DREAM BIG

Dr Shoumen Datta

The wealth of nations can't depend only on castles in the cloud.

Uber — The world's largest taxi company, owns no vehicles.

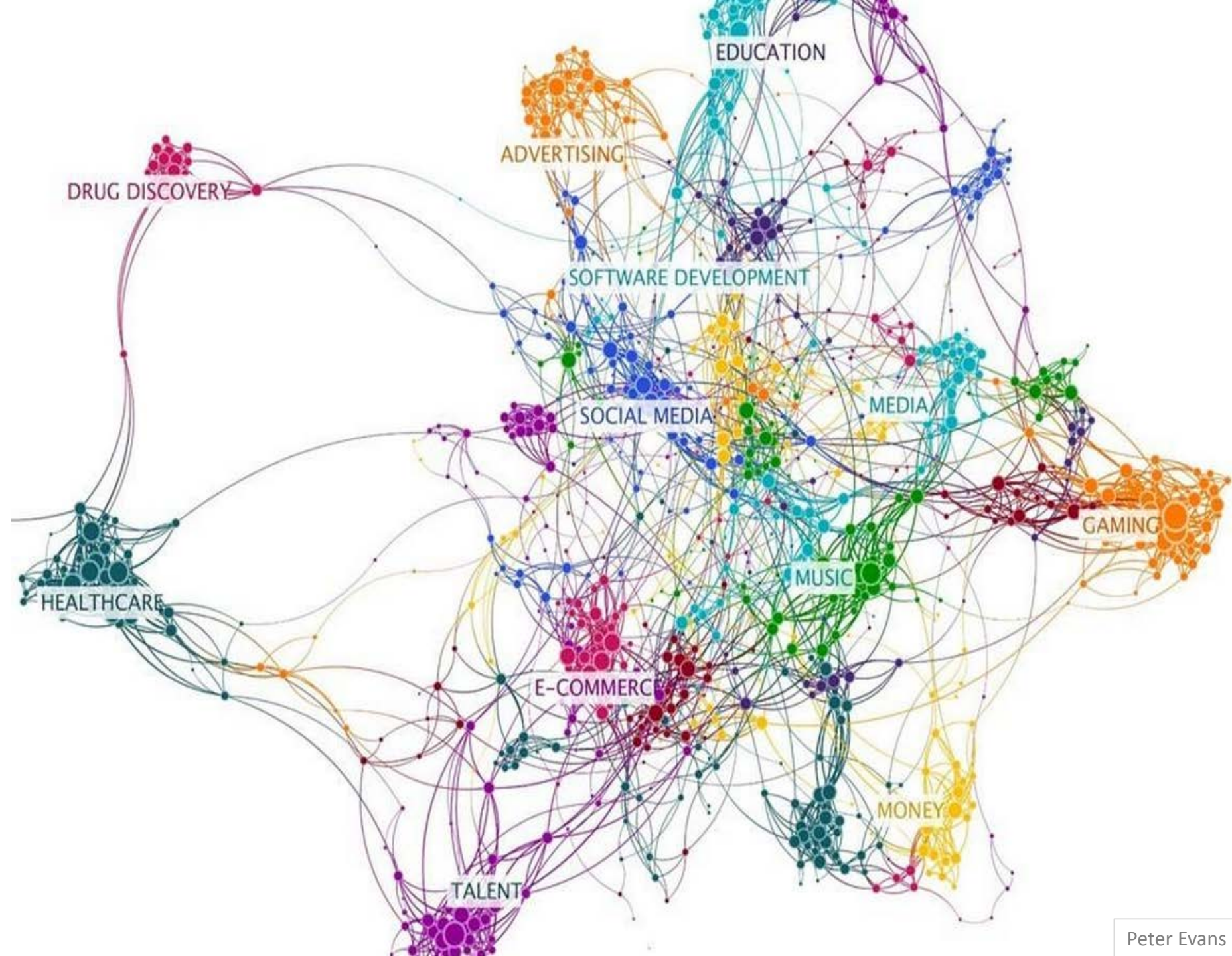Facebook — The world's most popular media owner, creates no content.

Alibaba — The most valuable retailer, has no inventory.

Airbnb — The world's largest accommodation provider, owns no real estate.

