



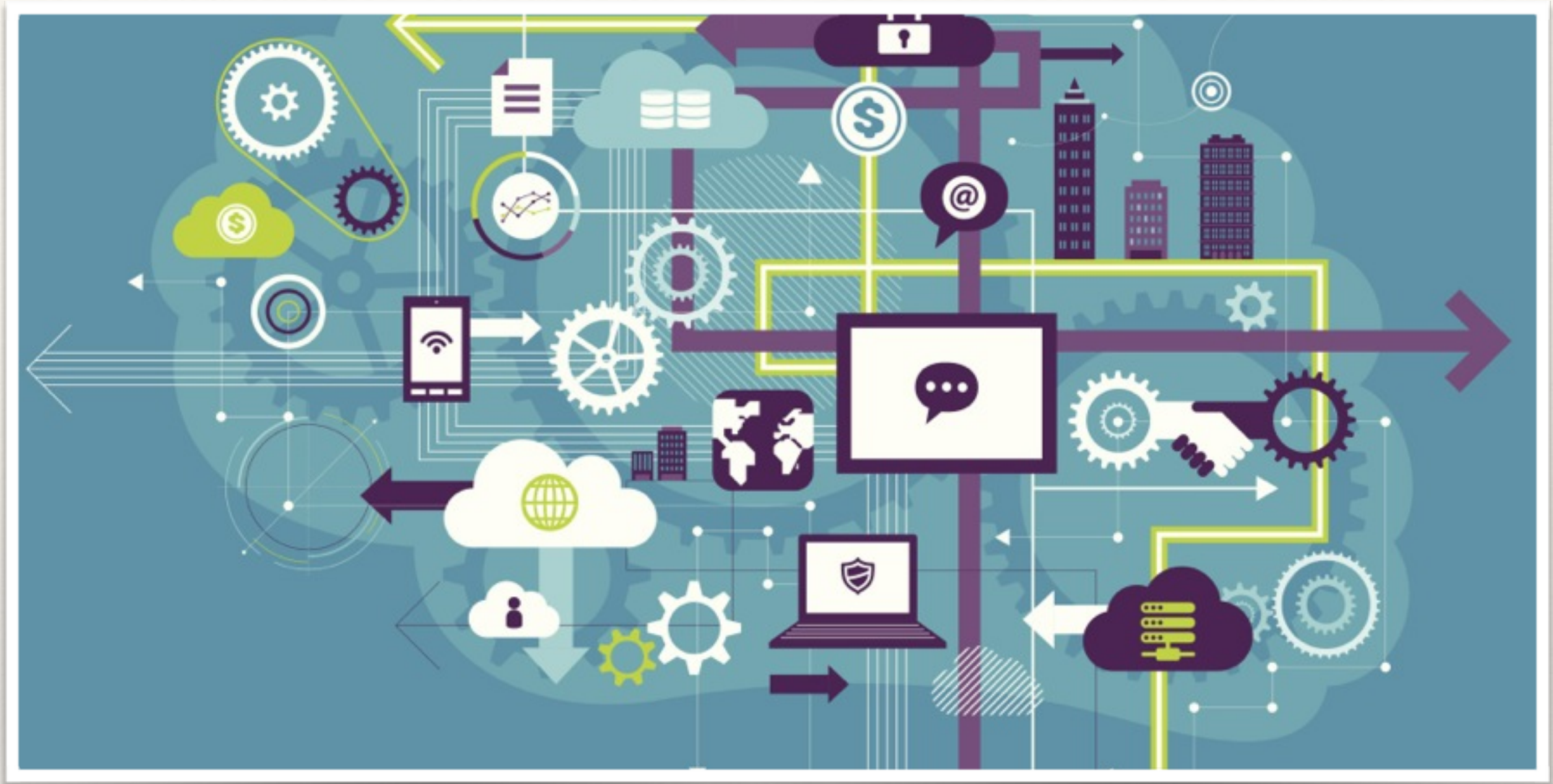
Antonis Mavropoulos, CEO & Founder of D-Waste, ISWA STC Chair

Interconnected World

ISWA World Congress 2014
São Paulo

Globalisation and Waste Management





The Internet of Everything,
the Social Networks and...

