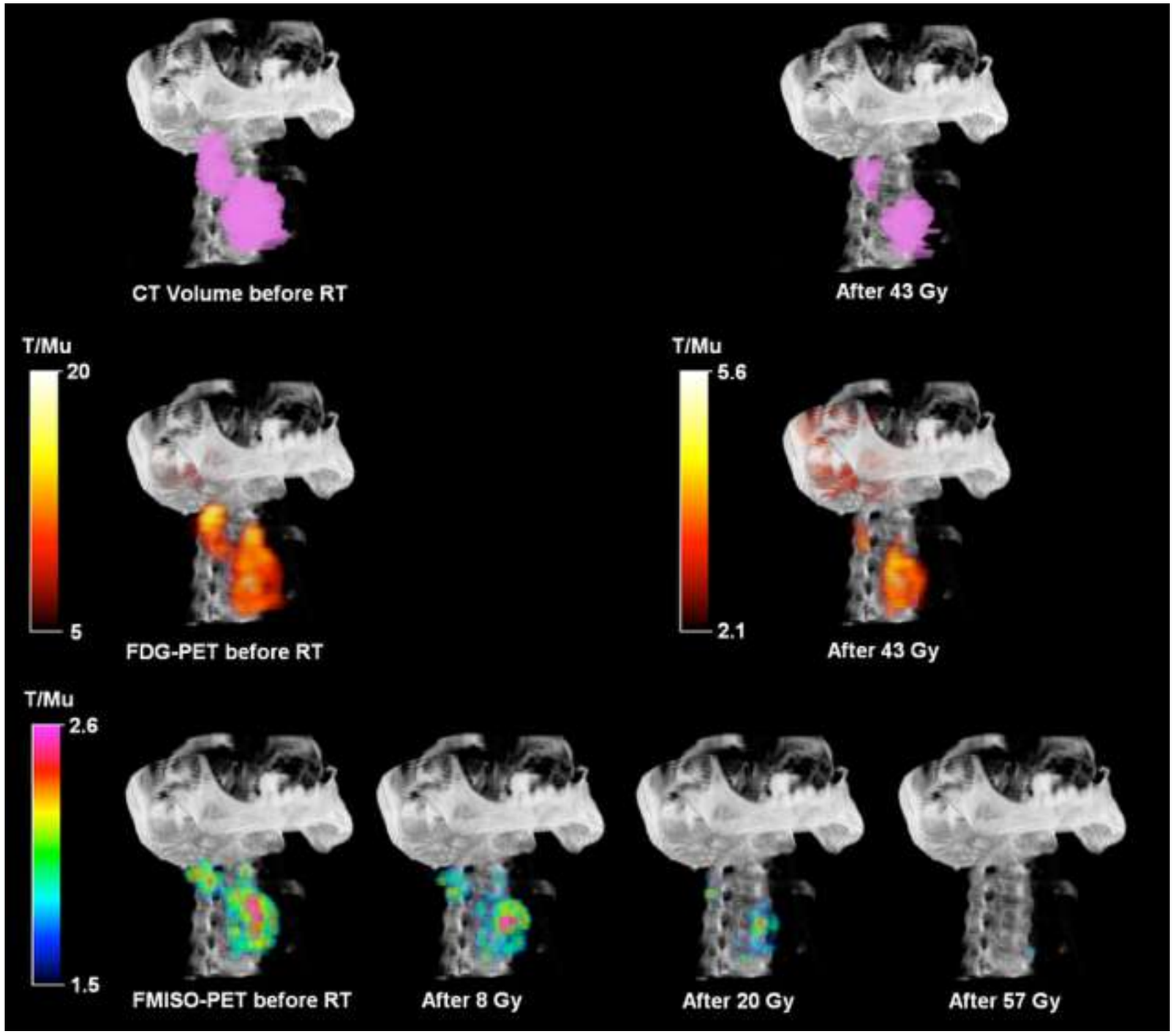
4

Phone records show one of the associates in the California cluster called someone in the Saudi Arabia cluster. The NSA alerts the FBI to the connection, enabling the agency to obtain a wiretap.