EMERGING
PLATFORM
ECONOMY

Peter Evans

IIC ● March 25, 2015

http://bit.ly/RESTON-PDF

In progress

SMART CITIES   http://bit.ly/GLOBAL-SIM-CITIES

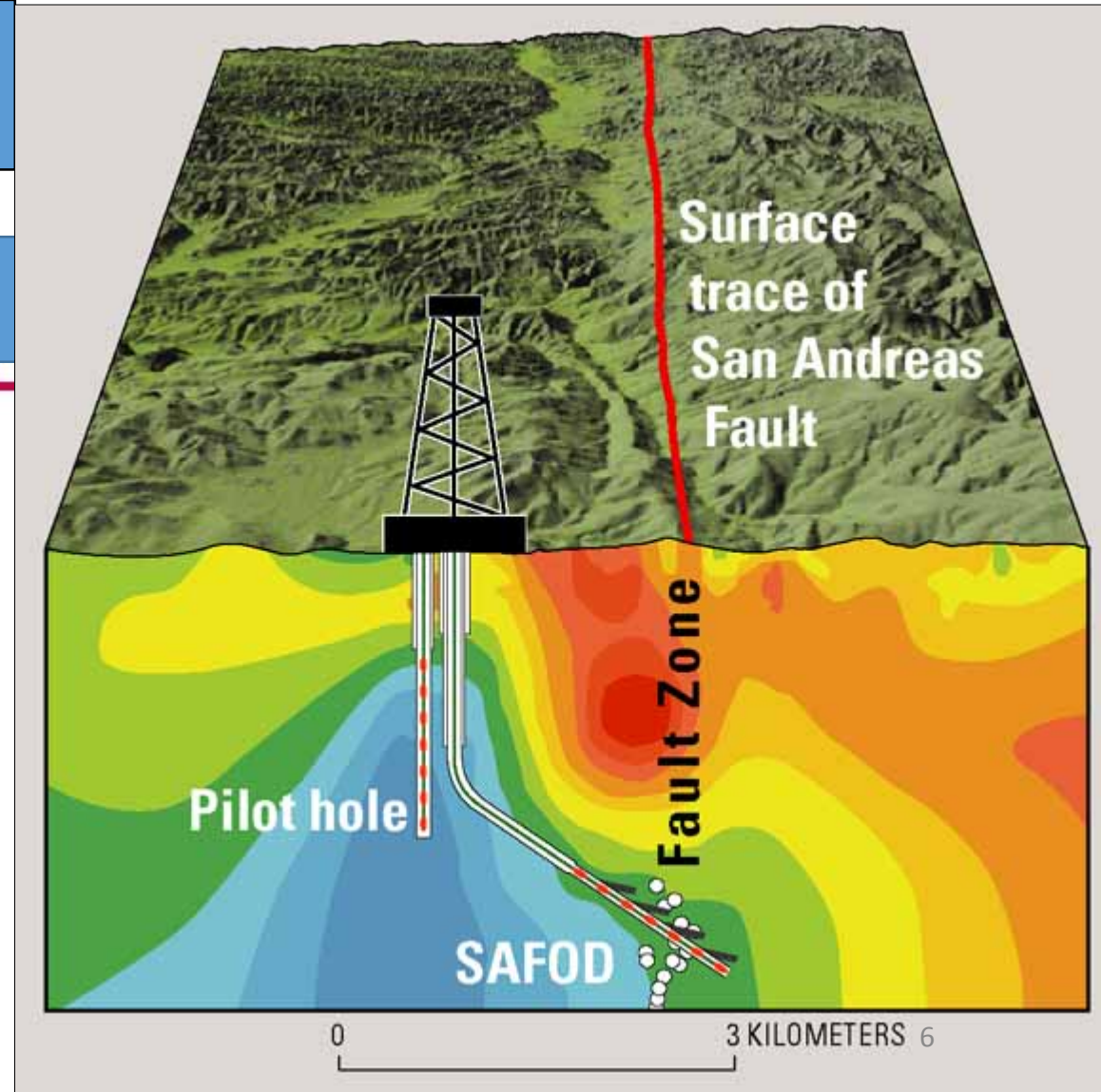TRANSPORTATION http://bit.ly/DOT-DOT-DOT

HEALTHCARE http://bit.ly/HIP-HIP-HIP
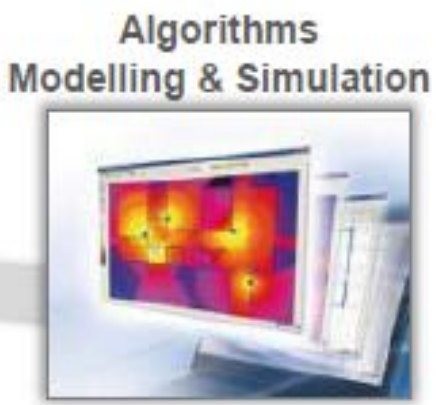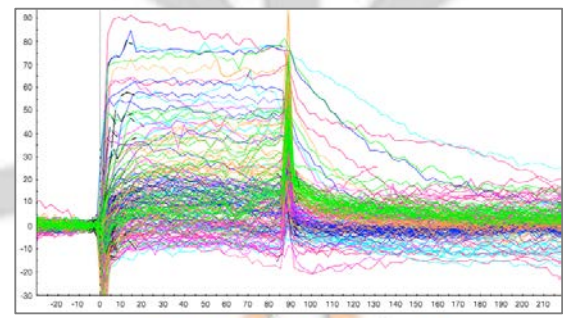
SMART CITIES ● http://bit.ly/GLOBAL-SIM-CITIES

Seismic and Infrastructure Monitoring

Buildings

Bridges and Roads

Water/Sewer

Surface trace of San Andreas Fault

Pilot hole

Fault Zone

SAFOD

0   3 KILOMETERS

Sensor Data

Incident Data

Communications Network Data

FEMA

Wireless Carriers

Infrastructure

Algorithms Modelling & Simulation

Data Fusion and Sense-Making Platform

Emergency Alert
Tornado Warning in this area until 6:30 PM. Take Shelter. Check Local Media. -NWS

Domain 1

Domain 2

. . .