... the impacts on
Waste Management

INTERNET STATS 2014

3 billion users

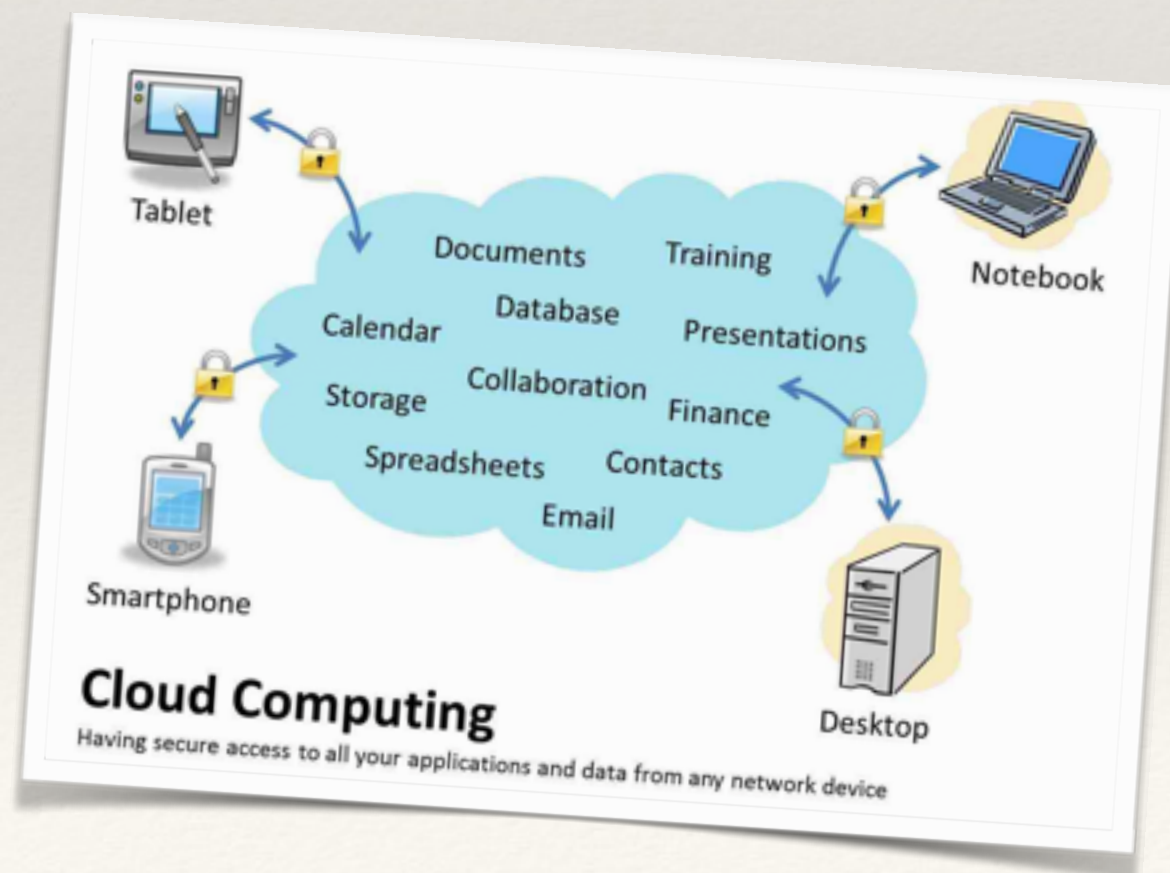
40% penetration rate

45% in Asia

20% in Europe

21.5% in America

Annual growth 7.5%



The Internet of Everything

NUMBERS

DATA POINTS

by Derek Korte

CONNECTED OBJECTS ON THE INTERNET OF EVERYTHING

13,300,000,000

Projected by 2020: 50 billion

10% OF ALL CONNECTABLE OBJECTS ARE NOW CONNECTED

\$1.9 trillion

Projected economic value of connected devices by 2020

Projected connected devices per person by 2020:

10

50

Connected devices the average household will own by 2022

90,000

INTERNET-CONNECTED COKE VENDING MACHINES BY THE END OF 2014 IN THE U.S.

New robots that went online globally in 2012: 3.16 million

22.2 million
ROBOTS ONLINE BY 2016

Sensors in Oracle Team USA's winning America's Cup boat in 2013:

300

MILES TRAVELED TO DATE BY GOOGLE'S DRIVERLESS CARS:

500,000

QUANTITY OF DATA PER SECOND GATHERED BY ONBOARD SENSORS IN GOOGLE'S DRIVERLESS CAR:

Bridges in the U.S. that are structurally deficient:

11%

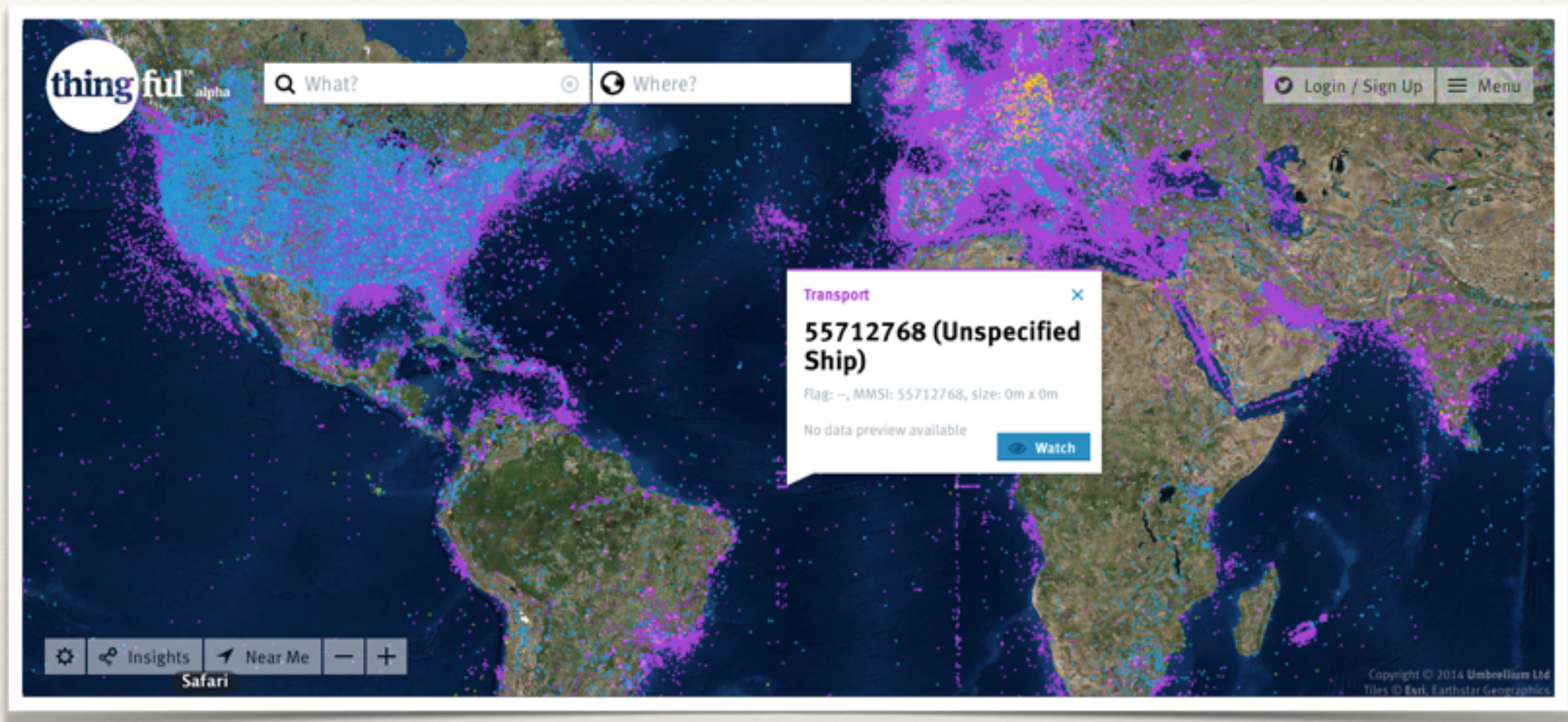
750 MB

279

SENSORS IN THE OAKLAND-SAN FRANCISCO BAY BRIDGE THAT MEASURE ITS RESPONSE TO SEISMIC ACTIVITY

Sources: Cisco; Gartner; Dell; Organisation for Economic Co-operation and Development; Coca-Cola; International Federation of Robots; Oracle Team USA; Google, Congressional Research Service; California Department of Transportation

Source: WIRED, The Connective 2.0

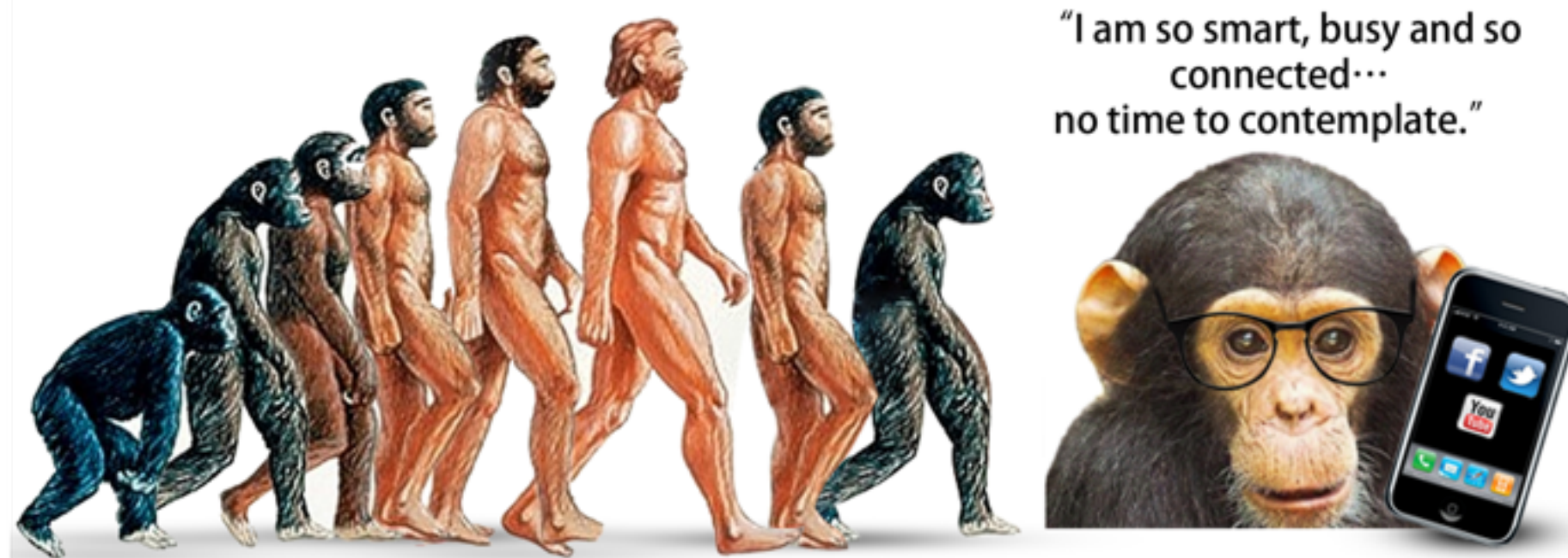


Much faster than we thought...

www.thingful.net

Some navigation will
surprise you





Humans and Technology Adoption

Ray Jimenez, PhD 2011 www.vignetteslearning.com

*"I am a cave man
A young man
I fight with my hands
(With my hands)
I am a jungle man
A monkey man lost in the
Concrete jungle!
Concrete jungle!"*

Lyrics from the song

"Homem Primata" by Titas

Just a minute...