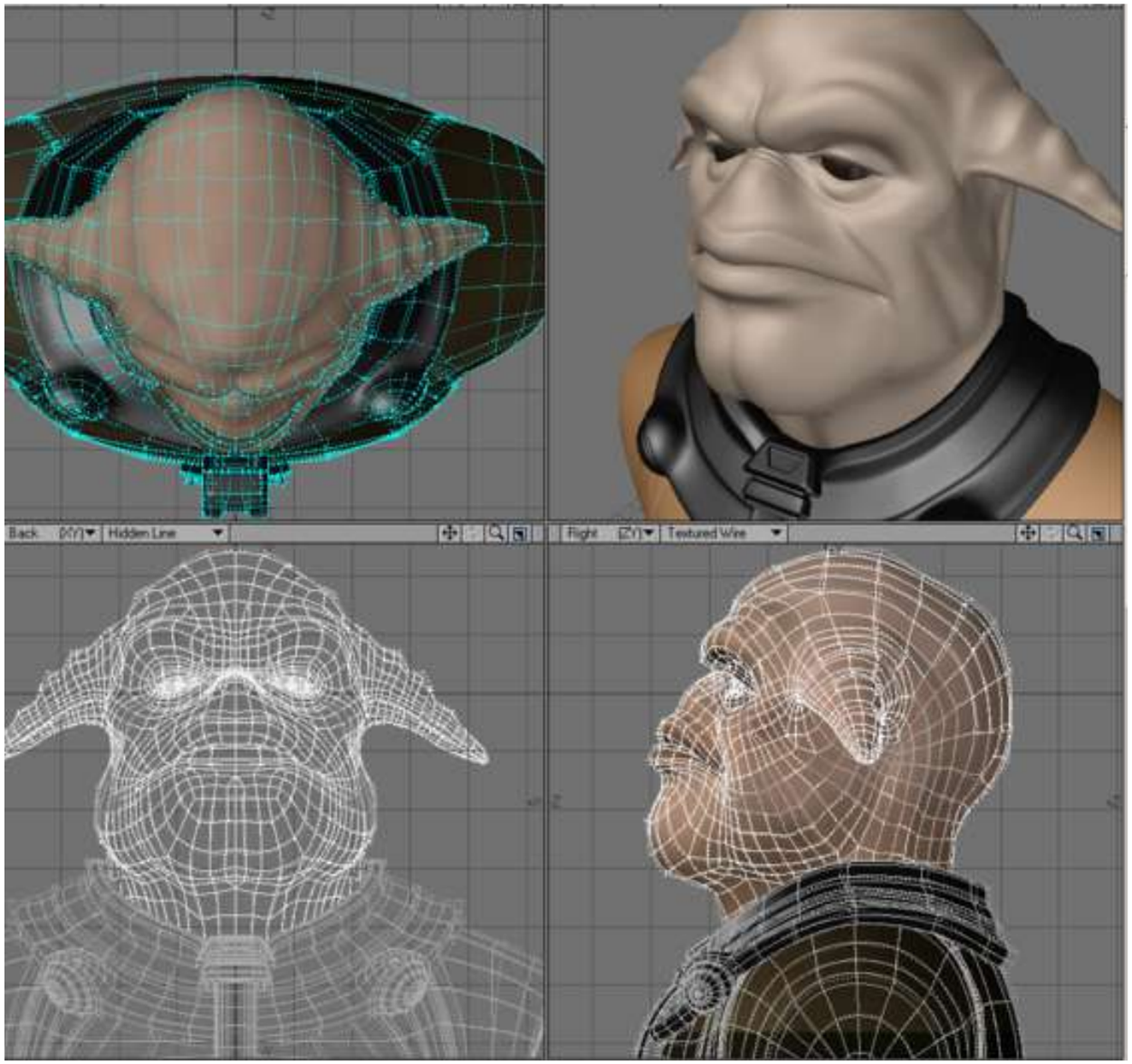
Visualization and Medical Imaging

Computer visualization concerned with presenting data to users to help users to explore the data and make use of it.



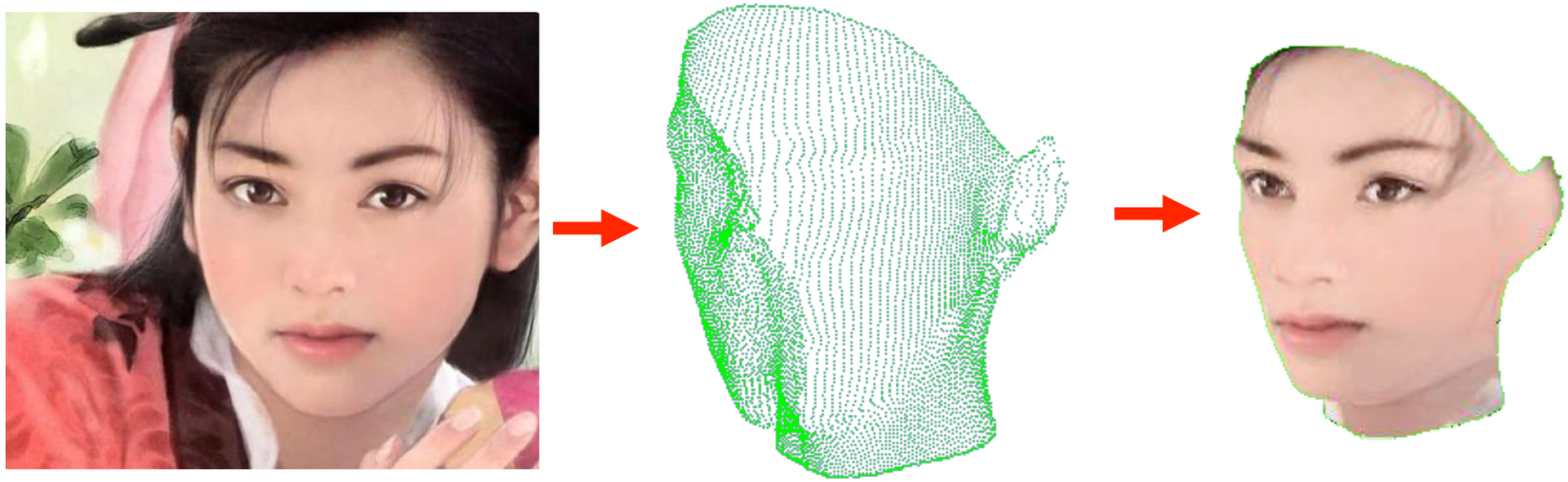


Visualization and Medical Imaging



3D Modelling and Reconstruction

3D modelling is a process of developing a representation of 3D object to create a new model or design



3D Modelling and Reconstruction

Interactive Book

Multimedia