Domain N

7
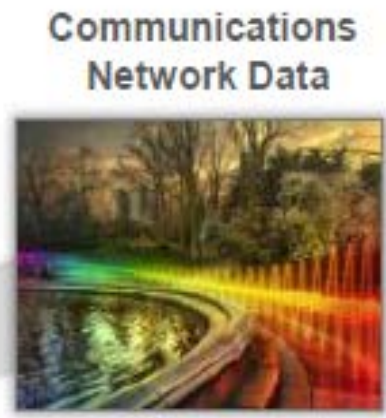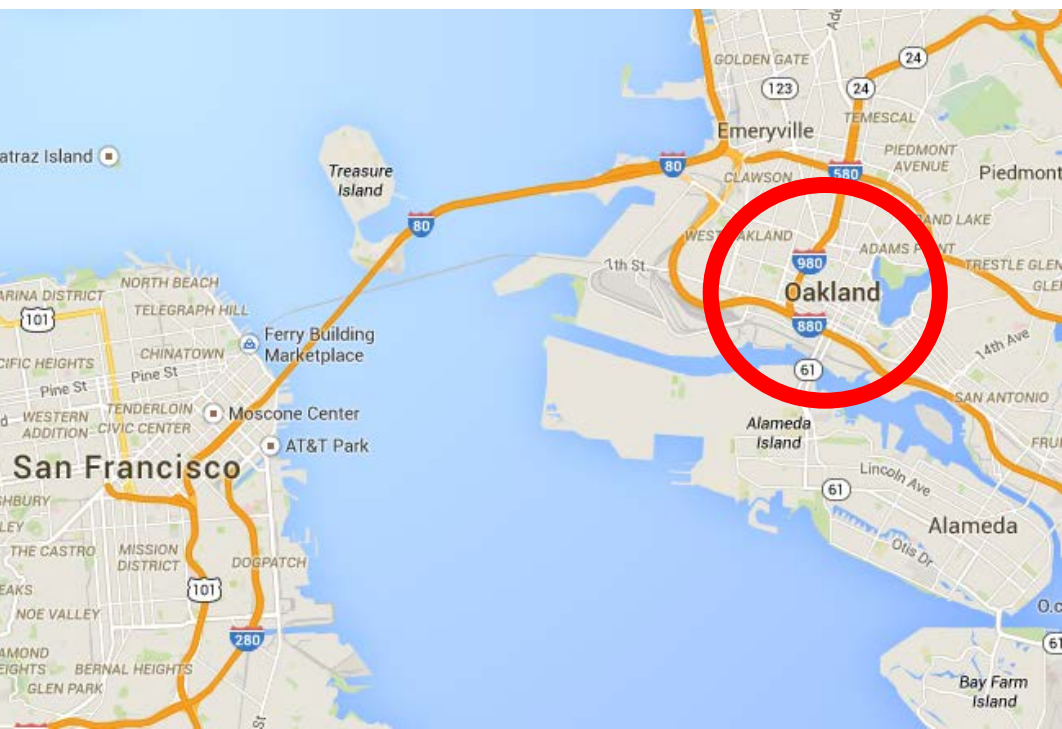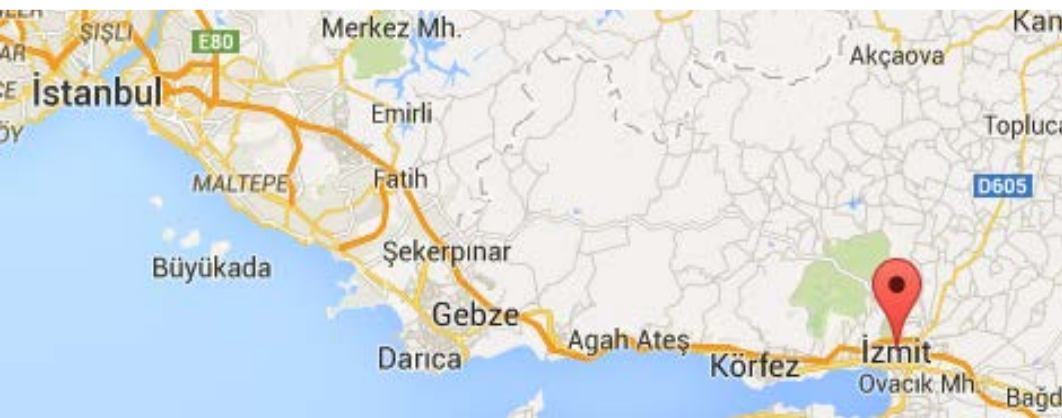
SMART PLATFORMS