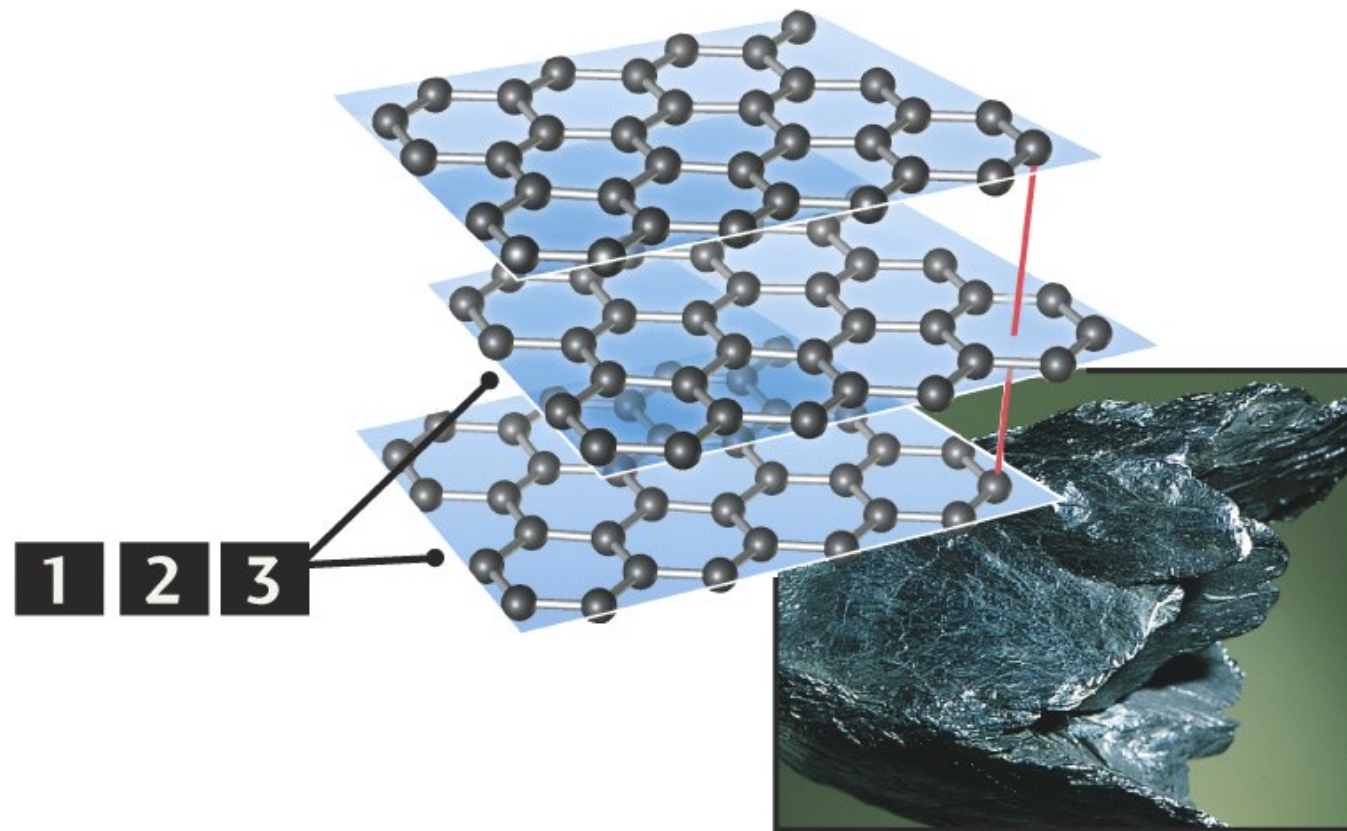
Can we afford it?

How about our brain? Can it manage the new information jungle?



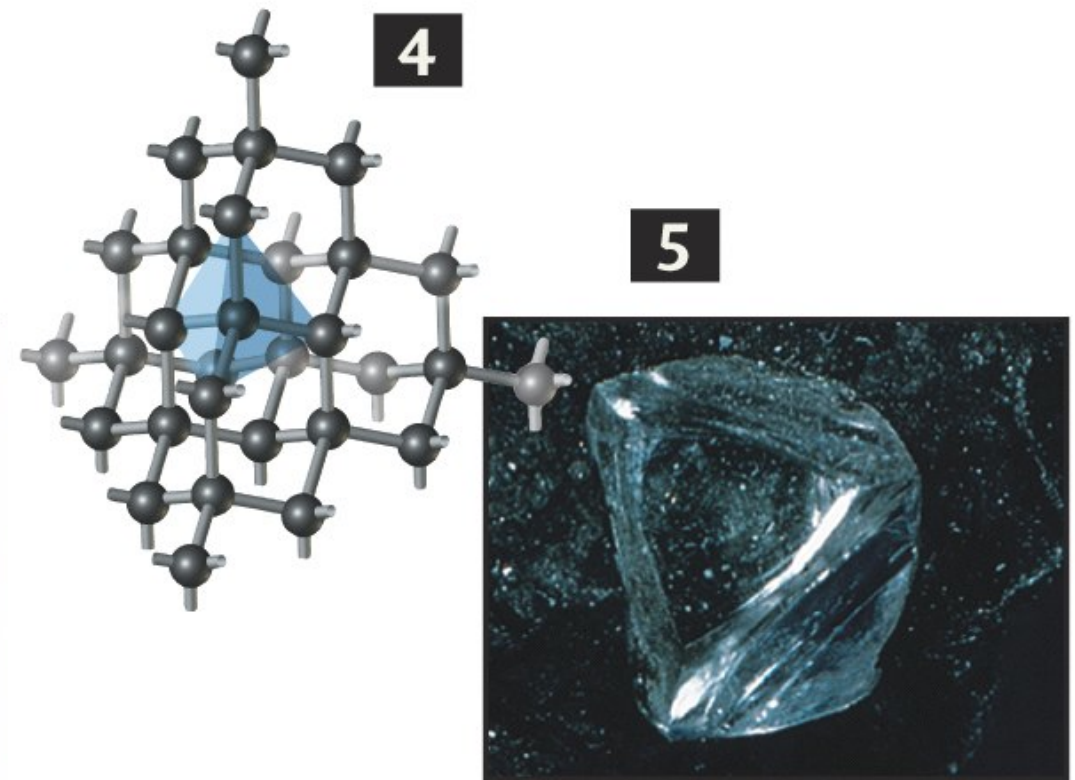
CARBON POLYMORPH MINERALS

(a) Graphite



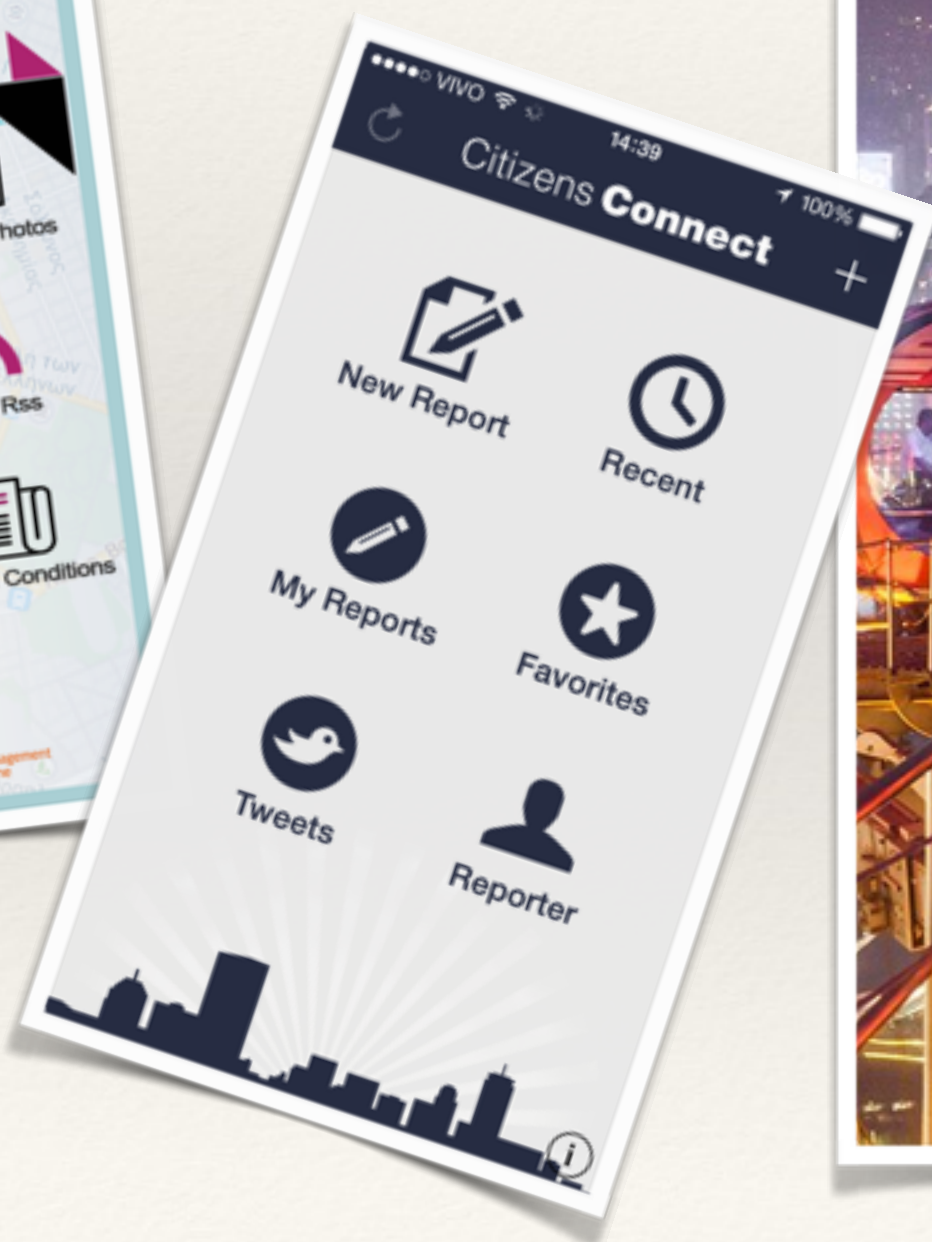
Graphite

(b) Diamond



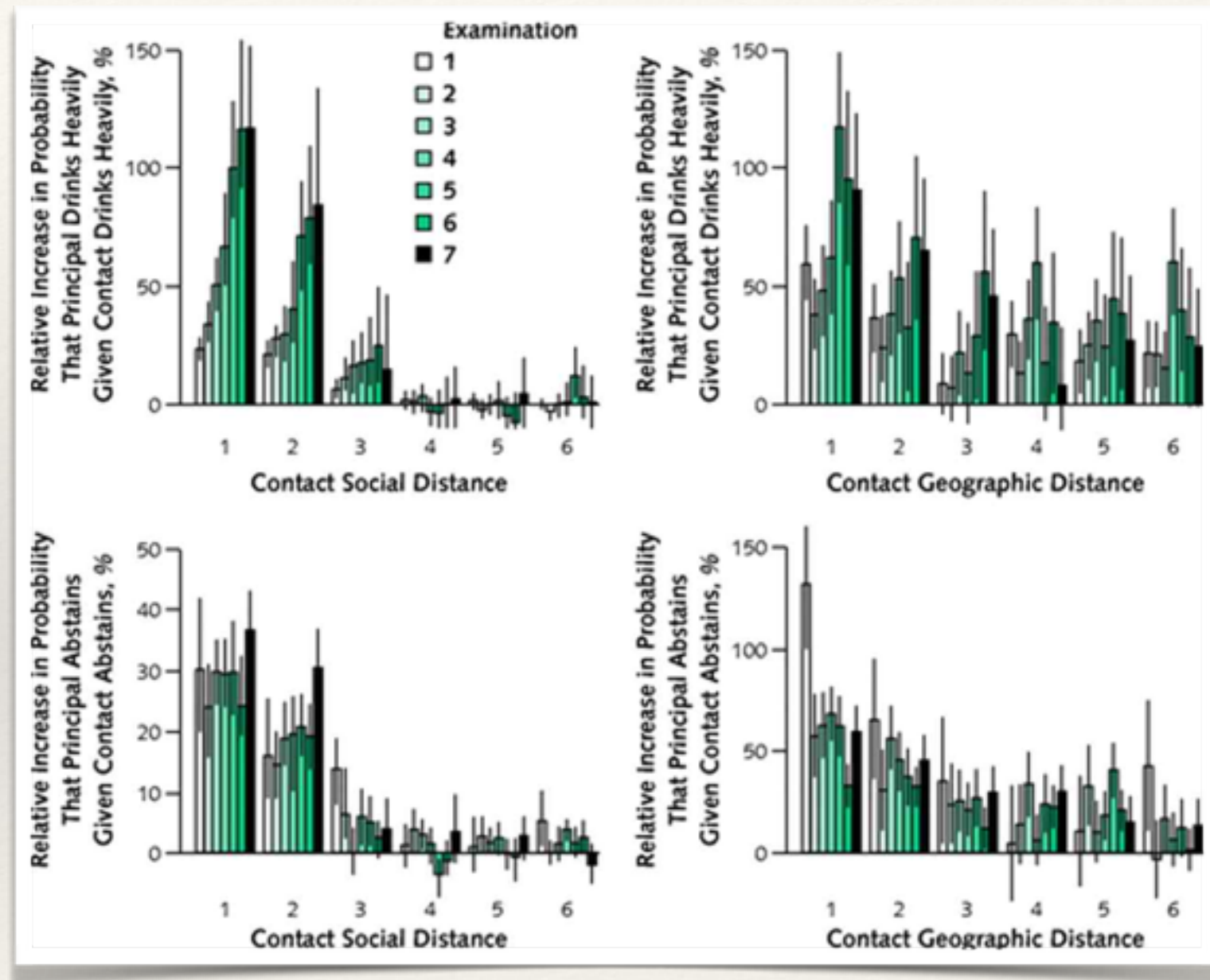
Diamond

From Smart to Engaged Cities



The hidden influence of social networks

- ❖ People as parts of their broad networks
- ❖ Individual behaviour as a result of embedded network interactions