CONDITION MONITORING

TRANSPORTATION ● http://bit.ly/DOT-DOT-DOT
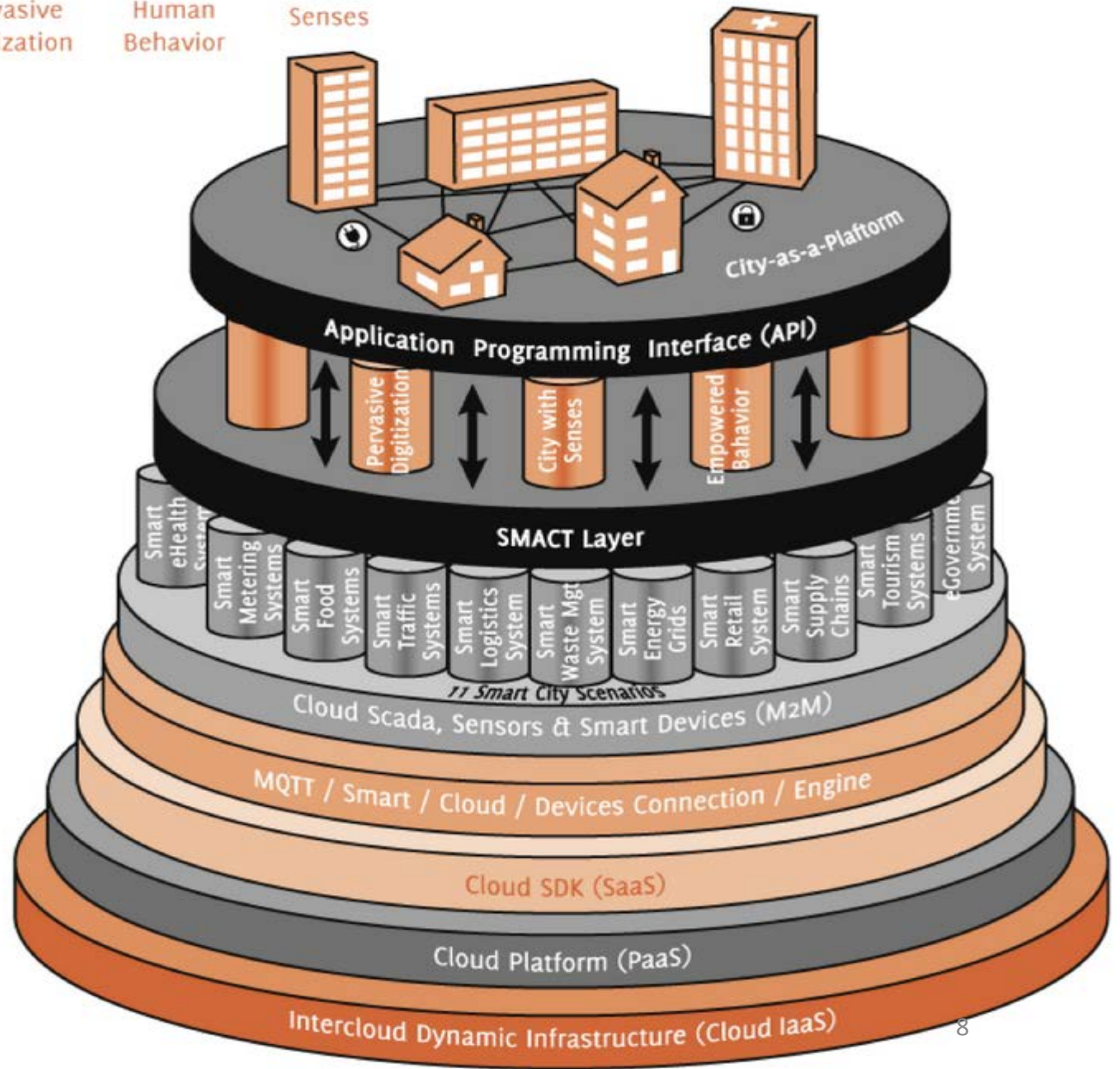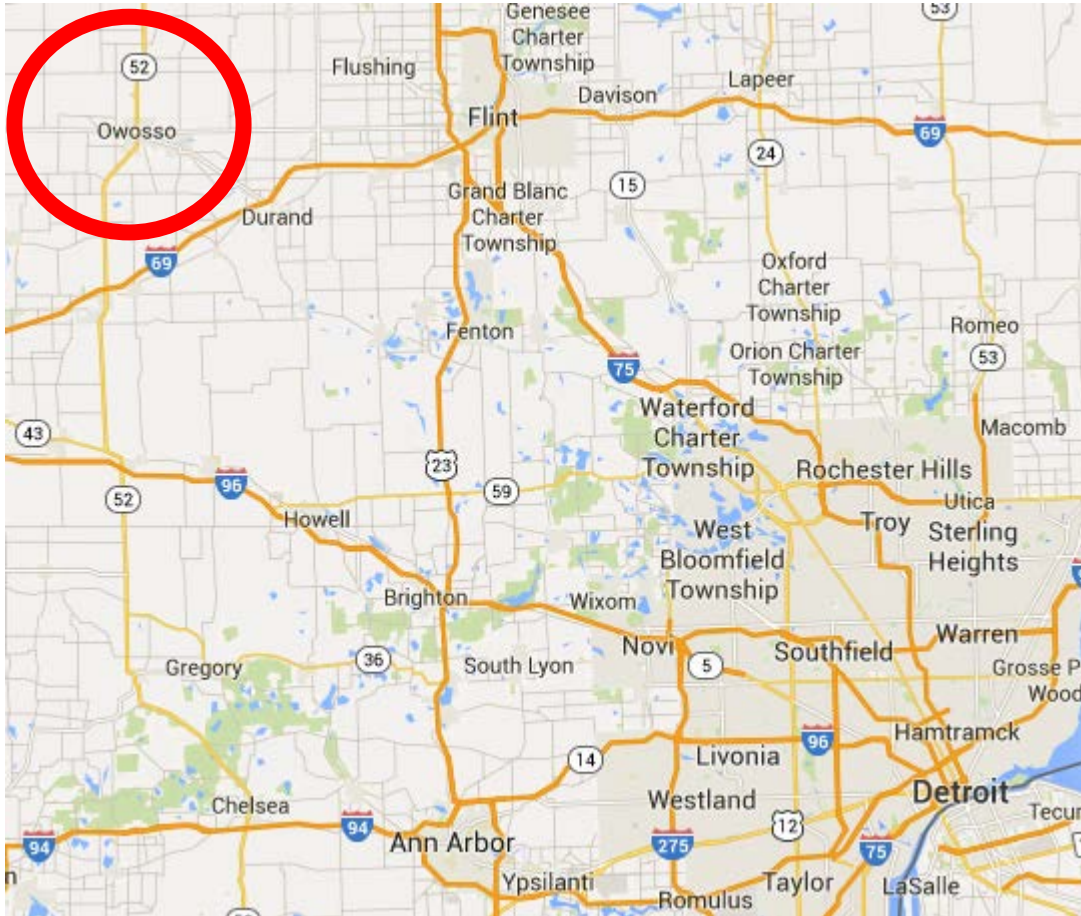
ENTERPRISE WEB
GALOIS
MSFT
MIT
NI
RTI
TECHMAHINDRA
VANDERBILT UNIVERSITY