- ❖ Clustering
- ❖ Flow
- ❖ Memory

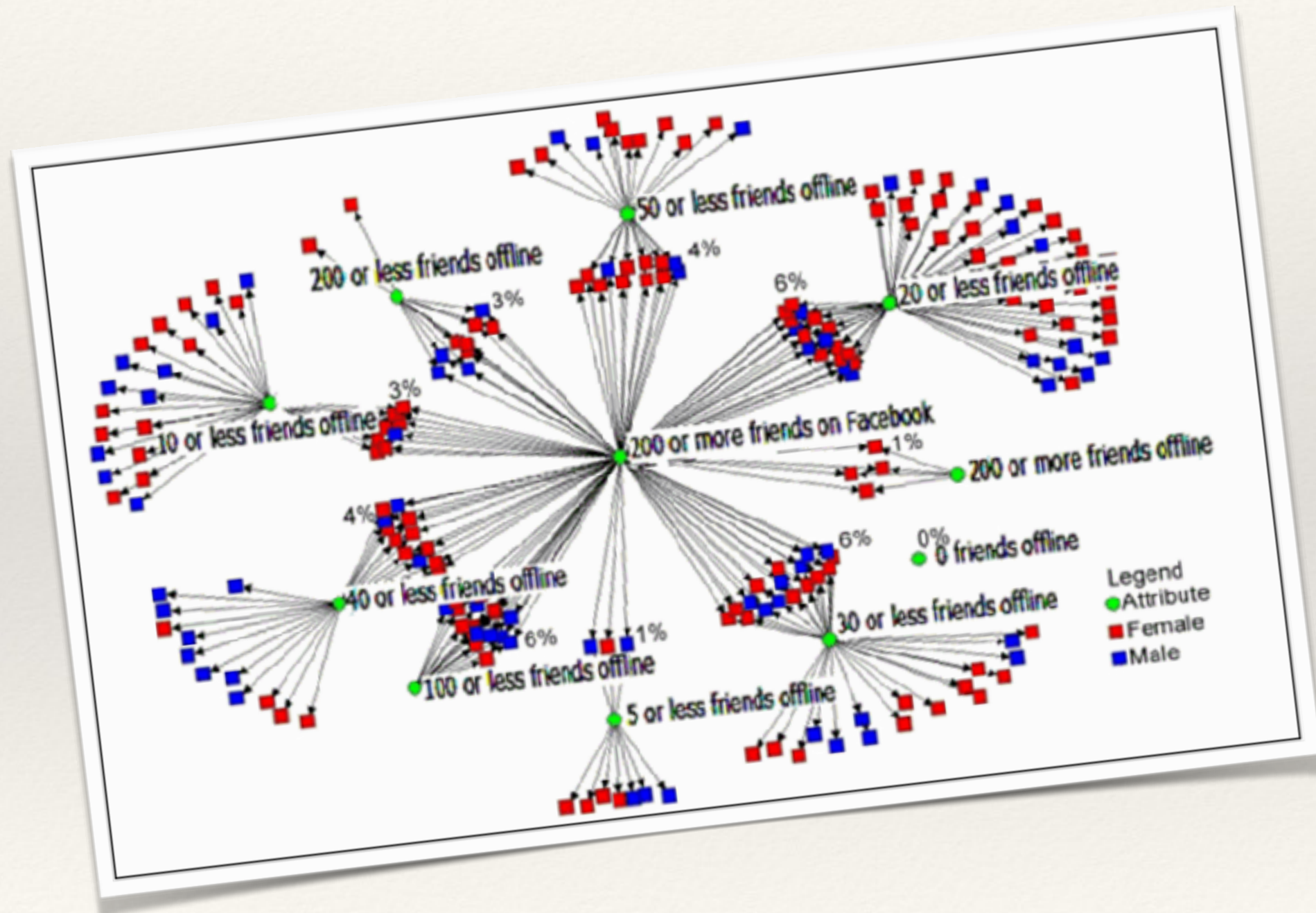


Source: The Spread of Alcohol Consumption Behavior in a Large Social Network
J. Niels Rosenquist, MD, PhD; Joanne Murabito, MD; James H. Fowler, PhD; and
Nicholas A. Christakis, MD, PhD, *Ann Intern Med.* 2010;152(7):426-433. doi:
10.7326/0003-4819-152-7-201004060-00007

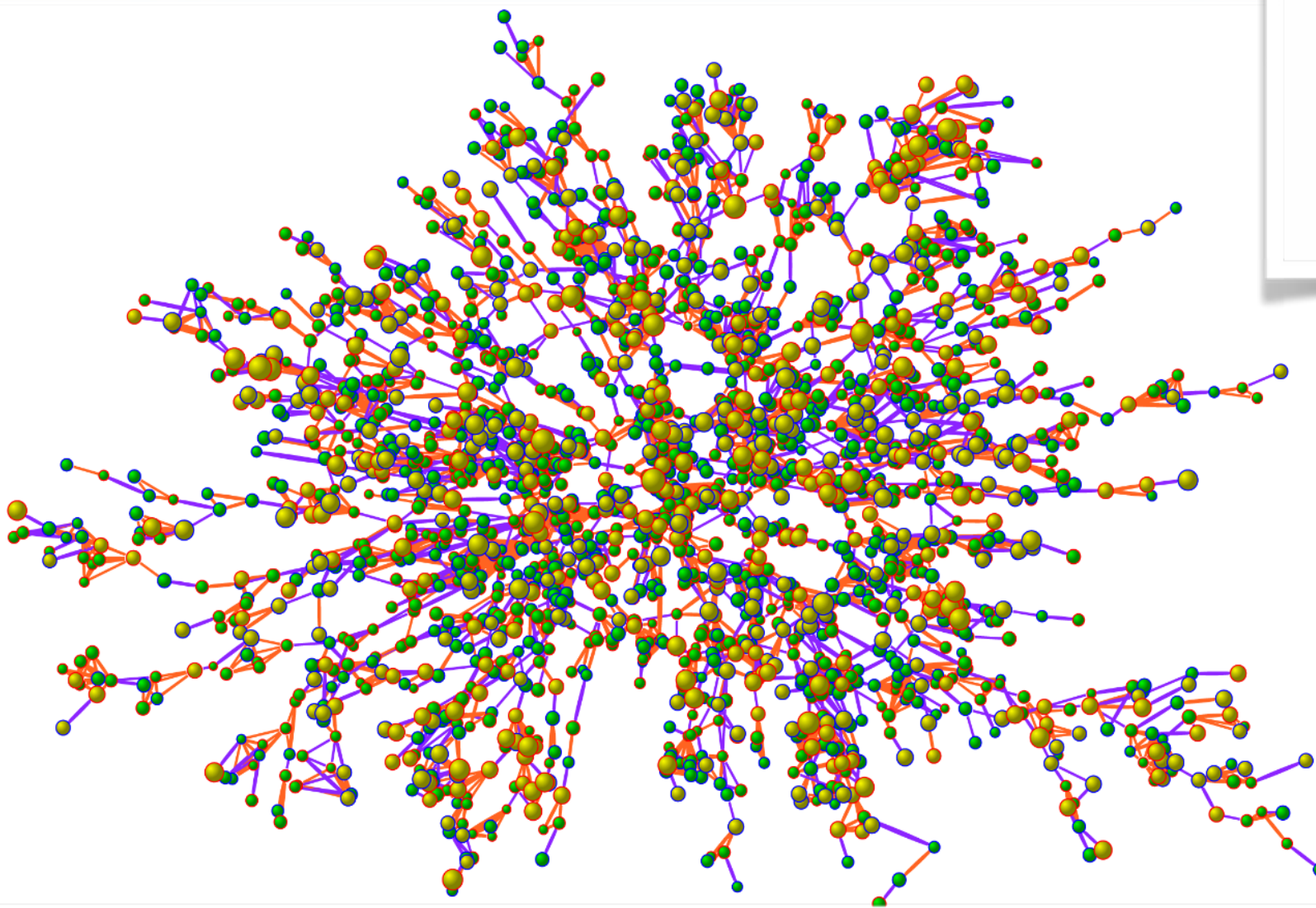
Social Networks

New creative possibilities

Behavioural logistics

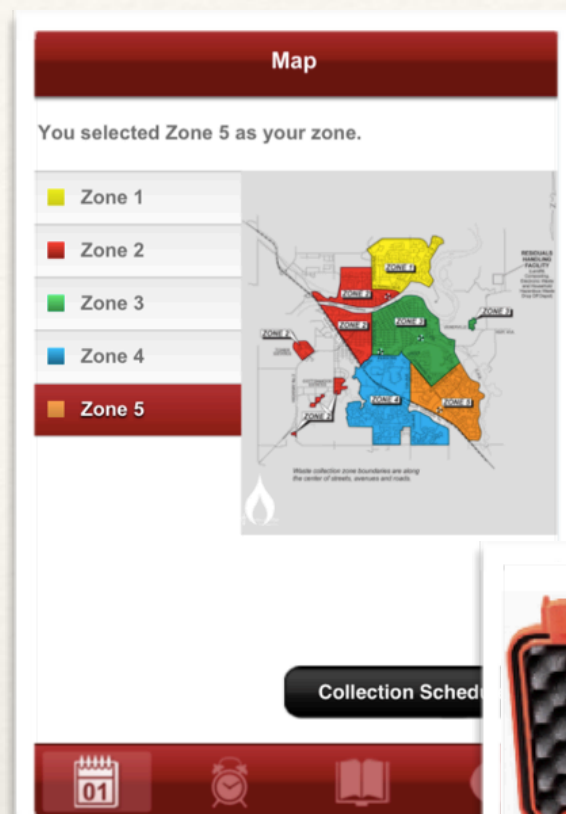


3 questions for recycling networks



Collaborative problem solving



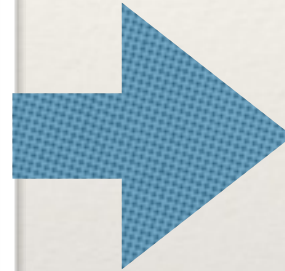


it is already here

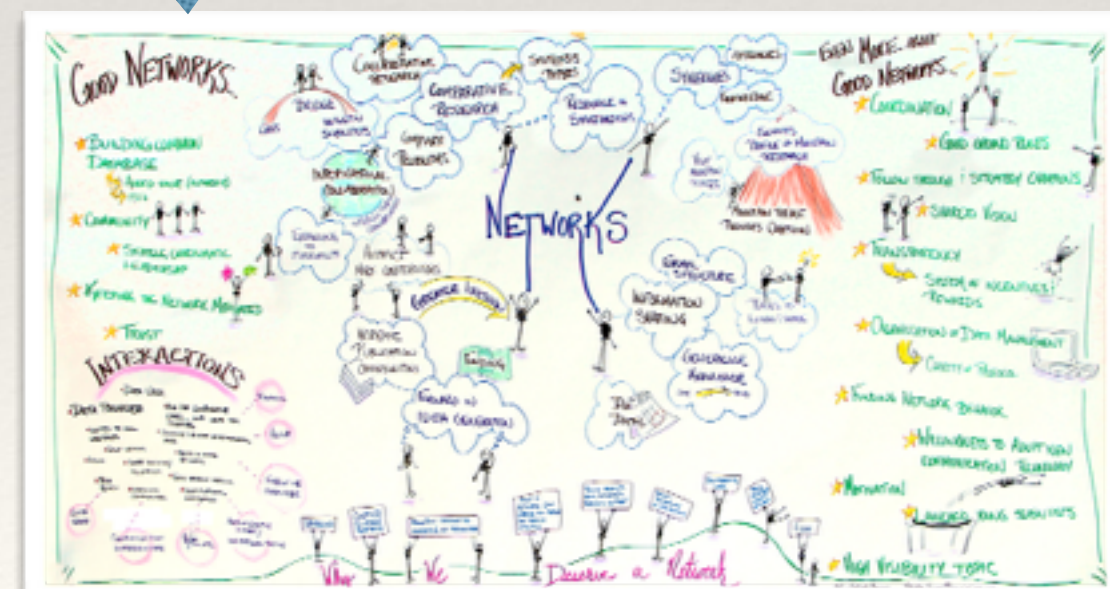
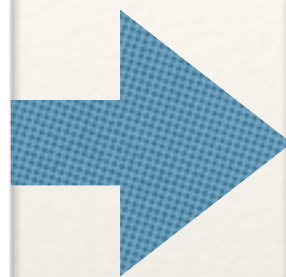
eWAS project, Seville

Sensors, mobile apps
and optimisation of
logistics in a single
package

We are in the middle of a shift...



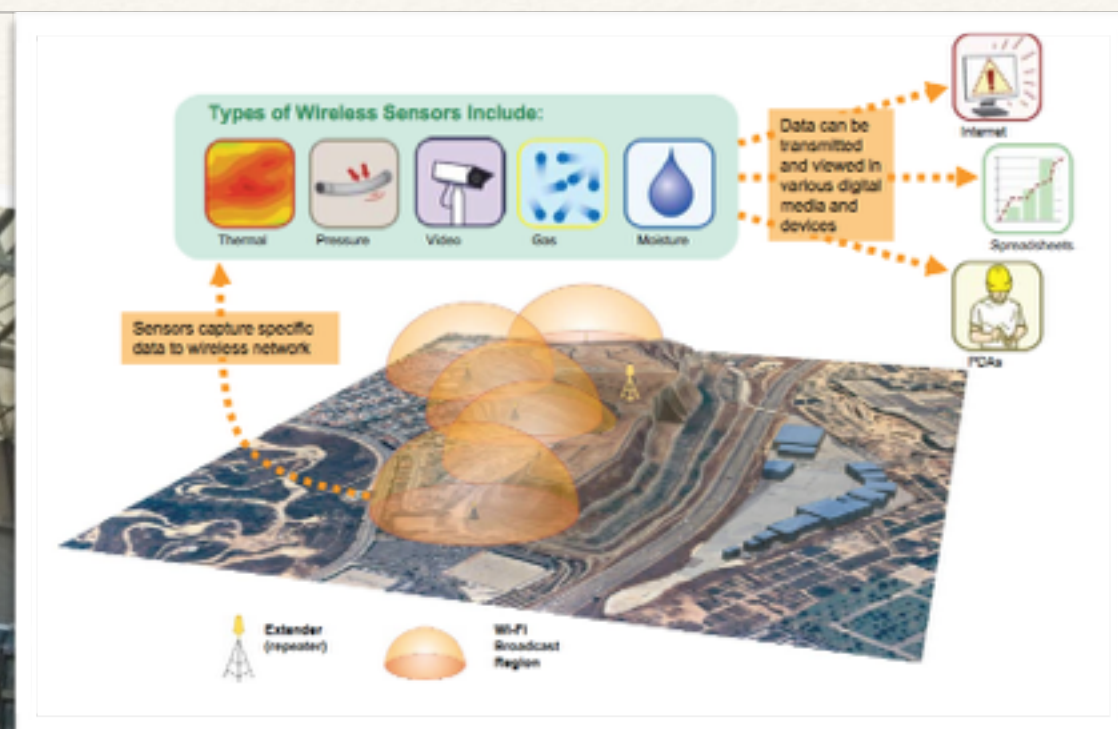
But we need one more shift...



Waste Management in an interconnected world

- ❖ ...Routing of vehicles through real time information on bins
- ❖ ...Automatic landfills continuously optimising biodegradation
- ❖ ...Refrigerators for food waste prevention
- ❖ ...Apps that connect recyclers to form neighbourhood teams
- ❖ ...Driverless robots filling empty bins
- ❖ ...Household waste dryers connected to fuel brokers
- ❖ ...Apps for household waste management plans
- ❖ ...Apps that manage food excesses from restaurants, hotels etc

Well, they are already here...



So what?

- ❖ A huge wave of change is coming
- ❖ It will change the landscape in business and public governance
- ❖ It will create new challenges and new threats
- ❖ But, no matter if we like it or no, we have to ride it and utilise it for sustainable waste management purposes

Celebrate ISWA 2014 World Congress

Thank you!!!