TRANSPORTATION ● http://bit.ly/DOT-DOT-DOT

www.wired.com/2015/03/delphis-self-driving-car-taking-cross-country-road-trip/

WIRED

An Autonomous Car Is Going Cross-Country for the First Time

Arrives in New York today April 2, 2015

ALEX DAVIES   GEAR   03.13.15   6:19 PM

AN AUTONOMOUS CAR IS GOING CROSS-COUNTRY FOR THE FIRST TIME

MARCH 22, 2015

S   Semi

A   Autonomous

F   Freight

T   Transportation

I   Initiative

What we are thinking – SDV – Software Defined Vehicles

UBIQUITOUS DRIVING FUNCTION

Drive to Anywhere
Drive from Everywhere

Cars That Think | Transportation | Self-Driving

Tesla Model S: Summer Software Update Will Enable Autonomous Driving

By Evan Ackerman

Posted 23 Mar 2015 | 14:00 GMT

⊞ Share | ✉ Email | 🖶 Print

Cars That Think

IEEE Spectrum's blog about the sensors, software, and systems that are making cars smarter, more entertaining, and ultimately, autonomous.

Contact us: p.ross@ieee.org

11

UBIQUITOUS DRIVING FUNCTION

- Potential partners - a "wish list" based on preliminary conversations:

• Intel	US Department of Transportation
• National Instruments	Massachusetts Institute of Technology
• Ottomatika	Carnegie Mellon University
• Ford	Instituto de Biomecánica de Valencia
• Jaguar-Land-Rover	Loughborough University
• Navistar	Arada Systems
• TechMahindra	Delphi
• Caterpillar	Bosch

12

HEALTHCARE http://bit.ly/HIP-HIP-HIP

- Grand Challenge Healthcare – it is about convergence – http://bit.ly/NEURO-QWERTY
- It is an umbrella term for healthcare test beds

- HIP - abbreviation for Healthcare Integrated Platforms – www.openice.info
- Concept for healthcare test beds related to data integration – www.mdpnp.org

- GCH may include HIP test bed(s) such as ICE as well as other test beds for –
- Device and Imaging
- Data and Analytics
- Precision Medicine
- Wearables

How to use MDPnP ● ICE test bed at MGH-HMS

What we are thinking – Precision Farming Test Bed

- IoT and IIoT in agriculture is a part of the broad fabric of the Smarter Planet movement which catalyzed the "farm to fork" and "seed to mouth" scenarios. Major farm equipment manufacturers are leading the charge in this domain by introducing sophisticated data communication with farming equipment (eg John Deere). In this new attempt, we may also include NASA SMAP data.

- Precision Farming attempts to synthesize the data relevant to users (farmers) in an accessible visualization template which can connect to or may be in addition to on-board data and analytics.

- For a preview, please explore "Internet of Systems" under the Smart Cities section – see page 3 (please download the PDF which is at the bottom of the list here http://bit.ly/MIT-IOT)

- Would you like to join this coalition and contribute to the precision farming test bed initiative?

- US Department of Agriculture - NIFA ● September 30, 2015 ● Funding $116M

- http://bit.ly/PRECISION-FARMING ● http://smap.jpl.nasa.gov/

http://bit.ly/OPPORTUNITIES

EU Healthcare ● April 21, 2015 ● Funding range €3-15M ● Healthcare Integrated Intelligent Platforms

http://bit.ly/H2020-Healthcare

EU Smart Cities ● May 5, 2015 ● Funding range €18-50M ●

http://bit.ly/H2020-SmartCity

EU Cybersecurity ● August 27, 2015 ● Funding range €3-15M ●

http://bit.ly/H2020-Security

EU Critical Infrastructure Protection DRS-15-2015 ● August 27, 2015 ● Funding range €82M

http://bit.ly/H2020-INFRASTRUCTURE

EU Critical Infrastructure Protection DRS-03-2015 ● August 27, 2015 ● Funding range €50M

http://bit.ly/H2020-ICT-INFRASTRUCTURE

EU Mobility / Transport ● Oct 15, 2015 ● Funding range €1-5M ●http://bit.ly/H2020-MG-ANALYSIS-SD

http://bit.ly/H2020-Transport

Topics	2015 EUR million	HORIZON 2020 WORK PROGRAMME 2014 – 2015 — 11. Smart, green and integrated transport Revised
MG.3.6(CSA part)	1.00	Single stage
MG.3.6(RIA part)	22.00	Two stage
MG.5.5(IA part)	54.50	Two stage
MG.5.5(CSA part)	3.00	Single stage
MG.8.3	13.00	Single stage (Public Procurement of Innovative Solutions)
MG.8.4(RIA or IA part)	3.00	Two stage
MG.8.4(CSA part)	1.50	Single stage

Topics	Dates	
MG.3.5(CSA part), MG.7.2(CSA part), MG.8.1(CSA part), MG.8.2(CSA part), MG.9.6 — **Single stage example**	Single stage 28/08/2014 at 17.00.00 Brussels time	
MG.3.6(CSA part), MG.5.5(CSA part), MG.8.3, MG.8.4(CSA part)	Single stage 15/10/2015 at 17.00.00 Brussels time	
MG.1.2, MG.3.6(RIA part), MG.4.3, MG.5.4, MG.5.5(IA part), MG.6.3, MG.8.4(RIA or IA part)	First stage 23/04/2015 at 17.00.00 Brussels time	Second stage 15/10/2015 at 17.00.00 Brussels time

HORIZON 2020 WORK PROGRAMME 2014 – 2015 — 11. Smart, green and integrated transport Revised

There are two distinct calls for 3.6
3.6a is the Two-stage RIA   Type of action: 1) Research and Innovation Actions; 2) Coordination and Support Actions
3.6b is the Single-stage CSA   Type of action: Coordination and Support Actions

http://ec.europa.eu/research/participants/portal/doc/call/h2020/common/1617614-part_11_transport_v2.0_en.pdf

MG-8.3 ● € 1 – 5+ million, deadline Oct 15, 2015

ITS PROCUREMENT

Scope: Actions should lead to the improvement and capacity building in the field of public purchasing of innovative solutions in transport infrastructure leading to implementation of best available solutions on cross-border TEN-T network and other business cases representative of typical European situations. Proposals should be driven by clearly identified procurement needs of infrastructure owners (the procurers), including life-cycle and cost-benefit assessments and environmental impacts under the life-cycle perspective, and should effectively control budget across various European regions. The work should contribute to the revision /development of relevant standards and regulatory framework, and to study strategies oriented to favour the innovation in transport sector. Good practices should be made available for replication.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 to 5 million each would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact: The selected actions are expected to:

·   Serve as pilot projects to demonstrate the effectiveness and reliability of advanced (long-life) technological solutions in reducing the total cost and risk of ownership of transport, the environmental impact and the effectiveness of new supply chain models and contractual arrangements.

·   Allow for a better coordinated dialogue between procurers and suppliers contributing to long-lasting stakeholder partnerships with clearly defined roles and responsibilities.

·   Contribute to competence building in the sector by enabling public procurers to improve their knowledge about available innovative solutions and leveraging the benefits of European cooperation in exchanging experience in procurement practices.

·   Build a coherent basis for progressive step changes to regulation, standardisation and public procurement practices fostering innovation and sustainability in transport infrastructure.

http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2647-mg-8.3-2015.html#tab1

http://bit.ly/OPPORTUNITIES

US NSF ● April 30, 2015 ● Funding range $2-7M ● Medical IoT Platform ● http://bit.ly/MEDICAL-IOT

http://bit.ly/NSF-15-541-DUE-APRIL-30

US ARMY MATERIEL COMMAND ITA ● August 31, 2015 ● Funding range $100M ● US-UK

http://bit.ly/USAMC-ITA-DUE-AUG-31

US Department of Agriculture - NIFA ● September 30, 2015 ● Funding range $116M

http://bit.ly/PRECISION-FARMING

US NSF National Robotics Initiative ● December 3, 2015 ● Funding range $0.1M - $7.0M

http://bit.ly/NSF-NRI-DEC-03-2015

US NSF Computational Mathematics ● December 15, 2015 ● Funding range $0.1M - $7.0M

http://bit.ly/COMPUTATIONAL-MATH-DEC-2015

US DOD ● ONR ● Funding range - open

http://bit.ly/ONR-BAA-OPEN

US NSF Algorithms in the Field ● February 15, 2016 ● Funding range $0.4M - $0.8M

http://bit.ly/NSF-APPLIED-ALGORITHMS

Find Open Grant Opportunities

» Agriculture (51)

» Arts (see "Cultural Affairs" in CFDA) (5)

» Business and Commerce (16)

» Community Development (27)

» Consumer Protection (13)

» Disaster Prevention and Relief (18)

» Education (485)

» Employment, Labor and Training (34)

» Energy (35)

» Environment (190)

» Food and Nutrition (155)

» Health (1169)

» Housing (8)

» Humanities (see "Cultural Affairs" in CFDA) (21)

» Income Security and Social Services (221)

» Information and Statistics (17)

» Law, Justice and Legal Services (65)

» Natural Resources (168)

» Other (see text field entitled "Explanation of Other Category of Funding Activity" for clarification) (93)

» Recovery Act (5)

» Regional Development (16)

» Science and Technology and other Research and Development (419)

» Transportation (15)

US Government

As of April 2, 2015

THE INDUSTRIAL INTERNET

INTELLIGENT MACHINES

NETWORK INTELLIGENCE DISTRIBUTION
OPERATING SYSTEM UPDATES

INTELLIGENT DEVICES
INTELLIGENT DECISIONING
ACTUATORS
ADVANCE SYSTEM CONTROL
TASK SPECIFICATION
PERCEPTION SYSTEMS
COGNITIVE SYSTEMS
INTELLIGENT SENSING
INTELLIGENT SYSTEMS

ADVANCED ANALYTICS

DATA HARMONIZATION
PREDICTIVE MODELING
DATA MANAGEMENT
ADVANCED SOFTWARE APPLICATION
FORECASTING
KNOWLEDGE MODELS
PATTERN ANALYTICS
TEXT DATA ANALYTICS
SEGMENTATION

PEOPLE AT WORK

HEALTH CARE DELIVERY
OPTIMAL ENVIRONMENT
SCHEDULE MANAGEMENT
MANUFACTURING
PERFORMANCE MANAGEMENT
TALENT MANAGEMENT
ADVANCED TRAINING
PROGRESS ANALYSIS
PROGRESSIVE EDUCATION

NETWORK OPTIMIZATION

ASSET OPTIMIZATION

FACILITY OPTIMIZATION

SUBSTANTIAL SAVINGS

INCREASED EFFICIENCY

PREDICTIVE MAINTENANCE

DECREASED DOWNTIME

- Vision, Mission and Opportunities

  https://hbr.org/2014/11/setting-standards-for-the-internet-of-things

- Challenges
  - ☑ Transportation (SDV)

  - ☑ Smart Cities

  - ☑ Healthcare

  - ☑ Data

IoS

So many grand challenges, so little time, even less money

This is the true joy in life, the being used for a purpose you consider a mighty one, the being a force of nature rather than a feverish, selfish clod of ailments and grievances complaining that the world won't devote itself to making you happy.   [GBS]

**Please send your questions, comments and criticisms to Dr Shoumen Datta**

datta@iiconsortium.org

Vision + Perseverance

The presentation in the preceding pages are not at all a blueprint for success. It is an amorphous collection of clues designed to provide strategic guidance to create multiple paths for confluence of concepts which may seed potential economic growth through new lines of business. However, the material is irrelevant and your actions will be inconsequential unless you have the dynamic vision necessary to invest and if you do not have the strength to believe in the quintessential need to persevere as illustrated in the last page of this PDF.

USERS (MILLIONS)

Olo hit 10 million users on April 2, 2015. It took 2,229 days to get the 1st million. 47 days to get to the last

10 MILLION USERS!

olo

2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015
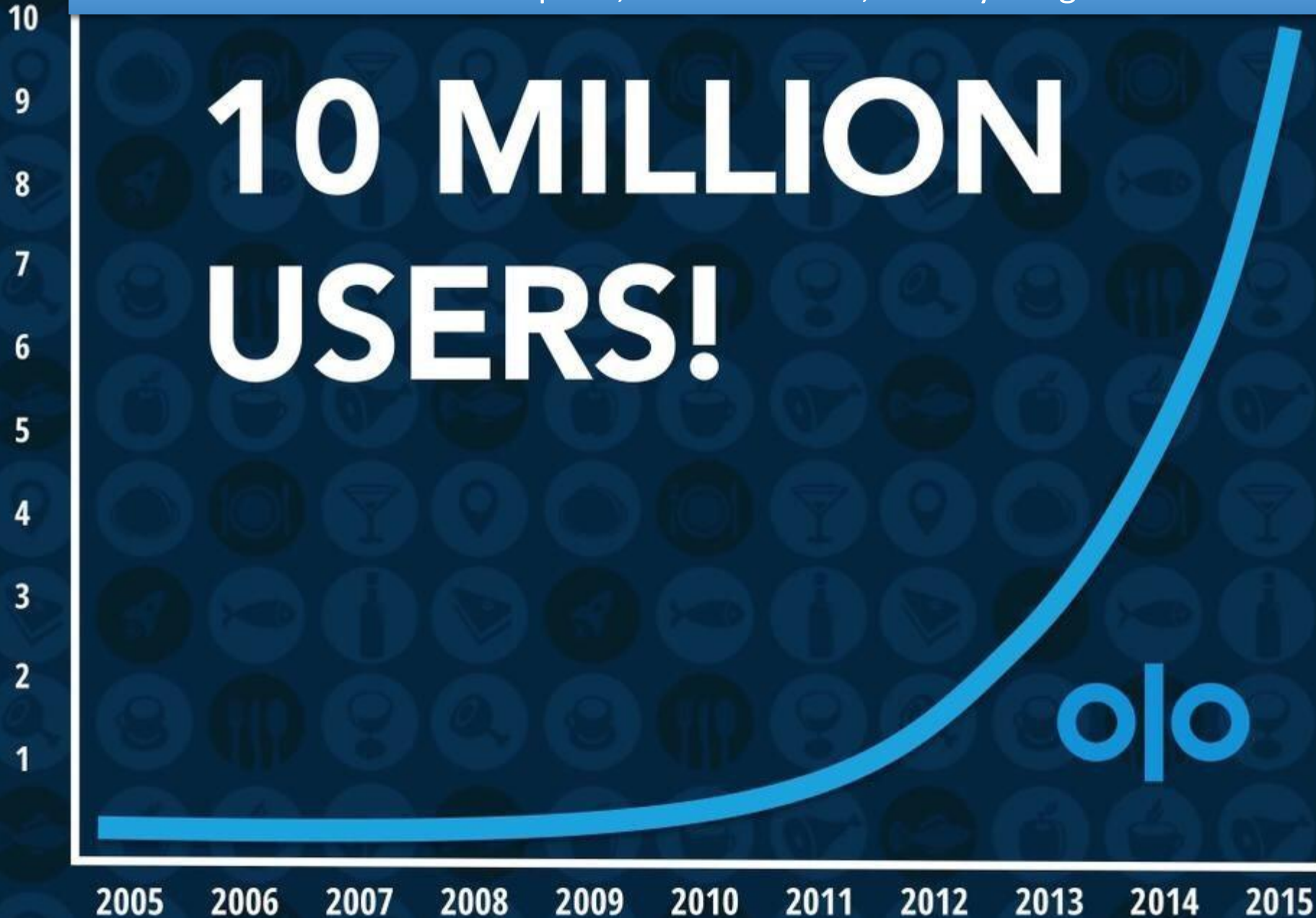
But was the Newton a failure? The timing of Newton's entry into the handheld market was akin to the timing of the Apple II into the desktop market. It was a market-creating, disruptive product targeted at an undefinable set of users whose needs were unknown to either themselves or Apple. On that basis, Newton's sales should have been a pleasant surprise to Apple's executives: It outsold the Apple II in its first two years by a factor of more than three to one. But while selling 43,000 units was viewed as an IPO-qualifying triumph in the smaller Apple of 1979, selling 140,000 Newtons was viewed as a failure in the giant Apple of 1994.

http://bit.ly/INNOVATORS-DILEMMA